

## STAFF REPORT

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E. Tajer

### **CONSIDER ACCEPTANCE OF THE LONG BEACH UNIT ANNUAL PLAN (JULY 1, 2020 THROUGH JUNE 30, 2021), LONG BEACH UNIT, WILMINGTON OIL FIELD, LOS ANGELES COUNTY**

#### **GRANTEE:**

City of Long Beach

#### **BACKGROUND:**

The City of Long Beach (City), as Unit Operator and Trustee for the State, and THUMS Long Beach Company, the City's Field Contractor's agent (Agent), have submitted the Annual Plan (July 1, 2020 through June 30, 2021) for the Long Beach Unit (LBU) to the Commission, as required by Chapter 138, Statutes of 1964, 1<sup>st</sup> Extraordinary Session, Chapter 941 of the Statutes of 1991, and the Optimized Waterflood Program Implementation Agreement (OWPA). The Annual Plan is a proposed budget for the LBU, by cost categories, and is meant to be consistent with the 5-Year Program Plan developed by the City and its Field Contractor, California Resources Long Beach, Inc. (Field Contractor).

On March 17, 2020, the Long Beach City Council adopted the proposed Annual Plan and authorized formal submission to the Commission. The Commission formally received the plan on March 18, 2020. As provided by Chapter 941, the Commission has 45 days to review the Annual Plan for consistency with the budget parameters of the 5-Year Program Plan, accepted by the Commission in April 2019 ([Item C62, April 5, 2019](#)). The Commission may order changes in the Annual Plan budget where necessary to ensure consistency of the budget 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 May 2, 2020.

#### **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 plan submitted by the City covering Fiscal Year 2020-2021. It is an itemized budget of anticipated expenditures needed to carry out the Program Plan objectives. There are five

## STAFF REPORT NO. 62 (CONT'D)

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 \$289.4 million is 1.5 percent less than the 2019-2020 budget of \$294 million. Based on the analysis below, staff believes that the proposed Annual Plan is consistent with the objectives in the Program Plan. But recent volatility in the oil market may require monitoring the effect on the LBU operations and may require future revisions to the Program Plan.

### **ENVIRONMENTAL AND SAFETY REVIEW:**

The adequacy of the safety and environmental protection of the LBU is monitored and evaluated by staff by conducting monthly Safety and Pollution Prevention (S&PP) inspections and periodic S&PP audits. The monthly inspections verify the performance of the alarm, control, and automatic shutdown sensors and systems, and the spill response and life safety equipment and systems. The safety audits augment the inspections with an analysis of the technical design of a facility's automatic shutdown and alarm and control safety systems, review of maintenance practices and schedules, vessel and piping condition assessment inspections, training and certification programs, and operating procedures and emergency response manuals. A Safety Analysis of Management Systems human error factor evaluation is also conducted through a series of interviews with a cross-section of LBU and contractor employees to assess the degree of integration of established safety and spill prevention programs and the maturity of corporate safety management culture.

After the safety audit engineers complete the field work for the audit, the data gathered is evaluated to determine compliance with Commission regulations and industry codes, and an action item matrix is developed that prioritizes the findings into three ranks by risk. A final report is prepared and sent to LBU management describing the audit procedures and findings, with the action item matrix attached. Time periods to resolve the action items, according to the risk presented, are included in the report to management. During the follow-up phase, completion of the action items is tracked and verified by safety audit engineers.

The LBU is currently in the follow-up phase of the third round of safety audits. In 2002, the first round of audits found a total of 3,197 action items. In 2012, the second round found 1,506 action items. In 2017, the current round, 602 action items were found. None of the current-round action items are priority one high risk. Seventeen percent are priority two moderate risk and they have all been resolved. Eighty-three percent are priority three low risk, and all but two of these have been resolved.

## STAFF REPORT NO. 62 (CONT'D)

The substantial decrease in action items demonstrates the value of performing these Commission staff-conducted safety audits, as well as the Field Contractor's and the City's continuing commitment to maintain safe and pollution free operations of the LBU.

Also, in response to the COVID-19 pandemic, the Field Contractor has implemented precautionary actions to protect the health of its workforce and their communities. The actions include instructing office-based employees to work from home and establishing a toll-free number for the employees and contractors to hear the status of operations, in addition to regular update meetings, calls and emails.

The Field Contractor will sustain the operations so long as it has available employee and contractor staffing to safely operate; and if it cannot sustain full operations safely, it will prioritize plants and fields to continue operating and will alert the Commission accordingly.

### **ECONOMIC PROJECTIONS IN ANNUAL PLAN:**

The economic projections within the Annual Plan are consistent with the projected operations identified in the Program Plan. For 2020-2021, the City estimates the LBU net income will be \$63.4 million after total expenditures of \$289.4 million. This net income projection is based on the City's crude oil price forecast of \$55 per barrel (bbl) and a natural gas price of \$2 per thousand cubic feet (mcf). Most of the net income will be from oil revenues. The City forecasts oil production to average 17,300 bbl/day in Fiscal Year 2020-2021. This rate assumes the continuation of development activity to involve a total of 39 wells being re-drilled from existing wellbores over the Annual Plan period (compared with 52 wells originally forecasted in the Program Plan).

***Table 1- Annual Plan vs. Program Plan (FY 20-21)***

<b>Key Factors</b>	<b>Annual Plan FY 20-21</b>	<b>Program Plan FY 20-21</b>	<b>% of Change</b>
Average oil rate (bbl/day)	17,300.00	18,900.00	-8.5%
Expenditure (\$ Million)	289.40	326.80	-11.4%
Revenue (\$ Million)	352.90	385.80	-8.5%
Net Profit (\$ Million)	63.50	59.00	7.6%
Oil Price \$ per bbl	55.00	55.00	0.0%

## STAFF REPORT NO. 62 (CONT'D)

Expenditure levels and the types of development projects will be adjusted as necessary to respond to fluctuations in oil price and other economic conditions. Pursuant to article 2, paragraph 2.07 of the OWPA, the Field Contractor may exceed any budget category in the Plan budget up to 120 percent without obtaining additional authority from the City and the Commission.

### **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 \$55/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, Agent, and the other working interest owners. Estimates prepared by staff for State revenue projections for Fiscal Year 2020-2021 use an oil price forecast that reflects the current commodity price environment. The price for LBU crude oil in February 2020 averaged \$50/bbl.

### **REVIEW OF ANNUAL PLAN:**

Starting in February 2020, severe economic disruptions occurred in the oil and gas market. The COVID-19 pandemic created a sharp decrease in demand while a glut in worldwide oil supplies persists. These factors have reduced the sales value of LBU oil to below \$30/bbl. The City believes that relying on an assumption of \$55/bbl oil during the 2020-2021 Fiscal Year is appropriate for preparing the Annual Plan budget because the plan will not become effective until July 1, 2020, when oil prices may stabilize.

Because the Annual Plan is important for forecasting the future of the field and anticipated revenue, staff believes it is important for the LBU to consider scenarios involving a lower oil value and its impacts on capital expenditures and projected value. On March 17, 2020, staff sent the City a letter requesting analysis on how the LBU's annual expenditures, revenues, and project plans may change, assuming oil remains at a depressed value (see Exhibit C). The City provided updated calculations that, while not replacing the proposed budget of the Annual Plan, provide a possible outlook for the LBU during Fiscal Year 2020-2021 (see Exhibit D). Table 2 summarizes the submitted Annual Plan and the outlook at \$30 per barrel oil price.



**STAFF REPORT NO. 62 (CONT'D)**

**Table 2 - Long Beach Unit Annual Plan Outlook Scenarios for FY 20-21 (\$ Million)**

Items	Oil Price \$55/bbl	Oil Price \$30/bbl	Variance
Development Drilling	\$76.90	\$0	\$(76.90)
Operating Expense	\$90.20	\$66.00	\$(24.20)
Facilities, Maintenance, and Plant	\$56.40	\$45.70	\$(10.70)
Unit Field Labor and Administrative	\$39.70	\$37.60	\$(2.10)
Taxes, Permits, and Administrative Overhead	\$26.20	\$20.10	\$(6.10)
Total Expenditure	\$289.40	\$169.40	\$(120.00)
Revenue	\$352.90	\$180.00	\$(172.90)
Net Profit	\$63.50	\$10.60	\$(52.90)

Because of the significant effects that a depressed oil price may have on the LBU's budget, capital expense, and drilling program, and on net revenues, staff plans work closely with the City and Contractor to monitor and assess the impacts to the LBU and to recommend changes, if appropriate, to the next Annual Plan and the Program Plan when they are considered by the Commission during next year's mid-program update.

Staff finds that the Annual Plan is consistent with the budget objectives outlined in the Program Plan. Staff believes the Annual Plan is consistent with good oil field practice. The Annual Plan is based on all engineering and geologic information available at the time of preparation. To ensure that the Annual Plan provides for good oil field practice, staff remains involved in ongoing LBU development activities and the planning of future activities. Staff involvement includes, among other things, monthly meetings of an engineering committee, voting parties, reservoir management consultation with the City and the Field Contractor, on-site inspector presence in the field, analysis of drilling safeguards involving blowout prevention equipment certification, oil spill prevention exercises, and subsidence monitoring and prevention.

In addition, staff believes the Annual Plan is consistent with the OWPA, the LBU Agreement, and the LBU Operating Agreement, as they pertain to development and operations, subsidence prevention, preparation and submittal of plans of development and expenditures, re-pressuring operations, and drilling schedules.

Staff, through field inspections, also finds that the Field Contractor adheres to industry codes and standards, including the American Petroleum Institute recommended practices, State oil and gas regulations, and safety and environmental regulations of all State and local governmental agencies having jurisdiction over LBU operations.

**STAFF REPORT NO. 62 (CONT'D)**

**OTHER PERTINENT INFORMATION:**

1. Acceptance of the LBU 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).

2. This action is consistent with Strategy 1.5 of the Commission's Strategic Plan to ensure the highest level of environmental protection and public safety in the production and transportation of oil and gas resources, by applying Key Action 1.5.2 to ensure lease and contract compliance with sound oil and gas development practices in compliance with regulatory and statutory requirements.

**EXHIBITS:**

- A. Letter from the City of Long Beach submitting the Long Beach Unit Annual Plan to the Commission
- B. Long Beach Unit Annual Plan (July 1, 2020 through June 30, 2021)
- C. Oil Price Comparison (Graph and Average Price Chart 2014 – 2020)
- D. Letter from the City of Long Beach submitting Long Beach Unit Annual Plan Updated Outlook Scenario (July 1, 2020 through June 30, 2021)

**RECOMMENDED ACTION:**

It is recommended that the Commission:

**AUTHORIZATION:**

1. Accept the Long Beach Unit Annual Plan (July 1, 2020 through June 30, 2021), Long Beach Unit, Wilmington Oil Field, Los Angeles County.
2. Direct staff to work with the City and Field Contractor to monitor and assess the impacts of fluctuating oil prices to the Long Beach Unit and to recommend changes, if appropriate, to the next Annual Plan and the Program Plan when they are considered by the Commission during next year's mid-program update.

## EXHIBIT A

W 17166

CITY OF  
**LONG BEACH**  
**ENERGY RESOURCES**

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

March 18, 2020

Ms. Marina Voskanian, Chief  
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, 2020 - JUNE 30, 2021)**

Dear Ms. Voskanian:

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 10 copies of the Long Beach Unit Annual Plan (July 1, 2020 through June 30, 2021).

The Plan was approved by the Long Beach City Council on March 17, 2020. If you have any questions, please contact Mr. Kevin Tougas at (562) 570-3963.

Sincerely,



ROBERT DOWELL, DIRECTOR  
LONG BEACH ENERGY RESOURCES DEPARTMENT

BD:kmt

Enclosures

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

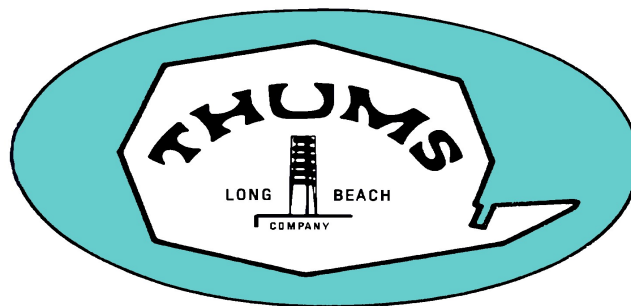
## Long Beach Unit

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



## ANNUAL PLAN

July 1, 2020 through June 30, 2021



# ANNUAL PLAN

July 1, 2020 through June 30, 2021

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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, 2020 through June 30, 2021 (“FY21”). 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:

<b>Plan Category</b>	<b>Fiscal Year 2020 – 2021 (\$ Million)</b>
Development Drilling	\$ 76.9
Operating Expense	\$ 90.2
Facilities, Maintenance, and Plant	\$ 56.4
Unit Field Labor and Administrative	\$ 39.7
Taxes, Permits, and Administrative Overhead	\$ 26.2
Total	<u>\$289.4</u>

## **A. Plan Basis**

This Plan was developed based on the parameters outlined in the Program Plan for the period July 2019 through June 2024 and provides current and updated estimates of volumes, activity levels and expenditures for FY21.

### **Volumes**

Oil and gas production volumes are predicted to average 17.3 Mbopd and 6.9 MMcfd, respectively, in FY21. Water production for the period is expected to average 1,111 Mbwpd and water injection is expected to average 1,156 Mbwpd.

### **Revenue and Expenses**

A projected realized oil price of \$55.00/bbl and gas price of \$2/mcf will result in revenues of \$352.9 million. Budgeted expenses for FY21 total \$289.4 million. Projected net profit in FY21 is \$63.4 million.

### **Drilling**

This Plan allows for drilling 39 new and redrilled development and/or replacement wells from existing cellars. The plan sets a drilling pace equivalent to approximately one and one half drilling rigs over the fiscal year. The rig utilization could potentially change due to variations in oil price and program performance. Workover rigs will perform drilling preparation and completion work.

The locations of production and injection wells to be drilled or redrilled are consistent with those given in the Program Plan (see attached Part II, Schedule 2B). 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 6 new 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 will be necessary 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 critical equipment in order to protect 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 what equipment and/or process components are critical (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 has outlived 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 and reflect a forecasted field life of over 30 years.



## **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, contractors and the public, and safeguards the environment in which it operates. In 2019, the National Safety Council awarded CRC THUMS Operations with an Occupational Excellence Achievement Award for achieving a lost workday case incident rate better than 50 percent of the industry average. The National Safety Council also awarded CRC THUMS the Perfect Record Award which recognizes an operating area completing at least 12 consecutive months without a company employee receiving an occupational injury or illness that resulted in days away from work. These achievements are further demonstrated in the key safety programs, which include incident reporting and investigation, safety meetings and training, Management of Change (MOC), Process Hazard Reviews (PHR's), emergency response planning and drills, and a behavior-based safety observation program. Key aspects of the environmental program include compliance with all laws and regulations, including South Coast Air Quality Management District ("SCAQMD") requirements, waste management and minimization, spill prevention plans and Business Emergency Plans (BEP's).

The effectiveness and compliance of the above programs are assured through various internal audit programs. In addition, numerous agencies conduct periodic audits, including the CA State Lands Commission, Department of Transportation, 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. CRC THUMS is participating in the re-occurring 5-year Safety and Oil Spill Audit, the main objective of which is to ensure that oil and gas production facilities are operated in a safe and environmentally sound manner. The current audit, which started in 2017, is nearing completion and will show that CRC THUMS has had continuous improvement in reducing findings and risk from

previous audits and embraces the responsibility to provide and maintain a safe and healthy work environment for all employees, and the community.

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 operations and each of the Islands received a Conservation Certification Silver Tier in 2018 by the Wildlife Habitat Council ("WHC"). This designation is awarded to facilities that provide for public education and involvement through wildlife related projects and learning opportunities on the facilities. In 2016, the Islands were presented by the WHC with the "Landscaping Project Award." These certifications and the national award received by the WHC demonstrate the Unit's continuing commitment to environmental stewardship and habitat conservation.

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.

### **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)

	BUDGET FIRST QUARTER <u>FY21</u>	BUDGET SECOND QUARTER <u>FY21</u>	BUDGET THIRD QUARTER <u>FY21</u>	BUDGET FOURTH QUARTER <u>FY21</u>	BUDGET TOTAL <u>FY21</u>
<b><u>ESTIMATED REVENUE</u></b>					
Oil Revenue	\$87.4	\$87.6	\$85.9	\$87.0	\$347.8
Gas Revenue	\$1.3	\$1.2	\$1.3	\$1.3	\$5.1
<b>TOTAL REVENUE</b>	<b>\$88.6</b>	<b>\$88.8</b>	<b>\$87.1</b>	<b>\$88.3</b>	<b>\$352.9</b>
<b><u>ESTIMATED EXPENDITURES</u></b>					
Development Drilling	\$19.2	\$19.2	\$19.2	\$19.2	\$76.9
Operating Expense	\$22.6	\$22.6	\$22.6	\$22.6	\$90.2
Facilities & Maintenance	\$14.1	\$14.1	\$14.1	\$14.1	\$56.4
Unit Field Labor & Administration	\$9.9	\$9.9	\$9.9	\$9.9	\$39.7
Taxes, Permits & Overhead	\$6.6	\$6.6	\$6.6	\$6.6	\$26.2
<b>TOTAL EXPENDITURES</b>	<b>\$72.4</b>	<b>\$72.4</b>	<b>\$72.4</b>	<b>\$72.4</b>	<b>\$289.4</b>
<b><u>NET PROFIT</u></b>	<b>\$16.3</b>	<b>\$16.5</b>	<b>\$14.8</b>	<b>\$15.9</b>	<b>\$63.4</b>

## C. MAJOR PLANNING ASSUMPTIONS

	BUDGET FIRST QUARTER FY21	BUDGET SECOND QUARTER FY21	BUDGET THIRD QUARTER FY21	BUDGET FOURTH QUARTER FY21	BUDGET TOTAL FY21
<b><u>OIL PRODUCTION</u></b>					
PRODUCED (1000 BBL)	1,588	1,593	1,561	1,581	6,324
(AVERAGE B/D)	17,266	17,314	17,344	17,375	17,325
<b><u>GAS PRODUCTION</u></b>					
PRODUCED (1000 MCF)	635	600	646	649	2,530
(AVERAGE MCF/D)	6,900	6,516	7,179	7,136	6,931
<b><u>WATER PRODUCTION</u></b>					
PRODUCED (1000 BBL)	98,311	100,736	101,518	104,956	405,521
(AVERAGE B/D)	1,068,596	1,094,957	1,127,981	1,153,360	1,111,016
<b><u>WATER INJECTION</u></b>					
INJECTED (1000 BBL)	102,326	105,061	105,443	109,229	422,058
(AVERAGE B/D)	1,112,235	1,141,964	1,171,585	1,200,320	1,156,324
OIL PRICE (\$/BBL)	\$55.00	\$55.00	\$55.00	\$55.00	\$55.00
GAS PRICE (\$/MCF)	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00

## Part II

### Program Plan Schedules

#### Schedule 2A

#### Range of Production and Injection

#### Fiscal Year 21

#### Long Beach Unit Program Plan, July 2019-June 2024

FISCAL YEAR	RANGE OF PRODUCTION AND INJECTION RATES											
	OIL MBOPD			WATER MBWPD			GAS MMCFPD			INJECTION MBWPD		
2020/21	16.5	-	18.2	1,055	-	1,167	6.6	-	7.3	1,099	-	1,214

FISCAL YEAR	RANGE OF INJECTION PRESSURES			
	TAR PSI	RANGER PSI	TERMINAL PSI	U. P./FORD PSI
2020/21	1500	2500	2500	2500

**Schedule 2 B**  
**Anticipated New and Redrilled Wells**  
**Fiscal Year 21**

**Long Beach Unit Program Plan, July 2019-June 2024**

Reservoir	CRB	Producers					Injectors				
		Grissom Min - Max	White Min - Max	Chaffee Min - Max	Freeman Min - Max	Pier J Min - Max	Grissom Min - Max	White Min - Max	Chaffee Min - Max	Freeman Min - Max	Pier J Min - Max
SG Tar		0 - 1	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 1
	1	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 0
Ranger West	2	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 0
	3	0 - 3	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 0
	4	0 - 5	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 0
	5	0 - 5	0 - 0	0 - 0	0 - 2	0 - 2	0 - 1	0 - 0	0 - 0	0 - 1	0 - 1
	6	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	7	0 - 0	0 - 0	0 - 0	0 - 4	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	8	0 - 0	0 - 0	0 - 0	0 - 4	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	9	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	10	0 - 0	0 - 4	0 - 0	0 - 2	0 - 0	0 - 0	0 - 1	0 - 0	0 - 1	0 - 0
	11	0 - 0	0 - 4	0 - 0	0 - 2	0 - 0	0 - 0	0 - 1	0 - 0	0 - 1	0 - 0
	12	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	13	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	36	0 - 0	0 - 0	0 - 0	0 - 1	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1
	37	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
		0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
Ranger East	14	0 - 0	0 - 3	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0
	15	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	16	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	17	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	18	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	20	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0
	21	0 - 0	0 - 0	0 - 4	0 - 2	0 - 0	0 - 0	0 - 0	0 - 1	0 - 1	0 - 0
	22	0 - 0	0 - 0	0 - 4	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0
	33	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
		0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	24	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	38	0 - 3	0 - 0	0 - 0	0 - 0	0 - 4	0 - 1	0 - 0	0 - 0	0 - 0	0 - 1
Terminal	39	0 - 3	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0	0 - 0	0 - 0
	40	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	41	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	42	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
	43	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	47	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
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	26	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
UP Ford	27	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	30	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	31	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	44	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
	45	0 - 0	0 - 0	0 - 2	0 - 1	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 0
	46	0 - 0	0 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0
		0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
		0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
237	30										
		Total					Total				
		0 - 97					0 - 32				

## **Part III**

### **Itemized Budget of Expenditures**

#### **A. Development Drilling \$76.9MM**

The Development Drilling category of expenditures encompasses all new well and 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 39 wells will be developed and/or replaced during the Plan year using a drilling pace equivalent to approximately 1.5 drilling rigs.

Drilling and completing wells, as well as redrilling and recompleting existing wells, account for 97 percent 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 \$90.2MM**

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 17.3 Mbopd, estimated gas production of 6.9 MMcfpd, water injection requirement of 1,156

Mbwpd, and water production of 1,111 Mbwpd. Anticipated operating expenses were based on operating four workover rigs per month for servicing an average active well count of 800 producers and 410 injectors. These rigs will also be used for the completion of approximately 20 investment wellwork projects.

The day-to-day costs for production and injection well subsurface operations represent approximately 44 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 53 percent of the funds in this Category. Cost for electric power is based on estimated kilowatt usage of 760,000,000 KWh at an average rate of \$0.0657/KWh. This cost includes all sources of Unit electrical power, including all costs associated with the power plant and electric utility purchases.

### **C. Facilities, Maintenance, and Plant \$56.4MM**

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 82 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 18 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, relocation, or minor expansion of existing injection piping, oil and water pumps and other infrastructure related investments.

#### **D. Unit Field Labor and Administrative \$39.7MM**

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 82 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 \$26.2 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; for the 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 55 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, 2020 the City of Long Beach shall present to the State Lands Commission a final report and closing statement of the FY21 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 FY21 shall contain a reconciliation by category as finally modified and the actual accomplishments, including:

1. New wells and redrills by zone.
2. Facilities and capital projects.
3. Production by zone.
4. Injection by zone.

## Oil Price Comparison

City of Long Beach - Energy Resources

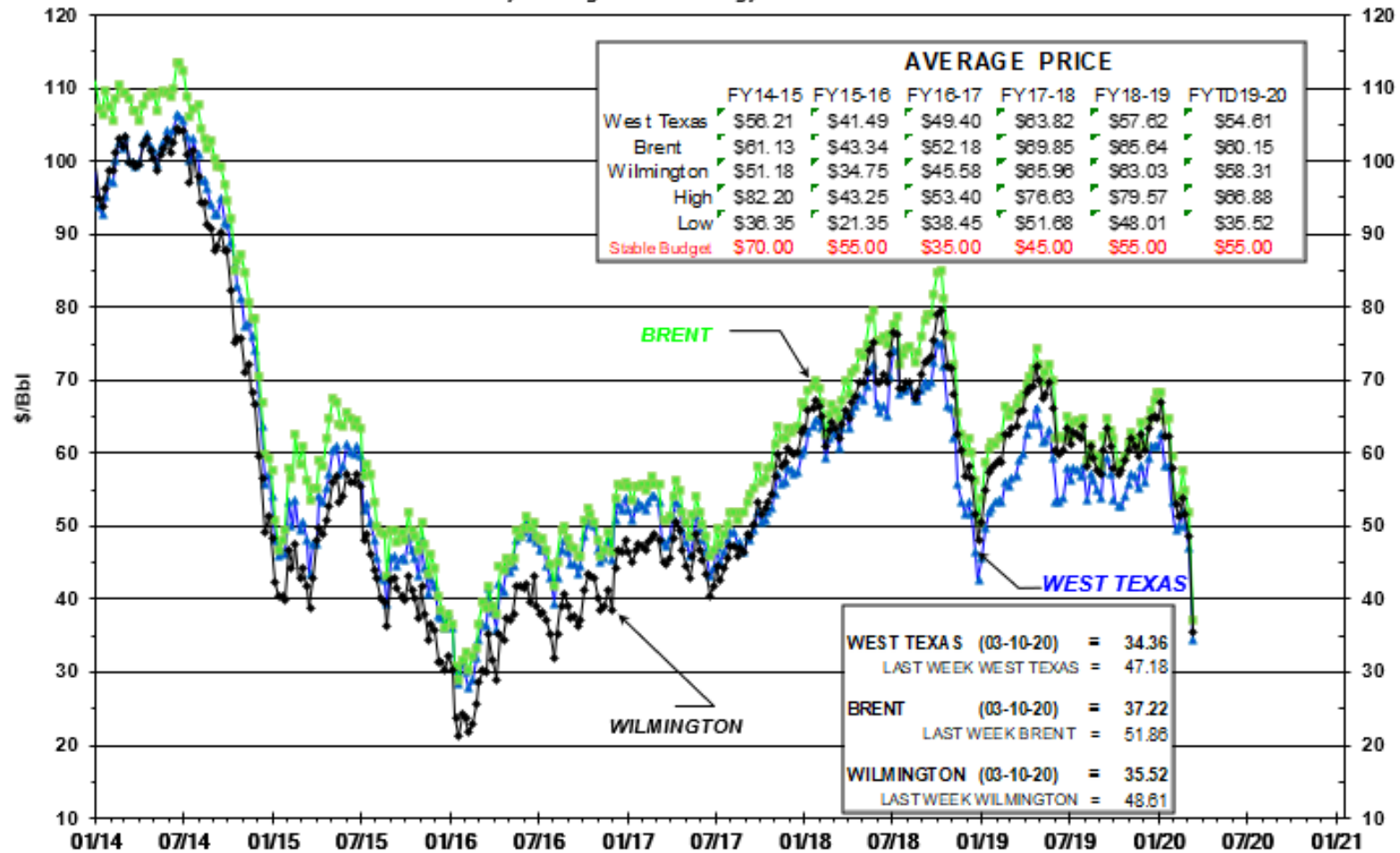


EXHIBIT C

W 17166

CITY OF  
**LONG BEACH**  
**ENERGY RESOURCES**

W 17166

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

March 30, 2020

Ms. Marina Voskanian, Chief  
Division of Mineral Resources Management  
California State Lands Commission  
301 E. Ocean Blvd., Suite 550  
Long Beach, CA 90802-4331

**SUBJECT: LONG BEACH UNIT ANNUAL PLAN UPDATED OUTLOOK SCENARIO  
(JULY 1, 2020 - JUNE 30, 2021)**

Dear Ms. Voskanian:

The City of Long Beach (City) and California Resources Corp. (CRC) have developed an updated outlook scenario for the previously submitted Annual Plan (Plan) to account for the sudden drop in oil prices. Last February, the average oil price for Wilmington crude was \$52.83/bbl and today it is approximately \$23/bbl. This unprecedented drop in price is due to several conditions, including the recent COVID-19 pandemic causing in a significant drop in global demand for crude oil and the subsequent oil price war between Saudi Arabia and Russia existing today. The attached outlook scenario models a \$30/bbl oil price for the Unit in FY 21. Based on current market predictions for the rest of the 2020 calendar year, we feel this is a reasonable price scenario.

At the lower oil price, the Plan assumes a net profit of \$10.6 million and an overall spend of \$169.4 million. This reflects a reduction in spending of \$120 million from the official Plan previously submitted. The reduction in expenses has been targeted on capital investments and reducing operating costs where prudent. The reduction in expenses will allow the Unit to remain profitable and continue its' high level of focus on the following key areas:

- Safety of employees
- Protecting the environment
- Meeting all regulatory obligations
- Managing voidage and preventing subsidence
- Maintaining critical infrastructure and safely providing energy resources to California

The City will also work prudently with CRC and SLC staff to evaluate any investment options at the current oil prices. As always, the City and CRC will continuously look for additional ways to reduce expenses to maximize the Unit's profitability. For example, we have recently been evaluating high WOR wells and idling ones that are currently uneconomic, a situation that was unimaginable just last month.

Ms. Voskanian  
March 30, 2020  
Page 2

The official Plan was approved by the Long Beach City Council on March 17, 2020. The City will continue to monitor oil prices and make any operational or expenditure adjustments as they become necessary. Working together, I am confident we will successfully navigate the current turbulent oil price environment. Please do not hesitate to contact me if you have any questions.

Sincerely,



ROBERT DOWELL, DIRECTOR  
LONG BEACH ENERGY RESOURCES DEPARTMENT

BD:kmt

Enclosures

cc: J. Lucchesi – California State Lands Commission  
R. Grundstrom – California Resources Corp



**LBU Annual Plan Outlook Scenario**  
**Cost Variance (FY21@\$55/bbl vs FY21@\$30/bbl)**

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(\$MM unless stated)	FY2021 \$55/bbl	FY2021 \$30/bbl	Variance
Development Drilling	\$76.9	-	(\$76.9)
Operating Expense	\$90.2	\$66.0	(\$24.2)
Facilities & Maintenance	\$56.4	\$45.7	(\$10.7)
Unit Field Labor & Administration	\$39.7	\$37.6	(\$2.1)
Taxes, Permits, & Overhead	\$26.2	\$20.1	(\$6.1)
<b>Total Expenditures</b>	<b>\$289.4</b>	<b>\$169.4</b>	<b>(\$120.0)</b>
Oil Rate (MBOPD)	17.3	16.1	(1.2)
<b>Revenue</b>	<b>\$352.9</b>	<b>\$180.0</b>	<b>(\$172.8)</b>
<b>Profit</b>	<b>\$63.4</b>	<b>\$10.6</b>	<b>(\$52.8)</b>