

STAFF REPORT

93

A 72, 74

10/19/17
PRC 91
PRC163
PRC 425
PRC 426
PRC E-392

S 34, 37

J. Planck
J. Fabel

**CONSIDER AMENDING STATE OIL AND GAS LEASE
NOS. PRC 91, PRC 163, PRC 425, PRC 426, AND PRC E-392,
TO REDUCE IDLE WELL COUNTS, ESTABLISH A SINKING FUND,
AND MODIFY THE PRICE-BASED SLIDING SCALE ROYALTY**

LESSEE:

SoCal Holding, LLC

AREA, LAND TYPE, AND LOCATION:

State Oil and Gas Lease Nos. PRC 91 (589 acres), PRC 163 (640 acres), PRC 425 (835 acres), PRC 426 (640 acres), and PRC E-392 (835 acres) (collectively “Leases”), are located in the offshore area of the Huntington Beach Oil Field in Orange County.

BACKGROUND:

The Leases were originally issued between 1938 and 1950. There have been a number of lease assignments over the years. The current Lessee of record is SoCal Holding, LLC. SoCal Holding, LLC, operates as a wholly owned subsidiary of California Resources Corporation (CRC) hereafter collectively referred to as CRC.¹ There are approximately 273 total active and inactive (idle) wells on the leases. Forty-four wells are drilled from Platform Emmy, located offshore within PRC 425, and approximately 229 wells are drilled from onshore sites on CRC’s properties in Huntington Beach into the offshore leases.

On April 5, 2016, following CRC’s request to Commission staff for royalty relief, the Commission approved a temporary royalty modification for the Leases ([Item 65, April, 5, 2016](#)). Prior to April 2016, the royalty established for the Leases used a sliding scale based on the monthly price of oil. This sliding scale royalty structure had been operative since 1995 when the Commission approved replacing the previous fixed royalty percentage with a royalty percentage that

¹ Although SoCal Holding, LLC, is the lessee, for clarity, CRC is used to reference both parties.

STAFF REPORT NO. 93 (CONT'D)

was sensitive to fluctuations in the price of oil ([Item C58, May 3, 1995](#)). Under the 1995 sliding scale, the minimum royalty rate was reduced to 4 percent when oil was \$15 per barrel (BBL) or less and capped at 25 percent when oil was at or over \$40/BBL. Between \$15/BBL and \$49/BBL the royalty rate adjusted proportionately between 4 percent and 25 percent. The scale was further modified by automatic monthly adjustments to account for inflation using the U.S. Department of Commerce, Bureau of Labor Statistics “Producer Price Index for Total Finished Goods (PPI).”

In 2016, when the oil price was averaging \$38/BBL, CRC asked the Commission to modify the sliding scale royalty pursuant to Public Resources Code section 6827.2², contending that under the 1995 royalty rate structure and low (2016) oil prices, cash flow had become negative. As background, between 1993 and 2005, oil prices averaged less than \$50/BBL. From 2006 to 2009, California crude oil prices fluctuated from a high of \$90/BBL to an average of \$56/BBL in 2009. Oil prices trended up in 2010 to \$75/BBL and then eclipsed \$100/BBL, on average, through 2013. During 2014 oil prices declined to an average of \$92/BBL before falling to an average of \$45/BBL in 2015 and \$38/BBL in 2016. Even when oil commodity prices collapsed in 2015, CRC was required to pay the maximum royalty rate of 25 percent because oil prices were greater than \$40/BBL. In the modern market, adjusting for inflation, a current oil price of \$40/BBL is equivalent to less than \$20/BBL in the early 1990s. This means that the costs associated with producing a single barrel of oil in the current market is roughly double what it cost when the sliding scale royalty was modified in 1995. The added costs, relative to the revenue returned, endangered CRC's ability to economically produce from the Huntington Beach Oil Field and could cause its premature abandonment. CRC contended that the PPI, which was intended to move the sliding scale in line with oil production costs, did not accurately account for the large oil price fluctuations and inflation over the previous two decades.

At its April 5, 2016 meeting, the Commission approved a 2-year temporary royalty modification, which added 65 “points” to the PPI to better reflect the observed inflationary trends. This adjusted the minimum 4 percent royalty to an oil price of \$25/BBL or lower, and the maximum 25 percent rate at or above \$50/BBL. The parties intended to use the 2-year period to negotiate a permanent royalty modification that considered the full range of possible fluctuations in the oil market. The anticipated goal of negotiations was either to develop a mechanism for the State to recoup some of the royalty revenue it would now lose (i.e., by having a higher maximum royalty rate only when oil prices are high) or recoup equivalent public benefits such as environmental enhancement projects.

² Public Resources Code section 6827.2 provides the Commission with the authority to renegotiate an oil and gas lease to prevent premature abandonment if continued production is economically unfeasible under the terms of the lease and continuation is in the best interests of the people of California.

STAFF REPORT NO. 93 (CONT'D)

As such, the Commission authorized staff to negotiate a long-term royalty modification with two additional directives. First, staff was to track the deferred royalty, or the difference between what the State would have received under the original, unmodified royalty and the 2-year royalty modification with CRC repaying that amount to the State. Second, staff and CRC were to pay particular attention to the needs of the Bolsa Chica Lowlands Restoration Project (Bolsa Chica) in considering the public benefits encapsulated in a final agreement.

In September 2017, Commission staff and CRC developed the currently proposed Amendment to the Leases that modifies the royalty to account for historic price fluctuations in the oil market and reimburses the State for the deferred royalty CRC realized between April 2016 and October 2017. In addition, CRC will commit to abandon idle wells (i.e., wells that have not produced oil nor injected water for over two years) and increase securities held to protect the State against potential liability at the expiration of the Leases. The focus on idle well abandonment and reducing end-of-Lease liability is a result of recent circumstances on other State leases in the Santa Barbara Channel, discussed below.

PROPOSED AMENDMENT:

The proposed Amendment to the Leases will modify the sliding scale royalty to reflect the recent and historic price trends in the oil market. The sliding scale royalty would be modified to increase the minimum royalty rate from 4 percent to 16 2/3 percent when the realized price of oil is at or below \$50/BBL. The rate will increase linearly until it reaches a cap of 25 percent at and above \$80/BBL. PPI adjustments will no longer be utilized. In exchange, CRC will agree to the following:

- 1) Repayment of deferred royalty: By March 31, 2021, CRC will pay the State the royalty deferred between April 2016, and the effective date of this proposed Amendment, with interest. The current value is approximately \$1.8 million.
- 2) Platform Emmy Idle Well Reduction Commitment: Of the 44 wells on Platform Emmy, 15 wells are idle. CRC will plug and abandon eight of the idle wells on Platform Emmy within 24 months of the amendment taking effect, four of which will be abandoned within the first 12 months. Before year 3 of the amendment, CRC will develop an abandonment plan, subject to staff review, to abandon all remaining idle wells on Platform Emmy within 5 years of the amendment.

STAFF REPORT NO. 93 (CONT'D)

- 3) Onshore Well Abandonment Commitment and Grant of Lien: By year 3 of the amendment, CRC will develop an idle well abandonment plan for its onshore wells that produce from the Leases. The plan will require CRC, starting January 1, 2021, to commence plugging and abandoning onshore idle wells at a rate of 10 wells per year, until the idle well count is no more than 15 percent of the total well count for onshore wells. Approximately 146 of the 229 wells drilled from the onshore facilities are currently idle. In addition, CRC will grant the State a first or second priority lien on CRC's fee-owned uplands as added security against its abandonment liability.
- 4) Calculation of Platform Emmy and Onshore Abandonment Costs: An independent third-party engineering consultant, acceptable to both staff and CRC, will be hired by CRC to perform an abandonment estimate for both Platform Emmy and the onshore wells that produce from the Leases. These estimates will be updated every 36 months. This information will be used to calculate the total amount of the bond and "sinking fund" (see below) that will be used to offset future abandonment costs.
- 5) Sinking Fund and Funding Commitment: Starting in year 3 of the amendment, CRC will commit to spending \$3 million annually toward abandoning idle wells. In years where less than \$3 million is spent on such activities, the difference will be paid into a sinking fund, held in escrow, to fund future abandonment obligations. The \$3 million value will increase at an annualized compound rate of 3 percent.

STAFF ANALYSIS AND RECOMMENDATION:

Authority:

California Public Resources Code section 6827.2

Development of the Proposed Amendment:

From February through September 2017, Commission staff and CRC negotiated the structure of a royalty modification that accounted for the potential range of oil prices while recouping some of the difference the State might receive in royalty in the form of a public benefit. Initial proposals contemplated CRC making annual monetary contributions to the sustainability and maintenance of Bolsa Chica; however, the recent quitclaim of State oil and gas leases in the Santa Barbara Channel by Venoco, LLC (Venoco), refocused staff's negotiations with CRC. On April 17, 2017, Venoco declared bankruptcy and quitclaimed State Oil and Gas

STAFF REPORT NO. 93 (CONT'D)

Lease Nos. PRC 3120, PRC 3242, and PRC 421 to the State (see [Item C76, June 22, 2017](#)).

Venoco's quitclaim and bankruptcy created an obligation for the State to assume operational control of Platform Holly and other appurtenant facilities and commence planning for plugging and abandoning oil and gas wells and the eventual decommissioning of those facilities. The Commission contracted with a third-party engineering consultant to estimate the cost to plug and abandon all 30 wells on Platform Holly and two nearshore wells drilled into State Lease PRC 421. The resultant estimate showed that the costs far exceeded previous estimates based on guidelines produced by the U.S. Bureau of Safety and Environmental Enforcement that are heavily relied upon by the oil and gas industry. Because costs are likely greater than originally anticipated and because of the insolvency of Venoco, the State has and will likely continue to bear abandonment costs related to Platform Holly.

Avoiding abandonment costs to the State upon the expiration or termination of a lease will require new approaches other than the assessment of a performance bond. Funds spent by a lessee reducing total well counts before oil field end-of-life would likely reduce the overall liability to the State in the event it must take over well abandonment once a lease ends. Numerous idle wells exist on the State's remaining oil and gas leases. The Commission does not generally have authority to require lessees to undertake active and ongoing efforts to abandon idle wells prior to the end of the lease and the lessees have little incentive to do so. Given recent experiences, staff questions the sufficiency of CRC's \$30 million bond to cover the abandonment and removal of CRC's Platform Emmy (44 total wells) and onshore wells (229 total wells) should the lessee default or the Leases expire.

CRC, acknowledging staff's concerns, has worked in good faith to develop an aggressive plan consisting of: 1) regular abandonment and decommissioning cost evaluations for Lease wells and facilities; 2) an active and verifiable idle well abandonment commitment; and 3) implementation of a sinking fund to fund end-of-lease abandonment and decommissioning activities. Staff believes that the plan developed and proposed creates a substantial public benefit by actively reducing the State's potential abandonment liability and actively planning for end-of-lease scenarios.

Generally, CRC has full authority under its Leases to conduct idle well abandonments without further authorization of the Commission; however,

STAFF REPORT NO. 93 (CONT'D)

CRC is not obligated under the Leases to conduct abandonments prior to the expiration or termination of the Leases. The proposed Amendment is innovative because it will commit CRC to plugging and abandoning a large number of idle wells before it would otherwise be obligated to do so and at a faster rate than would otherwise be required under Division of Oil, Gas, and Geothermal Resources requirements.

Public Trust and State's Best Interest Analysis:

Approval of the proposed Amendment will not result in a change in the use of Public Trust resources because it will not affect or alter the current uses of the leased lands. The current statutes controlling oil and gas leases were enacted under the Shell-Cunningham Act of 1955 (ch. 1724, stats. 1955, codified in Pub. Resources Code § 6801 et seq.). Of note, section 6827.2 of the Public Resources Code allows the Commission to “renegotiate the lease to reduce the minimum royalty rate or to substitute such other consideration as would be in the best interests of the state,” if doing so is necessary to prevent the premature abandonment of the lease. To renegotiate a lease, the Commission must find “that continued production from a lease is in the best interests of the people of California and that such production is economically unfeasible under the terms set forth in the lease.”

During its April 5, 2016, meeting, the Commission found that continued production from the Leases is in the best interests of the people of the State. That finding derived from the legislature’s policy in Public Resources Code section 6830.1 identifying a public interest in assuring the production of the optimum quantities of oil and gas from State lands and from past analysis showing that activity from the Huntington Beach Field provides numerous jobs and economic investment into the local and regional community. In addition, the Commission also found that production remained economically unfeasible under the terms set forth in the Leases due to the persistent and severely low oil prices. Despite the approval of a temporary royalty adjustment increasing the PPI by 65 points, the Commission directed staff to work with CRC on a long-term royalty structure that benefits both parties that recognizes and mitigates severely low commodity prices, but also escalates to appropriate royalties during times of high oil prices. Since April 2016, oil prices have increased only slightly and although the temporary royalty modification provided CRC some relief, CRC must continue to invest capital into the Huntington Field, thus impacting its ability to achieve a return on investment. Oil wells have a natural “decline curve” or reduction in oil production over time (10% annually as a rule of thumb), therefore it is necessary for CRC to invest in field development to maintain levels of production under the

STAFF REPORT NO. 93 (CONT'D)

Leases. A lessee has little incentive to invest in field development to maintain production if the capital expenditures involved exceed the expected return on revenue. Staff believes that adjusting the sliding scale royalty consistent with demonstrated industry price trends will incentivize CRC to continue development of the Leases and maintain production levels consistent with the policy described in Public Resources Code section 6830.1. For these reasons, staff believes that the reasons supporting the Commission's findings under Section 6827.2 on April 5, 2016, remain valid.

Staff also believes that, from a land and resource management perspective, the proposed Amendment is in the best interests of the State. The proposed Amendment increases the minimum royalty under the Leases from 4 percent to 16 2/3 percent, consistent with other state oil and gas leases. The Amendment also creates an affirmative commitment from CRC to aggressively abandon the large number of idle wells in the field before it would otherwise be required to. A primary purpose of the proposed Amendment is to reduce the number of idle wells on the Leases while bolstering the reserve of money held to cover abandonment costs once the Leases eventually end. This will serve to limit potential liability to the State in the event that the lessee cannot or would not restore the leased premises to the satisfaction of the Commission. Commission staff believes that changes in revenue that may result from modifying the royalty are appropriately offset by the proactive and verifiable measures that will be taken by CRC under the proposed Amendment. It should also be noted that any loss of revenue due to the modification is inversely proportional to the price of oil. If oil prices recover to recent historic highs, the actual loss of revenue will be minimized while still producing the benefit gained in the reduction of potential liability.

The proposed Amendment will in no way alter CRC's, or a subsequent Lessee's, obligations to restore the leased premises at the expiration or termination of the Leases. For these reasons staff believes this proposed Amendment to be reasonable and in the State's best interests.

OTHER PERTINENT INFORMATION:

1. The amendment to the subject Leases is not a project as defined by 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, section 15378, subdivision (b)(5).

STAFF REPORT NO. 93 (CONT'D)

2. This action is consistent with California State Lands Commission's 2016-2020 Strategic Plan, Strategy 2.1 to optimize returns for the responsible development and use of State lands and resources, both onshore and offshore; and Strategy 2.2 to ensure timely receipt of revenues and royalties from the use and development of State lands and minerals.

EXHIBITS:

- A. Royalty Revenue Comparison
- B. Abandonment Commitment and Sinking Fund Contribution Projections
- C. Proposed Lease Amendment

RECOMMENDED ACTION:

It is recommended that the Commission:

PUBLIC TRUST AND STATE'S BEST INTERESTS:

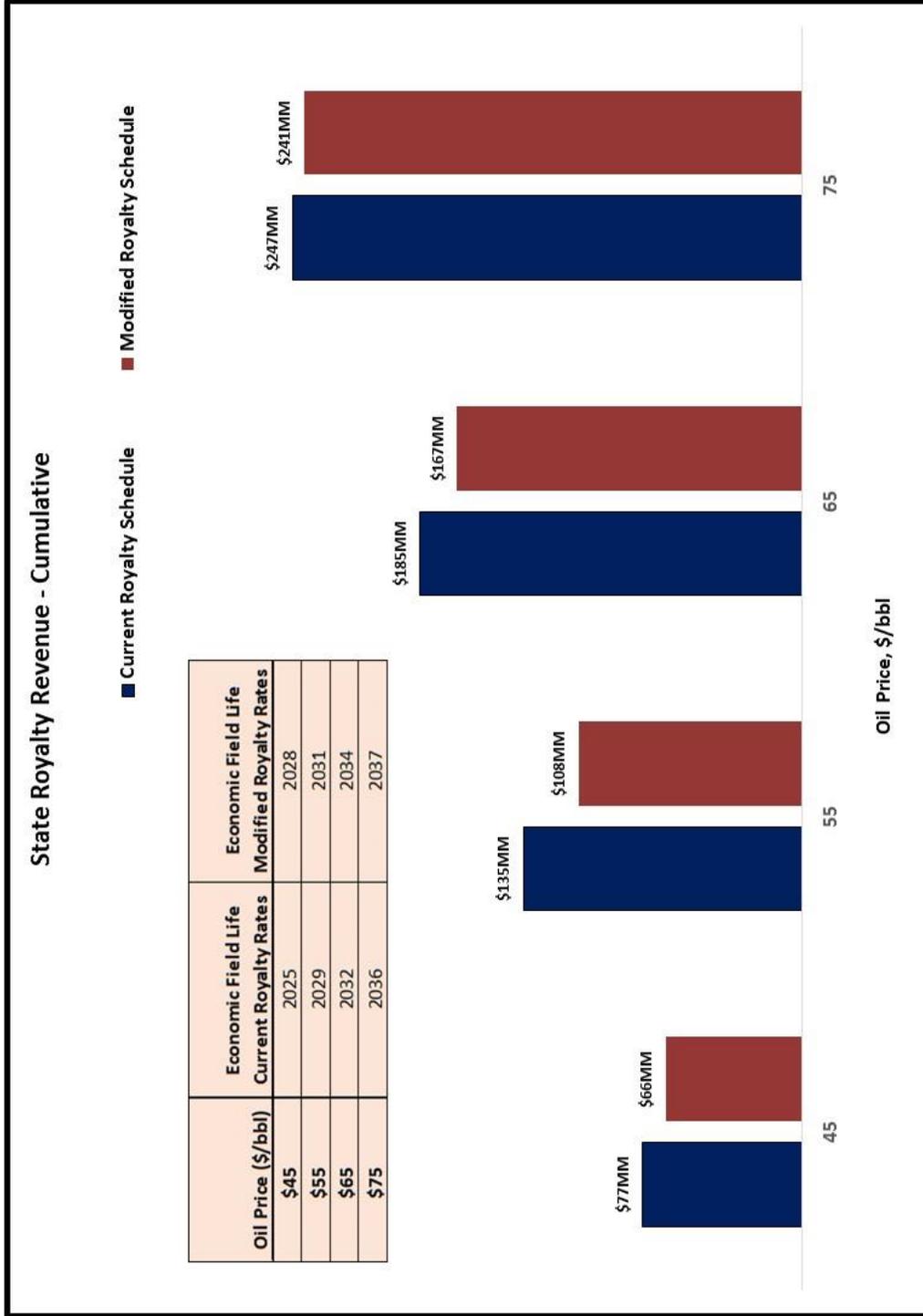
Find that the proposed Amendment of Leases PRC 91, PRC 163, PRC 425, PRC 426, and PRC E-392 will not result in a change in the use of Public Trust resources or impacts thereto, does not substantially interfere with public's Public Trust needs and values, and is otherwise consistent with the common law Public Trust Doctrine, and is in the best interests of the State.

AUTHORIZATION:

1. Find that continued production from State Oil and Gas Lease Nos. PRC 91, PRC 163, PRC 425, PRC 426, and PRC E-392 is in the best interests of the people of the State.
2. Find that such production is currently economically unfeasible under the terms set forth in the Leases and the previous amendments due to the persistent and severely low oil prices.
3. Approve the amendment to the provisions of State Oil and Gas Lease Nos. PRC 91, PRC 163, PRC 425, PRC 426, and PRC E-392, in substantially the same form as set forth in Exhibit C, attached, between the Commission and SoCal Holding, LLC.
4. Authorize the Executive Officer or her designee, to execute, on the Commission's behalf, an amendment in substantially the same form as set forth in Exhibit C, attached, between the Commission and SoCal Holding, LLC.

EXHIBIT A

PRC 91
 PRC 163
 PRC 425
 PRC 426
 PRC E-392



PRC 91
PRC 163
PRC 425
PRC 426
PRC E-392

EXHIBIT C

AMENDMENT TO STATE OIL AND GAS LEASES
PRC 91, PRC 163, E 392, PRC 425, AND PRC 426

WHEREAS the State of California by and through the State Lands Commission (the "State") did lease certain lands known as PRC 91 in Orange County to H. R. Hamilton, Operator, on May 21, 1943, and through successive assignment to SoCal Holding, LLC ("Lessee"), on June 14, 2014 ("PRC 91 Lease"); and

WHEREAS the State did lease certain lands known as PRC 163 in Orange County to Signal Oil and Gas Company, on November 15, 1944, and through successive assignments to SoCal Holding, LLC, on June 14, 2014 ("PRC 163 Lease"); and

WHEREAS the State did lease certain lands known as E 392 in Orange County to Southwest Exploration Company on September 26, 1938, and through successive assignments to SoCal Holding, LLC, on June 14, 2014 ("E 392 Lease"); and

WHEREAS the State did lease certain lands known as PRC 425 in Orange County to Southwest Exploration Company on February 10, 1950, and through successive assignments to SoCal Holding, LLC, on June 14, 2014 ("PRC 425 Lease"); and

WHEREAS the State did lease certain lands known as PRC 426 in Orange County to Signal Oil and Gas Company, on February 10, 1950, and through successive assignments to SoCal Holding, LLC, on June 14, 2014 ("PRC 426 Lease" and together with the PRC 91 lease, the PRC 163 Lease, the E 392 Lease, the PRC 425 Lease and the PRC 426 Lease, collectively, the "Leases"); and

WHEREAS the State entered into an agreement to modify the royalty terms of the Leases on June 1, 1995 to maintain economic viability and prevent premature abandonment of the leases and to allow for the recovery of additional oil and gas resources through the "Upper Main Zone Waterflood Program"; and

WHEREAS, on April 5, 2016, the State found that production was not economically feasible under the terms of the June 1, 1995 amendment due to persistently low oil prices and that continued production from the Leases is in the best interest of the State; the State and Lessee entered into an amendment to temporarily modify the royalty rate for a two year period while a long term sliding scale royalty modification was negotiated that would benefit the State and Lessee and recognize and mitigate severely low commodity prices while escalating to appropriate royalties during times of high oil prices. The long term sliding scale royalty was to also account for additional public benefit consideration to the State, up to and including environmental enhancement;

WHEREAS, after April 2016, events occurred on unrelated State oil and gas leases that caused the State to incur abandonment costs and responsibilities for offshore wells and production facilities; the State has found that it is to the public's benefit to have its lessees plug and abandon idle wells and assess abandonment costs prior to the expiration or termination of its leases so as to allow the State to minimize potential costs upon lease expiration or termination;

WHEREAS, the Leases do not obligate the Lessee to abandon idle wells prior to lease expiration or termination beyond what is otherwise required under other sources of law.

WHEREAS the State has determined that it is in the best interests of the State to require consistent liability reduction with Leases that are economically viable;

WHEREAS, the State and Lessee have negotiated a long term royalty modification whereby the royalty under the Leases will be modified in exchange for a commitment and program by the Lessee to contribute resources to abandon idle wells upon the Leases and contribute to a sinking fund to fund abandonment and decommissioning activities upon the expiration or termination of the Leases; and,

WHEREAS, it is the intention of the State and Lessee to neither change, amend or otherwise modify the Lessee's obligation to restore the lease premises to a condition satisfactory to the State upon the expiration or termination of the Leases.

NOW, THEREFORE, effective October 1, 2017, ("Effective Date") the State and Lessee do hereby agree as follows:

1. **Definitions.** For the purpose of this Amendment, "Idle Well" shall have the same meaning as that used in California Public Resources Code section 3008(d). "Plug and abandon" or "well abandonment" shall have the same meaning and meet the same requirements as that used in California Public Resources Code section 3208 and the most up to date requirements of the Division of Oil, Gas, and Geothermal Resources. "Onshore Wells" shall mean wells whose well heads are located landward of the mean high tide line but produce from the Leases. "Onshore Idle Wells" are Onshore Wells that meet the definition of "Idle Well."
2. **Platform Emmy Abandonment Commitment.** The Lessee agrees to plug and abandon eight (8) idle wells on the offshore Emmy platform within twenty-four (24) months of the Effective Date ("Initial Abandonment"). Lessee agrees to plug and abandon four (4) of the Initial Abandonment wells within twelve (12) months of the Effective Date. Within twenty-four (24) months from the Effective Date, Lessee shall develop an annual well abandonment plan for Platform Emmy, in concert with the State ("Emmy Plan") through the Abandonment Committee, discussed in section 6 of this Amendment. The Emmy Plan shall abandon all remaining idle wells on Emmy within five (5) years of the Effective Date.
3. **Calculation of Emmy Abandonment Costs (Emmy Amount).** Within fifteen (15) months of the Effective Date, Lessee agrees to hire a reputable third-party consultant, acceptable to the State, to calculate the then present cost to plug and abandon all remaining wells on Platform Emmy ("Emmy P&A Cost") and the cost to fully decommission and remove the platform and any remaining offshore facilities ("Emmy Decommissioning Cost") based on the three methodologies identified below. Lessee will subsequently update the cost calculations using the same procedures no less than once every thirty-six (36) months from the date that the first Emmy Amount (described below) is calculated. The consultant shall calculate costs using the following methodologies:
 - a. Platform cost methodology. The platform cost methodology will be based on the latest BSEE Federal offshore decommissioning report and used to calculate the Emmy P&A Cost and Emmy Decommissioning Cost.

- b. Well cost methodology. The well cost methodology will be the total cost to plug and abandon the remaining wells on Platform Emmy based on the actual and demonstrated abandonment costs from the Initial Abandonments and subsequent well abandonments on Platform Emmy expended and demonstrated by the Lessee. This will be used to calculate the Emmy P&A Cost.
- c. Market based approach methodology. The market based approach methodology will be based on pricing and availability of vendors for the work to be performed at the time of the assessment. This will be used to calculate the Emmy P&A Cost and Emmy Decommissioning Cost.

The Emmy P&A Cost shall be the total estimated cost to plug and abandon all remaining wells (Idle and non-idle) on Platform Emmy utilizing the methodologies as follows, either: 1) the higher of methodology (a) or (b); or 2) if methodology (c) is 10% or higher than the highest of (a) or (b), the Emmy P&A Cost shall be the average cost of (a) and (b) plus (c) (ex. $((a) \text{ P\&A cost} + (b) \text{ P\&A cost} + (c) \text{ P\&A cost})/3 = \text{Emmy P\&A Cost}$).

The Emmy Decommissioning Cost shall be the total estimated cost to fully remediate, decommission, remove, and dispose of the platform and any remaining offshore facilities from State lands (exclusive of P&A costs) utilizing the methodologies as follows, either: 1) methodology (a); or, 2) if methodology (c) is 10% or more higher than methodology (a), the Emmy Decommissioning Cost shall be the average cost of methodology (a) and (c) (ex. $((a) \text{ decommissioning cost} + (c) \text{ decommissioning cost})/2$).

The sum of the Emmy P&A Cost and Emmy Decommissioning Costs shall be the "Emmy Amount."

The consultant's calculations will be subject to review by Lessee and the State. The Abandonment Committee shall meet to review the draft findings prior to the consultant's cost calculations being utilized for purposes of calculating obligations under this Amendment. Both the State and Lessee agree to work in good faith to address concerns with the consultant's cost calculations.

- 4. **Onshore Abandonment Commitment**. No more than twenty-four (24) months after the Effective Date, Lessee shall develop and submit a plan to plug and abandon Onshore Idle Wells to the Abandonment Committee ("Onshore Plan"). The Onshore Plan will outline and the Lessee shall plug and abandon, commencing January 1, 2021, onshore idle wells at a rate of ten (10) wells per each twelve (12) month calendar year thereafter, until the idle well count is no more than fifteen percent (15%) of the total remaining well count for onshore wells. The Lessee shall thereafter abandon a sufficient number of idle wells annually to ensure that the idle well count remains no more than fifteen percent (15%) of the total remaining well count for onshore wells. The Onshore Plan shall be updated each year to identify the specific idle wells that Lessee will abandon the following calendar year.

If Lessee fails to plug and abandon ten (10) onshore idle wells within a calendar year as prescribed, Lessee shall contribute \$100,000 to the Sinking Fund for each well less than ten (10) plugged and abandoned ("Supplemental Sinking Fund Payment") by January 31 the following calendar year. A

Supplemental Sinking Fund Payment will not be necessary if, by the end of the calendar year, Lessee commences substantial work or substantial preparation to conduct onshore plug and abandonment operations and the remaining onshore idle wells for that calendar year are fully plugged and abandoned by February 1 of the following calendar year. Each year's Onshore Abandonment Commitment shall not be altered or affected by this paragraph.

5. **Calculation of Onshore Well Abandonment Costs (Onshore Well Amount).** Within twenty-four (24) months of the Effective Date, Lessee agrees to hire a reputable third-party consultant, acceptable to the State, to calculate the costs to plug and abandon all onshore wells (idle and non-idle) ("Onshore Well Amount"). Lessee will subsequently update the cost calculations using the same procedures no less than once every thirty-six (36) months from the date that the first Onshore Well Amount is calculated. The consultant shall determine the Onshore Well Amount using the following methodologies:
 - a. Well cost methodology. The well cost methodology will calculate the cost to abandon all remaining onshore wells based on the actual abandonment costs demonstrated by the Lessee.
 - b. Market based approach methodology. The market based approach methodology will be based on pricing and availability of vendors for the work to be performed at the time of the assessment.

The Onshore Well Amount shall be the total estimated cost to plug and abandon all remaining onshore wells (idle and non-idle) utilizing the methodologies as follows, either: 1) the higher of methodology (a) or (b); or 2) if methodology (b) is 10% or higher than (a), the Onshore Well Amount shall be the average cost of both methodologies (ex. $\frac{((a) \text{ P\&A cost} + (b) \text{ P\&A cost})}{2}$ = Onshore Well Amount).

The "Average Onshore Well Amount" for purposes of section 7 shall be the Onshore Well Amount divided by the total number of well abandonments analyzed within the consultant's cost calculation.

The consultant's calculations will be subject to review by Lessee and the State. The Abandonment Committee shall meet to review the draft findings prior to the consultant's cost calculations being utilized for purposes of calculating obligations under this Amendment. Both the State and Lessee agree to work in good faith to address concerns with the consultant's cost calculations.

6. **Abandonment Committee.** No later than two (2) months after the Effective Date, Lessee and State shall meet to form an Abandonment Committee. The Abandonment Committee will be comprised of at least two members each from Lessee and the State with technical expertise. At the first Abandonment Committee meeting, the Lessee shall provide the State a list of wells that will be abandoned as a part of the Initial Abandonments as well as any other abandonments Lessee has plans to perform on the Leases.

After its first meeting, the Abandonment Committee shall again meet bi-annually during the first twenty four (24) months and annually thereafter. During the annual Abandonment Committee

meetings, members will review plans submitted pursuant to this Amendment and Commission regulations, the progress of well abandonment work, discuss deviations or proposed changes to the list, and assess the appropriateness of expenses charged to well abandonment activity. Deviations from the agreed annual well abandonment target must be based on economic justification and will be subject to approval by the Executive Officer of the State Lands Commission.

7. **Sinking Fund.** Commencing twenty-four (24) months after the Effective Date, Lessee will commit to spending no less than the "Annual Amount" each calendar year plugging and abandoning wells. If Lessee has spent less than the Annual Amount by the end of each calendar year plugging and abandoning wells identified in the Emmy Plan and Onshore Plan, an amount equal to the difference between the Annual Amount and the "Annual Well Costs" (see below) shall be paid by Lessee to a third party account ("Sinking Fund") established for the purpose of remediating the combined obligations outlined in the Emmy Amount and the Onshore Well Amount.

The Annual Amount as of the Effective Date shall be three million dollars (\$3,000,000). Commencing the calendar year after the Effective Date the Annual Amount will increase at an annualized compound rate of 3%. If the Lessee's obligation to pay the Annual Amount commences in the middle of a calendar year, the Annual Amount to be paid shall be prorated for that year.

The annual costs Lessee spends each year plugging and abandoning wells identified in the Emmy Plan and Onshore Plan (i.e., the "Annual Well Costs") and amounts spent hiring a third party consultant and calculating costs pursuant to sections 3 and 5 shall be credited against the Annual Amount by one of two methods: Actual costs (on a time and materials basis) expended by the Lessee in plugging and abandoning wells as required under this Amendment and accepted by the Abandonment Committee, or the total number of wells permanently plugged and abandoned during the calendar year multiplied by the Average Onshore Well Amount—described in section 5. The Lessee may choose the method of calculation. The difference between the Annual Amount and the Annual Well Costs shall be deposited by the Lessee into the Sinking Fund no later than January 31 following the Calendar Year the obligation accrues. If the Annual Well Costs are higher than the Annual Amount, no contribution to the Sinking Fund is necessary. Annual Well Costs are intended to capture the cost of manpower, equipment and material to permanently plug and abandon wells and shall not include costs associated with: well engineering and planning; returning wells to production or injection; performing re-drills, kickoffs, or other recovery enhancement projects; repairing or improving production equipment; or personnel costs not associated with plug and abandonment operations. If the actual cost method is chosen, the Annual Well Costs may include actual costs expended within the calendar year for well plug and abandonment operations not completed by the end of that calendar year.

Twenty-four (24) months after the Effective Date, the Lessee shall submit an annual written notice to the State no later than January 31 each calendar year stating the method chosen to calculate the previous calendar year's Annual Well Costs, value of the previous year's Annual Well Costs and Annual Amount, Supplemental Sinking Fund Payments (if applicable), and total contribution amount to the Sinking Fund. The State, at its option, shall have six months after receiving the

notice to notify Lessee and commence an audit of those costs. Lessee agrees to fully cooperate with such audit and provide substantiation and documentation supporting such costs.

Lessee shall contribute to the Sinking Fund, as described herein, until the value of the Sinking Fund plus the existing performance bond (\$30,000,000 as of the Effective Date) equals the sum of the Emmy Amount and Onshore Well Amount as most recently calculated. Afterwards, no further amounts will be contributed unless and until the Emmy Amount plus the Onshore Well Amount requires further contributions after subsequent re-calculation as governed by this Amendment. Interest or investment income shall accrue to the account to offset future increases due to inflation or increases in oilfield construction costs.

The Sinking Fund shall be governed by a deposit account control agreement that will only allow access to the funds by the State or the Lessee, with written approval by the State, for purposes of remediation outlined in the Emmy Plan, Onshore Plan, or any final Lease abandonment or decommissioning activities. The Parties agree that the purpose of the Sinking Fund and Performance Bond is to guarantee performance by the Lessee to fully and properly abandon and decommission oil and gas infrastructure on the Leases at the expiration or termination of those Leases. Upon a finding by the State that the Leases have been fully and properly abandoned, remediated, and decommissioned, any remaining funds in the Sinking Fund shall be released to the Lessee.

8. **Security Interest.** Within three (3) months from the Effective Date, Lessee shall grant State a security interest in the surface estate of the parcel identified as Orange County Assessor's Parcel 023-181-54, also known as 20101 Goldenwest Street, Huntington Beach, CA 92648-2628. The security interest shall be in the form of either a first or second priority lien over the parcel, shall be perfected by Lessee, and shall be executed by a separate Security Agreement.
9. **Royalty Modification.** The royalty outlined in Exhibit "A" LEASE ROYALTY MODIFICATION, to the agreement titled "Amendment to State Oil and Gas leases PRC 91, PRC 163, E 392, PRC 425, and PRC 426," executed June 1, 1995, between the State Lands Commission and Shell Onshore Ventures Inc., is hereby struck in its entirety and replaced with the following:

Royalty Rate

Oil Price < \$50	16.7%
Oil Price ≥\$50 but ≤ \$80	$[0.2767 * (\text{Oil Price}) + 2.8645]\%$
Oil Price > \$ 80	25%

The Oil Price shall be the higher of (1) the highest weighted average price posted for oil of like gravity and quality in the Huntington Beach Field ("Field") among the postings of any reputable company posting prices in the Field that meets the requirements of the State to purchase oil provided that company is capable of purchasing all of the production from the State leases in the Field at its posted prices, or (2) the weighted average price received in the sale of oil during the month by the Lessee. The Lessee shall provide to the State evidence in the form of sales contracts

establishing the price of oil not more than fourteen (14) days after the sales contract has been executed.

10. **Reversion of Royalty.** If, within five (5) years from the Effective Date, the Lessee desires to assign the Leases to a new operator, the State reserves the right to withhold approval of the transfer unless the royalty modified in this Amendment reverts to the royalty rate established in the amendment dated June 1, 1995.
11. **Determination of Well Counts and Status.** Reductions to the idle well inventory, other than by well abandonment, resulting from reactivation of idle wells must be justified on the basis of improved well economics from oil price increases or reservoir performance. Disputes arising as to the status and number of wells on the Leases for purposes of determining the Lessee's obligations within this Amendment shall be controlled by the records and determinations of the California Department of Conservation's Division of Oil, Gas, and Geothermal Resources.
12. **2016 Amendment Deferred Royalty.** This Amendment will replace the temporary adjustment provided by the amendment dated April 1, 2017 ("2016 Amendment"). The deferred royalty amount provided in the 2016 Amendment shall be repaid by March 31, 2021 with simple interest as established in the 2016 Amendment.
13. **No Other Changes.** All other terms and conditions of the Leases are unchanged and remain in full force and effect.

IN WITNESS THEREOF, the parties hereto have executed this Amendment of State Oil and Gas Leases PRC 91, PRC 163, E 392, PRC 425, and PRC 426.

LESSEE:

SoCal Holding, LLC,
27200 Tourney Road, Ste. 315
Santa Clarita, CA 91355

By: _____

Date: _____

Robert Barnes
Executive Vice President, Operations
California Resources Corporation

Acknowledgment

LESSOR:

State of California
State Lands Commission
200 Oceangate, 12th Floor
Long Beach, CA 90802-4333

By: _____

Date: _____

Marina Voskanian
Chief, Mineral Resources Division
State Lands Commission

Acknowledgment