

COST ESTIMATE REGULATIONS FOR OIL AND GAS OPERATIONS

INITIAL STATEMENT OF REASONS

The Department of Conservation (Department), through its Geologic Energy Management Division (CalGEM), proposes to add sections 1753, 1753.1, 1753.1.1, 1753.1.2, 1753.2, 1753.2.1, 1753.2.2, 1753.3, 1753.3.1, and 1753.3.2 to the California Code of Regulations, title 14, division 2, chapter 4, subchapter 2, article 1.

Unless otherwise specified, references in this document to a “section” are references to a section of California Code of Regulations, title 14, as it would be added by this rulemaking.

INTRODUCTION AND BACKGROUND

CalGEM supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells. It carries out its regulatory authority with a legislative mandate to encourage the wise development of oil and gas resources, while preventing damage to life, health, property, and natural resources, and protecting public health, safety, and the environmental quality. (See Pub. Resources Code, § 3106, 3011.) California's crude oil production has declined steadily in the last few decades. As the seventh largest producer of oil in the nation, California is home to approximately 250,000 oil and gas wells. There are over 38,000 known idle wells which will eventually come to their end of life, and operators will be required to plug and abandon the wells and decommission the associated production facilities. California also currently has over 60,000 active wells, which will also eventually come to the end of their life—a transition that is potentially accelerated by California's move toward carbon neutrality.

Costs associated with plugging and abandoning these wells and decommissioning the associated facilities attendant to oil and gas production could be significant. While it is the responsibility of each operator to properly plug and abandon their wells and decommission attendant facilities, there are cases where the operator does not have the financial resources required to support the costs of doing this work. If such an operator deserts its assets and does not complete the required work, then CalGEM has authority to undertake the work directly and pursue reimbursement from the operator. In circumstances where there is not a solvent operator responsible for the wells and facilities, the costs of plugging and abandonment, decommissioning, and environmental remediation may fall to the state.

CalGEM has two overlapping authorities for directly undertaking plugging and abandonment and attendant decommissioning and site restoration. CalGEM may order the plugging and abandonment of deserted wells, and if the operator fails to plug and abandon the well as required, then CalGEM may appoint agents to complete the work to plug and abandon a well. (Pub. Resources Code, §§ 3226, 3237.) In addition, if CalGEM determines that no operator who acquired ownership of a well after January 1, 1996, has the financial resources to fully cover the costs of plugging and abandonment of the well or decommissioning deserted production facilities, then CalGEM may find that the well is an “idle-deserted well” or a “hazardous well” and directly undertake necessary work under Public Resources Code section 3255. (Pub. Resources Code, §§ 3237, subd. (c)(5), 3251, 3255.)

If the state identifies real or personal property belonging to a responsible entity, then CalGEM will work with the State Controller's Office to secure a lien against those assets in pursuit of reimbursement for the work performed. (Pub. Resources Code, § 3423.) Additionally, if any bond has been filed for the well, CalGEM will make a claim against the bond to apply towards the cost of plugging and abandonment. (Pub. Resources Code, §§ 3204, 3205.)

Cost Estimate Reports Required by Statute

The proposed regulations implement statutory reporting requirements to better understand the full costs associated with end-of-life remediation of operators' assets. In October 2019, Governor Newsom signed into law Senate Bill 551 (Jackson, Chapter 774, Statutes of 2019) adding Public Resources Code section 3205.7, which requires every operator to submit a report demonstrating the total estimated costs related to the plugging and abandonment of all their wells and decommissioning of all attendant facilities, including any needed site remediation. Legislative history suggests that the bill's authors and supporters were concerned about operator insolvencies leaving the state responsible for decommissioning costs. Senator Jackson said we need “to begin assessing these costs in a systematic, wholesale, across-the-board, thorough, comprehensive and regular way, or we risk entering into billions in liabilities with no plan and no recourse.” ((Sen. Rules Com., Senate Floor Analysis, S.B. 551 2017-2018 Reg. Sess.) p. 5.)

To implement the new reporting requirement, Public Resources Code section 3205.7 requires CalGEM to establish criteria that operators must adhere to when developing their cost estimates. The statute also requires CalGEM to establish a schedule for operators to submit their initial reports such that at least one-half of the operators are

required to submit an initial report by July 1, 2024, and all operators are required to submit an initial report by July 1, 2026. Due to timing delays, the first group of operators will submit their initial report by January 1, 2025. After initial submission, each operator is required to submit an updated report at least once every five years.

Related to the addition of Public Resources Code section 3205.7, effective January 1, 2020, Public Resources Code section 3205.3 significantly augmented CalGEM's bonding authority. Before adoption of Public Resources Code section 3205.3, operators were generally required to post a bond based upon the number of wells the operator operates and the depth of those wells. (Pub. Resources Code, §§ 3204, 3205.) With the adoption of Public Resources Code section 3205.3, based on CalGEM's evaluation of the operator's risk of desertion, CalGEM has broad authority to require an operator to provide additional security beyond the minimum indemnity bond amounts required under Public Resources Code sections 3204 and 3205. (Pub. Resources Code, § 3205.3, subd. (a).) The additional security cannot exceed the lesser of CalGEM's estimation of the reasonable cost of properly plugging and abandoning all of the operator's wells and decommissioning any attendant production facilities, or thirty million dollars. (Pub. Resources Code, § 3205.3, subd. (a).) Although the reports required under Public Resources Code section 3205.7 are not required for CalGEM to implement the new bonding authority, the cost estimate reports will be a valuable tool for implementation of that authority.

Description of Proposed Regulations

The proposed regulations establish the criteria that operators would be required to use when preparing the cost estimate reports required under Public Resources Code section 3205.7, allowing two different methods for making the required estimates. Method 1 is a prescribed methodology whereby an operator uses values developed by CalGEM to estimate the costs associated with well plugging and abandonment, production facility decommissioning, and site remediation based upon the condition, location, and history of the operator's assets. Method 2 allows for the operator to forego the assumed costs under Method 1 and develop their own site-specific cost estimates, providing the estimates are persuasively supported by detailed documentation.

The proposed regulations also establish a schedule for operators to submit their cost reports, grouping operators by recent per-well production volumes in a manner that is intended to ensure at least one-half of operators have a submission due date of January 1, 2025, which is the first quarterly date after the regulations will have been

finalized. Remaining operators have a submission due date of July 1, 2026. Offshore operators have already submitted their first report, and will provide updated cost estimates in 2027.

NECESSITY AND ANTICIPATED BENEFITS (GENERALLY)

The proposed regulations are necessary to respond to the mandate of Public Resources Code section 3205.7 to establish criteria that operators must utilize when preparing the required cost estimate reports. The two methodologies have complementary benefits. Method 1 will allow operators to complete the reports expeditiously by using conservative default cost amounts that CalGEM believes are unlikely to fall short of actual costs. Method 2 will be a more labor-intensive method to complete but will allow the operator the opportunity to demonstrate that the default cost estimates of Method 1 do not accurately reflect cost associated with its assets.

The establishment of a schedule for operators to submit their cost estimate reports is also necessary to respond to the mandates of Public Resources Code section 3205.7. Based on the final submission date of the regulations, the first group of operators will be required to submit their reports by January 1, 2025. Diminished per-well production volumes can be a risk indicator for potential desertion. Requiring operators with lower per-well production volumes to report first will generally provide data on higher-risk assets sooner.

The proposed well regulations will provide the additional benefit of assisting CalGEM with its implementation of its enhanced bonding authority under Public Resources Code section 3205.3. Public Resources Code section 3205.3, subdivision (b), outlines eight criteria CalGEM must consider in estimating the reasonable costs of properly abandoning an operator's wells and decommissioning the attendant production facilities, including any cost estimate submitted by the operator. The methodology contemplated by these regulations considers the applicable factors from Public Resources Code section 3205.3, subdivision (b), and as such will streamline implementation of Public Resources Code section 3205.3.

The proposed regulations will have the further benefit of supporting CalGEM's mandates under Public Resources Code sections 3011 and 3106 of preventing damage to life, health, property, and natural resources and protecting public health and the environment. By ensuring CalGEM and the state have data and analysis available regarding the costs associated with end-of-life remediation of oil and gas operations, this rulemaking will allow the state to begin assessing these costs in a comprehensive and regular way, help educate stakeholders on potential future costs, allow for

identification of changing cost trends over time, and where appropriate, inform appropriate bonding requirements. Taking these steps now ensures the state can begin to plan the most appropriate approach to managing these risks and costs.

SPECIFIC PURPOSE, RATIONALE, AND BENEFITS

Below is an explanation of each added regulatory section associated with this rulemaking action. These explanations address the specific purpose for each section, the rationale for why each section is reasonably necessary to achieve its purpose to effectuate the objectives of the statutory authority it implements, and the anticipated benefits of each section.

1753. Cost Estimate Report Requirements

Section 1753 outlines the requirements for an operator of a well to submit a Cost Estimate Report and what methodology is available to the operator depending upon whether the well and associated production facility are located onshore or offshore. Each operator will be required to submit a Cost Estimate Report, which, consistent with the mandate of Public Resources Code section 3205.7, will include the costs associated with plugging and abandoning each of the operator's wells that have not been properly plugged and abandoned, according to CalGEM's records, decommissioning all attendant production facilities that have not been decommissioned, according to CalGEM's records, and conducting site remediation at each well that has not been plugged and abandoned, according to CalGEM's records, and the site of each of production facility that has not been decommissioned, according to CalGEM's records.

The Cost Estimate Report facilitates a comprehensive and effective approach for each operator to report their total liability and is necessary to respond to the mandate of Public Resources Code section 3205.7 for CalGEM to begin requiring each operator to submit a report demonstrating the operator's total liability and that CalGEM develop criteria for operators to use for calculating these estimates.

Section 1753, **subdivision (a)**, provides that an operator of one or more wells that have not been properly plugged and abandoned, according to CalGEM's records, shall submit their Cost Estimate Report, according to the dates provided in Section 1753.1. If a well has been properly plugged and abandoned, there is no liability remaining for the well, and no costs for an operator to report. Some operators may only be the operator of wells that have been properly plugged and abandoned, according to CalGEM's records. The operator would have no outstanding liability associated with these wells.

As such, subdivision (a) is necessary to define under what circumstances an operator will be required to submit a Cost Estimate Report.

Section 1753, **subdivision (b)**, specifies that the Cost Estimate Report must include the operator's Well Abandonment Cost Estimates, Production Facility Decommissioning Cost Estimates, Site Remediation Cost Estimates, and a Cost Estimate Summary, which respectively, make up **subdivisions (b)(1) through (b)(4)**.

Subdivision (b)(1), which is the Well Abandonment Cost Estimate, shall consist of the cost to plug and abandon each of the operator's wells that have not been properly plugged and abandoned, according to CalGEM's records. If a well has not been properly plugged and abandoned, it will require further abandonment work in the future to prevent potential harm to the environment, and there are outstanding liabilities associated with the well. To ensure that operators complete a Well Abandonment Cost Estimate for each well that has not been properly plugged and abandoned, for a well to be excluded, it must be properly plugged and abandoned, according to CalGEM's records. If an operator believes a well has been properly plugged and abandoned, but that has not been reflected in CalGEM's records, the operator will need to provide the necessary records to demonstrate the well has been properly plugged and abandoned. This requirement is necessary to ensure that operators submit cost estimates for all wells for which there is plugging and abandonment liability remaining.

Subdivision (b)(2), which is the Production Facility Cost Estimates, shall consist of the cost to decommission each of the operator's production facilities that has not been decommissioned, according to the Division's records. If a production facility has not been properly decommissioned, it will require further decommissioning to prevent potential harm to the environment. If an operator believes a production facility has been properly decommissioned, but that is not reflected in CalGEM's records, the operator will need to provide the necessary records to demonstrate the production facility has been properly decommissioned. This requirement is necessary to ensure that operators submit cost estimates for all production facilities for which there is decommissioning liability remaining.

Subdivision (b)(3), which is the Site Remediation Cost Estimates, shall consist of the cost to remediate each of the operator's wells that have not been plugged and abandoned, according to CalGEM's records, and for each of the operator's production facilities that have not been decommissioned, according to CalGEM's records. If a well or production facility will require additional work to be properly

abandoned or decommissioned, such work will likely cause additional site disturbance that will need remediation. Again, if an operator believes that a well or production facility has been properly abandoned and decommissioned, but that is not reflected in CalGEM's records, the operator will need to provide the necessary records to demonstrate as such. This requirement is necessary to ensure that operators submit cost estimates for all sites for which there is site remediation liability remaining.

Subdivision (b)(4) is a cost estimate summary, which is a simplified aggregate of the estimates from subsections (1)-(3), with no requisite format.

Section 1753, **subdivision (c)** specifies that when conducting a Well Abandonment Cost Estimate, for each onshore well, an operator may use Well Abandonment Cost Estimate Method 1 or Well Abandonment Cost Estimate Method 2, which are **subdivisions (c)(1) and (c)(2), respectively**. For each offshore well, operators must use Well Abandonment Cost Estimate Method 2.

The Method 1 and Method 2 methodologies are discussed in more detail in their applicable sections. Generally, Method 1 is a prescribed methodology whereby an operator uses values developed by CalGEM to estimate the costs associated with well plugging and abandonment, production facility decommissioning, and site remediation based upon the condition of the operator's assets, whereas Method 2 allows for the operator to develop their own costs, supported by documentation.

Method 1 uses pre-existing data from state contracts to identify regional base costs, which are then adjusted by multipliers known to increase the cost of plugging and abandonment, decommissioning, and site remediation. To reflect current costs, the state contract data was adjusted for inflation using the Consumer Price Index (CPI) for all urban consumers, series CUUR0000SA0, not seasonally adjusted. The Basis of Reasoning for Base Costs document developed by CalGEM and listed in the Documents Relied Upon section provides detailed analysis of how the base numbers for Method 1 were calculated.

Subdivision (c) is necessary to differentiate the methodology an operator may use for their onshore wells versus their offshore wells and ensures that the proper cost estimate type is submitted for each well. Operators are provided two options for submitting their cost estimates for onshore wells to allow the operator to provide the cost estimate they believe is most appropriate and accurately represents the cost of plugging and abandoning their wells. Offshore wells are limited to Method 2 because of the complexity of offshore installations. For example, in some cases there may be an offshore platform, whereas in others there are islands. Providing base numbers for these

very different options is not feasible. Method 2 allows for the unique characteristics of offshore wells, which cannot be captured in a Method 1 type analysis, to be accounted for. Thus, limiting offshore operators to the use of Method 2 is necessary to ensure that the cost estimates submitted reflect these differences.

Section 1753, **subdivision (d)** specifies that when conducting a Production Facility Decommissioning Cost Estimate, that for each production facility attendant to an onshore well, an operator may use Production Facility Decommissioning Cost Estimate Method 1 or Production Facility Decommissioning Cost Estimate Method 2 **(subdivision (d)(1))** and for each production facility attendant to an offshore well, operators must use Production Facility Decommissioning Cost Estimate Method 2 **(subdivision (d)(2))**.

Consistent with the reasons discussed above, for each production facility attendant to an offshore well, operators are required to use Method 2, which is necessary to ensure that the unique environments offshore are accounted for sufficiently in the operator's estimate of their total liability and allows for the unique characteristics of offshore production facilities to be accounted for.

Section 1752, **subdivision (e)** specifies that when conducting a Site Remediation Cost Estimate, for each onshore well and onshore production facility **(subdivisions (e)(1) and (e)(2), respectively)**, the operator may use Site Remediation Cost Estimate Method 1 or Site Remediation Cost Estimate Method 2, whereas for each offshore well and offshore production facility **(subdivisions (e)(3) and (e)(4), respectively)**, the operator must use Site Remediation Cost Estimate Method 2.

Like subdivisions (c) and (d) above, for onshore operations, operators may use Method 1 or Method 2, while offshore operators are limited to Method 2, with the corresponding purpose and benefits of the previous subdivisions that will result from ensuring each operator uses the intended cost estimation method in each context and fully accounts for the cost to cover the cost of site remediation.

Section 1753, **subdivision (f)**, provides operators with the information needed for what must be included in their Cost Estimate Summary. Specifically, the operator must submit the combined value of the estimated costs from all of their Well Abandonment Cost Estimates, the combined value of the estimated costs from all of their Production Facility Decommissioning Cost Estimates, the combined value of the estimated costs from all of their Site Remediation Cost Estimates, and the total of all of these estimates combined in their Cost Estimate Summary. Consistent with the mandate of Public Resources Code section 3205.7, the Cost Estimate Summary is necessary to ensure that each operator submits a report demonstrating the operator's total liability.

Section 1753, **subdivision (g)** specifies that operators must submit their Cost Estimate Report in a digital tabular format. While some operators may have only one or two cost estimates to report, others will have many thousands, and a digital tabular system is the most efficient way to gather this data. In addition, having data reported in a digital tabular format will ensure that data can be integrated with CalGEM's databases and efficiently managed. Subdivision (g) is necessary to create a consistent format for CalGEM to compile information about operators' total liability.

1753.1. Due Dates for Cost Estimate Reports

The purpose of section 1753.1 is to provide operators with a date that they must submit their Cost Estimate Report. Consistent with the provisions of PRC section 3205.7, section 1753.1 is necessary to prescribe when an operator must submit their Cost Estimate Reports.

Section 1753.1, **subdivision (a)**, defines the reporting categories for operators.

- **Subdivision (a)(1)**: By no later than January 1, 2025, all operators who were assessed, in accordance with Public Resources Code sections 3402 and 3403, based upon production of less than 3.5 total barrel equivalent per day per well, including any idle wells, for calendar year 2021. Operators who were not assessed due to lack of production also report with this group.
- **Subdivision (a)(2)**: By no later than July 1, 2026, for all operators who were assessed, in accordance with Public Resources Code sections 3402 and 3403, based upon production of an average of more than 3.5 total barrel equivalent per day per well, including idle wells for calendar year 2021 and for all operators who were assessed in accordance with Public Resources code sections 3403.5.

For operators assessed in accordance with Public Resources Code section 3402 or 3403, the reporting category is based upon the production for which the operator was assessed for calendar year 2021. Under Public Resources Code sections 3402 and 3403, an operator's annual assessment is determined by the operator's proportionate share of the oil or gas produced in the previous calendar year. The rate is based upon the operator's total barrel equivalent per day, which is calculated by the total barrels of oil produced and for each 10,000 cubic feet of gas produced. (Pub. Resources Code, §§ 3402; 3403.) It is necessary to base the reporting category upon the production the operator was assessed to ensure consistency across operators and to create categories based on risk of desertion that will ensure the highest risk operators are reporting first. (Pub. Resources Code, §§ 3406; 3407.5; 3408.)

The reporting categories for these operators are based upon the average barrels of oil equivalent per day per well, including any idle wells. Those operators with the least productive wells are in the earliest reporting category, while the operators with the most productive wells are in the latest reporting category. Those operators with more productive wells are assumed to be at less risk of deserting their wells. These groupings are necessary to ensure that the highest risk operators are prioritized for determination of their liability.

Those operators who were not assessed due to lack of production, which would include an operator of only injection wells, are included in the first reporting category. Such operations are typically referred to as commercial disposal projects. Because these projects do not result in the production of oil or gas, the operator is not assessed due to lack of production and would be required to report in the first reporting category.

Unlike operators that produce oil and gas, the operators of underground gas storage wells are assessed in accordance with Public Resources Code section 3403.5. Operators that were assessed in accordance with Public Resources Code section 3403.5 for calendar year 2021 report in the second reporting category. Typically, underground gas storage operations use old oil and gas fields for gas storage reservoirs. These older wells are used to transmit the gas to and from the storage reservoir. Given the age of the wells, many of the wells will no longer be useable in the next 10 to 20 years. Given the risks associated with these wells and the potentially short time that these wells will continue to be useable, it is important to have an accurate report of the operators' total liabilities by the deadline for category two.

In addition, by grouping operators based upon the calendar year 2021 assessment, operators are fixed in a reporting category. Doing so allows the operator's initial filing period to be set and sets the schedule for filing updated reports every five years thereafter. If CalGEM were to allow operators to change groups based on subsequent assessments, the operator might escape having to do an updated report for more than five years, which is inconsistent with the requirements of Public Resources Code section 3205.7.

Consistent with Public Resources Code section 3205.7, **subdivision (b)**, provides that operators may omit offshore wells and production facilities from their initial Cost Estimate Report, but must submit a Cost Estimate Report that includes cost estimates associated with their offshore wells and production facilities by July 1, 2027. Similarly, if the operator only operates offshore wells or production facilities, the operator must submit a Cost Estimate Report by July 1, 2027.

All offshore wells have been evaluated pursuant to the requirements of Public Resources Code section 3205.6. As such, having operators omit their offshore wells and production facilities from their initial Cost Estimate Report is necessary to implement the requirement under Public Resources Code section 3205.7, subdivision (c) for operators to omit all offshore wells and facilities evaluated pursuant to Public Resources Code section 3205.6.

Section 1753.1, **subdivision (c)**, provides Cost Estimate Report filing dates for operators that did not operate a well in calendar year 2021. Operators with no wells or production facilities in 2021, but who become an operator of a well before April 1, 2026, must submit their Cost Estimate Report no later than July 1, 2026. While operators that operated no wells or production facilities before April 1, 2026, but became the operator of a well on or after that date must submit their Cost Estimate Report within 90 days of becoming the operator of a well. CalGEM determined that 90 days was a reasonable amount of time for an operator to complete a Cost Estimate Report and will ensure that CalGEM has up-to-date evaluations of operator's total liability. In both situations, an operator will have 90 days to complete their Cost Estimate Report. These provisions are necessary to ensure that entities who become operators after these rules go into effect are provided a time by which they must submit their Cost Estimate Report.

Section 1753.1, **subdivision (d)**, requires all operators to submit updated Cost Estimate Reports every five years from the date of the initial submission. Basing the deadline for submitting an update report based upon when the operator was originally required to submit their Cost Estimate Report is necessary to implement the requirement of Public Resources Code section 3205.7, subdivision (a)(2), that operators submit follow-up reports no less frequently than every five years.

Section 1753.1, **subdivision (e)**, clarifies that for the purposes of this section "total barrel oil equivalent" means one barrel of oil or 10,000 cubic feet of gas. This is necessary to ensure operators know which group they should report with and is consistent with the barrel of oil equivalent metric used for the annual assessment.

1753.1.1. Requirements for Cost Estimates

Section 1753.1.1 specifies the documentation operators must submit to validate their Cost Estimate Reports, the types of documentation an operator may submit to validate their estimates, and the method by which CalGEM will document an operator's compliance with the Cost Estimate Report requirements. The section is necessary to implement the requirements of Public Resources Code section 3205.7.

Section 1753.1.1, **subdivision (a)**, provides that regardless of whether the operator is using Method 1 or Method 2, CalGEM may request additional documentation regarding the number, location, and relevant condition of wells, production facilities, and sites. This provision is necessary to define the parameters and the process by which CalGEM will request additional documentation to verify the accuracy of the operator's estimate.

Section 1753.1.1, **subdivision (b)**, provides that operators, whether using Method 1 or Method 2, should not reduce cost estimates by salvage value, including any potential increase in real estate value which may result from the plugging and abandonment of a well on that property. There are two primary reasons for this limitation. First, salvage values, particularly for real estate, can be highly variable and situation dependent. Second, and more importantly, the state does not realize any salvage values if it is required to plug and abandon, decommission, or remediate operator assets. (Pub. Resources Code, § 3016.) Similarly, the state, not being the owner of the property, would not realize any value from the sale of real property. Thus, these values are appropriately excluded to ensure the cost estimate reflects the operator's total liability should plugging and abandonment fall to the state.

Section 1753.1.1, **subdivision (c)**, outlines additional requirements for operators using Method 2 when submitting a Well Abandonment Cost Estimate, a Production Facility Cost Estimate, or a Site Remediation Cost Estimate. The requirements listed in this subdivision provide operators with the information needed to effectively document their cost estimates. Because operators using Method 2 will be providing cost estimates based on their information, it is necessary for the operators to submit documentation that supports their data for CalGEM to determine if the cost estimate accurately reflects the operator's total liability consistent with the mandates of Public Resources Code section 3205.7 subdivisions (a) and (b).

- **Subdivision (c)(1)** requires all Method 2 cost estimates to be calculated in current dollars and reflect the estimated contracting cost if the state were to have to pay a contractor to perform the work if the operator fails to do so. Because the state does not typically obtain the benefit of operator specific discounts and business relationships, operator specific savings or efficiencies cannot be utilized in estimating the operator's liability to ensure that the cost estimates provide information on the potential cost to the state for doing such work. Furthermore, by having the estimates reflect the cost for the state to do the work,

operators will not be submitting documentation of their financial arrangements with their suppliers and service providers, which would include savings unique to that operator and may also have provisions restricting their disclosure.

- **Subdivision (c)(2)** provides a list of documentation that an operator may submit to support the validity of the values used to calculate their cost estimate. To prevent operators from being overly burdened by submitting documents CalGEM already has available, operators are only required to submit documents not otherwise available in CalGEM's records.
 - **Subdivision (c)(2)(A)** allows operators to provide documentation of the conditions of the wells, production facilities, and sites if they differ from those conditions currently in CalGEM's records. This is necessary to ensure that the operator includes any site conditions, such as geologic hazards or junk-in-hole, that could affect the cost estimate associated with plugging and abandoning the well.
 - **Subdivision (c)(2)(B)** allows operators to use well status reports to demonstrate the conditions of a well, production facility, and site. These well status reports are dated and include specific details of activity at each well, which is necessary to understand the conditions of the well and costs associated with plugging and abandoning the well.
 - **Subdivision (c)(2)(C)** allows operators to rely on documented costs expended for work on comparable wells, including cost information from recent contracts for state abandonment. Documentation is necessary to ensure that the work was done on a comparable well and that no operator specific discounts have been included.
 - **Subdivision (c)(2)(D)** allows operators to use vendor prices lists that have been published to the public to support their claims regarding specific cost elements. This requirement may involve discussion between the operator and the service provider to determine what the service provider would charge the state, rather than what they might charge an operator with whom they have an ongoing relationship. It is necessary that the vendor price list be published and available to the public to ensure that the price list accurately reflects the estimated costs and does not include any operator specific discounts.

- **Subdivision (c)(2)(E)** allows operators to submit estimates and quotes from contractors and service professionals. These estimates will need to reflect the cost that the service provider would charge to the state and should not include any discounts that would be available to a specific operator.
- **Subdivision (c)(2)(F)** allows operators to submit rig rate reports to support cost estimates. These reports provide information about real-time activities on the ground and can be an accurate source of data for the time and equipment needed to complete remediation work, which could be used to support the accuracy of the operator's estimate.
- **Subdivision (c)(2)(G)** allows operators to submit end of well reports from abandonment of comparable wells. These documents can provide important information about conditions in the area that can be used to inform an operator's estimate and document the validity of those estimates.
- **Subdivision (c)(2)(H)** allows operators to submit any other verifiable documentation of applicable costs. This subdivision recognizes that it would be impossible to delineate all the potential sources of cost documentation and information that could be used to support an operator's estimate.

1753.1.2. Cost Estimate Reporting Compliance.

Section 1753.1.2 governs the method by which CalGEM will conduct and document an operator's compliance with cost estimate reporting requirements. If upon initial review, CalGEM determines that each estimate provided in the operator's Cost Estimate Report complies with the requirements of the applicable sections, CalGEM will provide the operator written notice that the Cost Estimate Report complies with the requirements (**subdivision (a)**). However, if CalGEM determines the operator's Cost Estimate Report does not comply with the requirements of the applicable section, CalGEM will provide the operator a written notice of the basis for that determination and allow the operator at least 30 days to provide additional information to substantiate the cost estimate and, if necessary, a revised estimate (**subdivision (b)**).

Upon final review of a Cost Estimate Report, including any additional information provided by the operator, CalGEM will provide the operator a written notice that the cost estimate does or does not comply with the requirements of the applicable section (**subdivision (c)**).

Section 1753.1.2 provides a transparent process for documenting operator compliance with the Cost Estimate Report requirements. This provision defines the process and protocols by which CalGEM will document an operator's compliance with the Cost Estimate Report requirements, which is necessary to implement CalGEM's statutory mandate to require each operator to submit a Cost Estimate Report and to set a timely schedule for requiring operators submit revised estimates, when appropriate.

1753.2. Well Abandonment Cost Estimate Method 1

Section 1753.2, Well Abandonment Cost Estimate Method 1, uses data derived from state abandonment contracts to identify base costs, which are adjusted by multipliers based on the characteristics of the well that are known to increase the cost of plugging and abandonment. Rather than provide their own cost data by conducting their own cost research, operators will utilize the prescribed methodology to calculate their estimated liability. This provides operators with a less burdensome methodology, likely increasing compliance. Section 1753.2 is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(1) that CalGEM develop criteria for operators to use for estimating the cost to plug and abandon each of the operator's wells.

Section 1753.2, **subdivision (a)**, identifies the method operators must follow to calculate the Well Abandonment Cost Estimate and the specific information operators will be required to submit, all of which is necessary for CalGEM to evaluate the accuracy of the Well Abandonment Cost estimate. The Well Abandonment Cost Estimate is calculated by multiplying the Estimated Well Days by the Base Daily Cost Rate. **Subdivisions (a)(1) through (a)(4)**, as described in more detail below, provide the methodology for calculating the Estimated Well Days and Base Daily Cost Rate.

To generate a Well Abandonment Cost Estimate using Method 1 the operator must:

- Calculate the Aggregated Well Score, under **subdivision (a)(1)**, by identifying the characteristics of the well and associated points, as listed in the Aggregated Well Score Table of **subdivision (a)(1)(A)** and summing those points. The characteristics listed in the Aggregated Well Score Table are known to affect the cost of a well plugging and abandonment. These characteristics were developed by examining contract cost data from wells that have been plugged and abandoned by the state over the last decade. The operator must identify those characteristics applicable to the well to ensure that the Well Abandonment Cost Estimate takes into account the specific conditions of the well, including those that may increase the cost of plugging and abandonment.

- Determine the appropriate Well Score Multiplier, under **subdivision (a)(2)**, by selecting the Well Score Multiplier from the Well Score Multiplier Table, in **subdivision (a)(2)(A)**, corresponding to the Aggregated Well Score that was calculated under subdivision (a)(1). For example, if the Aggregated Well Score was 26, then the Well Score Multiplier would be 1.20. The Well Score Multiplier is necessary to adjust the estimated cost of plugging and abandoning the well based upon those conditions that are known to increase the cost.
- Determine the Estimated Well Days, under **subdivision (a)(3)**, by multiplying the Base Well Days by the Well Score Multiplier. The Base Well Days is determined based upon the region where the well is located (**subdivisions (a)(3)(i) through (a)(3)(iv)**). The Base Well Days is the days it will likely take to plug and abandon the well. Depending upon the region where the well is located, the plugging and abandonment is likely to take longer. For example, a well in the Southern region is likely to take longer to plug and abandon because the well is more likely to be located in an urban environment. It is necessary to multiply the Base Well Days by the Well Score Multiplier to account for the well characteristics that would increase the days, and therefore the costs, it would likely take to plug and abandon the well. CalGEM experience and data show the Estimated Well Days to be the most influential factor on plugging and abandonment cost.
- Determine the Base Daily Cost Rate, under **subdivision (a)(4)**, based upon the region in which the well is located. The Base Daily Cost Rate is similarly calculated based on state contracting data. The Base Daily Cost Rate (**subdivisions (a)(4)(i) through (a)(4)(iv)**) is the cost per day it will likely take to plug and abandon the well in the applicable region. The Base Daily Cost Rate was calculated using historic state contracting data. Similar to the Base Well Days, adjusting the Base Daily Cost Rate for the region where the well is located is necessary to account for costs that are likely to differ between the regions.

Section 1753.2, **subdivision (b)**, provides the geographic description for the regions described under subdivisions (a)(3) and (a)(4).

Generally, the Northern region (**subdivision (b)(1)**) includes counties in Northern California and coastal California north of Los Angeles, the Southern region (**subdivision (b)(2)**) includes counties in Southern California, with the Central region (**subdivision (b)(3)**) representing those counties north of the Southern Region, south and east of the Northern Region. Where the dividing line between the regions does not correspond to county boundaries, **subdivisions (b)(4) and (b)(5)**, including **(b)(5)(A) through (b)(5)(C)**

provide detailed segments that describe the procession of the boundary lines along sections using township and range.

Providing data for cost estimates based on region ensures that the specific characteristics and challenges that face each region can be properly accounted for in the operator's Well Abandonment Cost Estimate. It also ensures that the data used are focused enough to provide for accurate cost estimates in each region, rather than sacrificing accuracy and validity by using statewide averages or broader regional datasets.

1753.2.1. Production Facility Decommissioning Cost Estimate Method 1

Section 1753.2.1, Production Facility Decommissioning Method 1, like the Well Abandonment Cost Estimate Method 1, uses data derived from state abandonment contracts to identify base costs, which are adjusted by multipliers based on the characteristics of the production facility. Rather than provide their own cost data by conducting their own cost research, operators will utilize the prescribed methodology to calculate their estimated liability. This provides operators with a less burdensome methodology, likely increasing compliance. Section 1753.2.1 is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(1) that CalGEM develop criteria for operators to use for estimating the cost to decommission each of the operator's production facilities.

Section 1753.2.1, **subdivision (a)**, identifies the method operators must follow to calculate the Production Facility Decommissioning Cost and the specific information operators will be required to submit, all of which are necessary for CalGEM to evaluate the accuracy of the Production Facility Decommissioning Cost Estimate. The Production Facility Decommissioning Cost Estimate is calculated by summing the Base Facility Decommissioning Cost, the Cost of Other Project Components and the Contingency Cost. **Subdivisions (a)(1) through (a)(5)**, as described in more detail below, provide the methodology for calculating the Base Facility Decommissioning Cost, the Cost of Other Project Components, and the Contingency Cost.

To generate a Production Facility Decommissioning Cost Estimate under this section the operator must:

- Provide the name of the lease where the production facility is located, under **subdivision (a)(1)**. Having the operator provide the lease where the production facility is located will allow CalGEM to verify that the information is available in CalGEM's records and link to the conditions of the production facility. This

information is necessary so that CalGEM can validate the facility conditions that may affect cost are accurately reflected in the cost estimate.

- Calculate the Base Facility Decommissioning Cost, under **subdivision (a)(2)**, by identifying the applicable Production Facility Type from the Production Facility Decommissioning Unit Costs Table in **subdivision (a)(2)(A)** and multiplying by the associated Unit Cost. The cost of decommissioning a production facility differs based upon the type of production facility being decommissioned. As such, it is necessary to differentiate between the different types of production facilities that the operator is estimating the costs associated with decommissioning and assign differing unit costs.
- Calculate the Cost of Other Project Components, under **subdivision (a)(3)**, by summing the costs of Permitting and Regulatory Compliance, Mobilization and Demobilization, and Project Management and Engineering.
 - The cost of Permitting and Regulatory compliance, under **subdivision (a)(3)(A)**, is calculated by multiplying the Base Facility Decommissioning cost from subdivision (a)(2) by five percent.
 - The cost of Mobilization and Demobilization, under **subdivision (a)(3)(B)**, is calculated by multiplying the Base Facility Decommissioning cost from subdivision (a)(2) by five percent to ensure that sufficient allowance is provided for the costs associated with movement of equipment and people, particularly after the plugging and abandonment is completed.
 - The cost of Project Management and Engineering, under **subdivision (a)(3)(C)**, is calculated by multiplying the Base Facility Decommissioning cost from subdivision (a)(2) by eight percent.

The Cost of Other Project Components captures those costs required for permitting and regulatory compliance, mobilization and demobilization, and project management and engineering. Examples of these include soil sampling, fluid sampling, surveys, and generation of emergency response plans. These costs will vary according to the complexity of the work being performed. As such, it is necessary to use a percentage to capture the overall costs.

- Calculate the Production Facility Decommissioning Aggregated Risk Score, under **subdivision (a)(4)**, by identifying the characteristics of each production facility, points assigned to those characteristics, as listed in the Production Facility Decommissioning Aggregated Risk Score Table in **subdivision (a)(4)(A)**, and

summing of those points. The characteristics listed in the Production Facility Remediation Aggregated Risk Score Table are known to affect the cost of production facility decommissioning. These characteristics were developed by examining contract cost data from production facilities that have been decommissioned by the state over the last decade. The operator must identify those characteristics applicable to the production facility ensure that the Production Facility Cost Estimate takes into account the specific conditions of the production facility, including those that may increase the cost of decommissioning.

- Calculate the Contingency Cost, under **subdivision (a)(5)**, by multiplying the Base Facility Decommissioning cost from subdivision (a)(2)(A) by the applicable Contingency Percentage.
 - **Subdivision (a)(5)(A)** allows for the operator to group production facilities and determine the Contingency Cost by multiplying the total Base Facility Cost for all the production facilities in the group by the appropriate Contingency Percentage. However, when grouping production facilities, any characteristic from the Aggregated Risk Score that is applicable to a production facility must be applied to the entire group. This will allow for operators to streamline the development of the Production Facility Cost estimate, but also ensure that the cost estimate reflects all characteristics that may affect the cost of decommissioning the production facilities.
 - **Subdivision (a)(5)(B)** defines the contingency percentages the operator must use. The percentages **(subdivisions (a)(5)(B)(i) through (a)(5)(B)(iii))** are based upon industry data regarding contingency in oil and gas decommissioning operations. The contingency is an allowance in the estimate for the unexpected; for those issues that arise that were of such low probability that minimal arrangements were made; and for emergencies or other hazards that may arise due to accident during decommissioning. The contingency ensures that these unexpected costs are incorporated into the operator's estimate. The contingency percentage ensures that those costs that will protect public health and safety and environmental quality, in accordance with Public Resources Code section 3011, are incorporated into the operator's cost estimate.

1753.2.2. Site Remediation Cost Estimate Method 1

As in sections 1753.2 and 1753.2.1, section 1753.2.2, Site Remediation Cost Estimate Method 1, uses data derived from state abandonment contracts to identify base costs, which are adjusted by multipliers based on the conditions of the site that are known to increase the cost of site remediation. Rather than provide their own cost data by conducting their own cost research, operators will utilize the prescribed methodology to calculate their estimated liability. This provides operators with a less burdensome methodology, likely increasing compliance. Section 1753.2.2 is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(2) that CalGEM develop criteria for operators to use for estimating the cost to remediate the site of each well, attendant production facility, or lease.

Section 1753.2.2, **subdivision (a)**, identifies the method operators must follow to calculate the Site Remediation Cost Estimate using Method 1 and the specific information operators will be required to submit, all of which are necessary for CalGEM to evaluate the accuracy of the Site Remediation Cost Estimate. The Site Remediation Cost Estimate is calculated by summing the Base Site Remediation Cost, the Cost of Other Project Components, and the Contingency Cost. **Subdivisions (a)(1) through (a)(4)**, as described in more detail below, provide the methodology for calculating the Base Site Remediation Cost, the Cost of Other Project Components, and the Contingency Cost.

To generate a Site Remediation Cost Estimate under this section, the operator must:

- Calculate the Base Site Remediation Cost consistent with **subdivision (a)(1)** by identifying the applicable site remediation Cost Elements from the Well Site and Production Facility Site Remediation Unit Costs Table under **subdivision (a)(1)(A)**, multiplying by the associated Unit Cost, and summing all of those costs. The costs associated with remediating the sites of different production facilities differ based upon the type of production facility being decommissioned. As such, it is necessary to differentiate between the types of production facilities that the operator is estimating the costs associated with remediating the production facility sites and assign different unit costs.
- Calculate the Cost of Other Project Components, under **subdivision (a)(2)**, by summing the costs of Permitting and Regulatory Compliance, Mobilization and Demobilization, and Project Management and Engineering.

- The cost of Permitting and Regulatory compliance, under **subdivision (a)(2)(A)**, is calculated by multiplying the Base Site Remediation cost from subdivision (a)(2) by five percent.
- The cost of Mobilization and Demobilization, under **subdivision (a)(2)(B)**, is calculated by multiplying the Base Site Remediation cost from subdivision (a)(2) by five percent.
- The cost of Project Management and Engineering, under **subdivision (a)(2)(C)**, is calculated by multiplying the Base Site Remediation cost from subdivision (a)(2) by eight percent.

These percentages are based upon the state contracting data and have also been validated by on the ground decommissioning consistent with the methodology to test its applicability and provide additional data on auxiliary costs. The contingency ensures that there is a sufficient allowance in the estimate for the unexpected; for those issues that arise that were of such low probability that minimal arrangements were made; and for emergencies or other hazards that may arise. The contingency percentage ensures that those costs that will protect public health and safety and environmental quality, in accordance with Public Resources Code section 3011, are incorporated into the operator's cost estimate.

- Calculate the Site Remediation Aggregated Risk Score, under **subdivision (a)(3)**, by identifying the characteristics of each site, points assigned to those characteristic as listed in the Site Remediation Aggregated Risk Score Table in **subdivision (a)(3)(A)** and summing of those points. The characteristics listed in the Site Remediation Aggregated Risk Score Table include those factors known to cause increased site remediation costs. These characteristics were developed by examining state contracting data and CalGEM experience. The operator must identify those characteristics applicable to the site to ensure that the Site Remediation Cost Estimate takes into account the specific conditions of the site, including those that may increase the cost of plugging and abandonment.
- Calculate the Contingency Cost, under **subdivision (a)(4)**, by multiplying the Base Site Remediation Cost from subdivision (a)(1) by the applicable Contingency Percentage; 10 percent if the Well Site and Production Facility Site Aggregated Risk Score is less than 10 points (**subdivision (a)(4)(A)**), 20 percent if the Well Site and Production Facility Site Aggregated Risk Score is between 10 and 19 points (**subdivision (a)(4)(B)**), and 30 percent if the Well Site and

Production Facility Site Aggregated Risk Score is 20 points or greater (**subdivision (a)(4)(C)**).

The amount of the contingency percentage is determined based on the Aggregated Risk Score, with percentages based upon industry data regarding contingency in oil and gas remediation operations. This contingency ensures that there is a sufficient allowance for the unexpected; for those issues that arise that were of such low probability that minimal arrangements were made; and for emergencies or other hazards that may arise due to accident during decommissioning. The contingency percentage ensures that those costs that will protect public health and safety and environmental quality, in accordance with Public Resources Code section 3011, are incorporated into the operator's cost estimate.

1753.3 Well Abandonment Cost Estimate Method 2

Under **section 1753.3**, Well Abandonment Cost Estimate Method 2, operators develop a cost estimate that does not rely upon values prescribed by CalGEM. Rather operators provide their own cost data for each of the categories listed in the section.

Method 2 provides operators with the opportunity to submit estimates for these assets where they feel the additional research and documentation are warranted and for any offshore wells operated by the operator and is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(1) that CalGEM provide a method by which operators will submit cost estimates for their wells, which includes offshore wells.

Section 1753.3, **subdivision (a)**, describes the specific steps the operator must take to calculate a cost estimate for well abandonment using Method 2. The operator sums the costs associated with **subdivisions (a)(2) through (a)(9)** consistent with plugging and abandoning each of the operator's wells in according with Public Resources Code section 3208.

To generate a Well Abandonment Cost Estimate under this section, the operator must:

- Under **subdivision (a)(1)**, identify the number of days, including partial days, to perform the plugging and abandonment work. CalGEM's analysis of state contract data indicates that the number of days required to complete the work is the greatest predictor of cost. As such, this information will be used for CalGEM to determine if the cost estimate provides sufficient costs for the time that the

project will take to complete, if the number of days is generally consistent with what could be expected by a well in that region, and if the cost estimate accurately reflects the total costs to complete the work.

- Under **subdivision (a)(2)**, identify the cost to develop and obtain permits to perform the plugging and abandonment work. When a well is plugged and abandoned under a state contract, the contractor is required to develop and obtain all necessary permits. It is necessary to include these costs in the overall cost estimate, or the estimate will underestimate the cost to complete the plugging and abandonment work.
- Under **subdivision (a)(3)**, provide the costs for project management and engineering. These costs will incorporate costs specific to the well site and condition and should account for difficulties such as unique access challenges or local jurisdictional requirements. Allowances for these costs will ensure that the cost estimate reflects the management costs associated with well plugging and abandonment, which may vary greatly depending upon the unique characteristics of the well.
- Under **subdivision (a)(4)**, provide the cost to develop safety, environmental, and emergency response plans including spill response and incident response plans. CalGEM regulations, among others, require an operator who is plugging and abandoning a well to have a spill contingency plan and emergency provisions for common hazards. Where a specific well location may have unique hazards, the cost estimate should account for those hazards; operators should not provide a cost for emergency planning and response that is the same for all of their wells as that cost element would be affected by on the ground conditions and the estimate should account for those differences to ensure that the cost estimate reflects the total cost to perform the work.
- Under **subdivision (a)(5)**, provide the cost to mobilize and demobilize the equipment and crews required to perform the work, to ensure that sufficient allowance is provided for the costs associated with movement of equipment and people, particularly after the plugging and abandonment is completed. The benefit of this requirement is the cost estimates will include allowances for the mitigation of the potential harm to life, health, property, and natural resources from an incomplete mobilization that lacks the proper staff and equipment, or the harm associated with equipment. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.

- Under **subdivision (a)(6)**, provide the costs associated with access to the site location. Ensuring that equipment can access the site to perform a proper plugging and abandonment job is a key component to a successful plugging and abandonment. Where a well has specific access issues that may require specialized equipment or special plugging procedures, these access costs must be incorporated into the cost estimate. Similarly, depending upon the rights the operator has associated with the well, there may be additional costs associated with obtaining access. Including these costs ensures the cost estimate accurately reflects the cost to plug and abandon the well.
- Under **subdivision (a)(7)**, provide the costs associated with materials recycling or disposal. These costs are a part of every plugging and abandonment operation. They include materials which may already be present on site or may be removed from the wellbore, materials that have been brought onsite for the purpose of the plugging and abandonment, and any other materials on the site, and which may need to be gathered and disposed of to complete the wellsite clean up. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.
- Under **subdivision (a)(8)**, provide the costs associated with performing the plugging and abandonment work including the workplan necessary to meet statutory requirements for plugging and abandonment under Public Resources Code section 3208. Providing sufficient funding to ensure every well is properly plugged and abandoned is crucial to the welfare of the public and the environment.
- Under **subdivision (a)(9)**, provide a contingency of 10 percent of the costs calculated under subdivisions (a)(2) through (a)(8). The contingency ensures that the cost estimate includes costs for unexpected events that are difficult to plan for, but which often occur. This contingency amount is based on industry standards for well plugging and abandonment and ensures that the cost estimate incorporates hazards and risks that must be mitigated at the time of plugging and abandonment, but which were not specifically planned for. This contingency percentage will ensure the cost estimate reflects the total costs to perform the work.

Section 1753.3, **subdivision (b)**, provides that the operator must account for the specific conditions and circumstances of the well location, well configuration, age, and well condition including geologic hazards, information provided by the well history, and

proximity to sensitive populations and environmental resources when estimating the cost to plug and abandon the well. This ensures that the cost estimate provided by the operator is specific to each well and that the operator understands the need to adjust their estimates for differing conditions at well sites.

Section 1753.3, **subdivision (c)**, reminds operators that in addition to submitting a Well Abandonment Cost Estimate that complies with the requirements of section 1753.3, the operator must submit supporting documentation consistent with section 1753.1.1. This cross reference is important to remind operators of the documentation requirements. This subdivision is necessary, because CalGEM cannot verify the accuracy of cost estimates from operators using Method 2 without validating documentation that supports the accuracy of the costs provided.

1753.3.1. Production Facility Decommissioning Cost Estimate Method 2

Under **section 1753.3.1**, Production Facility Decommissioning Cost Estimate Method 2, operators develop a cost estimate that does not rely upon values prescribed by CalGEM. Rather, operators provide their own cost data for each of the categories listed in the section.

Method 2 provides operators with the opportunity to submit estimates for these assets where they feel the additional research and documentation are warranted and for any production facilities attendant to offshore wells operated by the operator, and is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(1) that CalGEM provide a method by which operators will submit cost estimates for their production facilities attendant to wells, which includes offshore wells.

Section 1753.3.1, **subdivision (a)**, describes the specific steps the operator must take to calculate a cost estimate for facility decommissioning under this Method 2 section. The operator sums the costs listed in the subdivisions consistent with the goal of decommissioning each of the operator's facilities in accordance with California Code of Regulations, title 14, section 1776.

To generate a Production Facility Decommissioning Cost Estimate under this section, the operator must:

- Under **subdivision (a)(1)**, identify the name of the lease where the production facility is located. Having the operator provide the lease where the production facility is located will allow CalGEM to verify that the information is available in

CalGEM's records and can be linked to the conditions of the production facility. This information is necessary so that CalGEM can validate the facility conditions that may affect cost are accurately reflected in the cost estimate.

- Under **subdivision (a)(2)**, a description of the production facility, including the type of production facility and size. This information will ensure that the production facility is described and identified so that cost estimate can be verified by CalGEM. It is necessary to include these costs for the cost estimate to reflect the total costs to perform the work.
- Under **subdivision (a)(3)**, identify the cost to develop and obtain permits to perform the decommissioning work. Even where the state is the sponsor of decommissioning work under a state contract, the contractor is required to obtain all necessary permits. It is necessary to include these costs in the cost estimate, or the estimate will underestimate the cost to complete the decommissioning work.
- Under **subdivision (a)(4)**, provide the costs for project management and engineering. These costs will incorporate costs specific to the production facility site and condition and should account for difficulties such as unique access challenges or local jurisdictional requirements. Allowances for these costs will ensure that the cost estimate reflects the management costs associated with decommissioning, which may vary greatly depending upon the unique characteristics of the production facility.
- Under **subdivision (a)(5)**, provide the cost to develop safety, environment, and emergency response plans including spill response and incident response plans. CalGEM regulations, among others, require an operator of a facility to have a spill contingency plan and emergency provisions for common hazards. Where a specific production facility location may have unique hazards, the cost estimate should account for those hazards; operators should not provide a cost for emergency planning and response that is the same for all of their production facilities as that cost element would be affected by on the ground conditions and the estimate should account for those differences to ensure that the cost estimate reflects the total cost to perform the work.
- Under **subdivision (a)(6)**, provide the cost to mobilize and demobilize the equipment and crews required to perform the work, to ensure that sufficient allowance is provided for the costs associated with movement of equipment and people. The benefit of this requirement is the cost estimates will include

allowances for the mitigation of the potential harm to life, health, property, and natural resources from an incomplete mobilization that lacks the proper staff and equipment, or the harm associated with equipment. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.

- Under **subdivision (a)(7)**, provide costs associated with materials removal and transportation. Decommissioning often includes the removal of large tanks and other equipment that cannot be removed from the site without significant cost. For example, a crane and large truck may be required to move and then transport the production facility and may require specialized personnel costs associated with transportation. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.
- Under **subdivision (a)(8)**, provide costs associated with materials recycling or disposal. These costs are a part of every facility decommissioning operation. They include materials which may already be present on site or contained within the facilities, they include materials that have been brought onsite for the purpose of the facility decommissioning, and they include any materials that are on the site, and which may need to be gathered and disposed of to complete the decommissioning. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.
- Under **subdivision (a)(9)**, provide costs associated with access to the production facility. Ensuring that equipment can access the site to perform facility decommissioning is a fundamental requirement for successful decommissioning. Where a facility site has specific access issues that may require specialized equipment or special procedures, these access costs must be incorporated into the cost estimate. Similarly, depending upon the rights the operator has associated with the production facility, there may be additional costs associated with obtaining access. Ensuring that access costs are provided for ensures the cost estimate accurately reflects the cost to decommission the production facility.
- Under **subdivision (a)(10)**, incorporate a contingency of 10 percent of the sum of the costs estimated under subdivisions (a)(3) through (a)(9). The contingency ensures that the cost estimate includes costs for unexpected events that are difficult to plan for, but which often occur. This contingency amount is based on industry standards for facilities decommissioning and ensures that the cost estimate incorporates hazards and risks that must be mitigated at the time of

decommissioning, but which were not specifically planned for. This contingency percentage will ensure the cost estimate reflects the total costs to perform the work.

Section 1753.3.1, **subdivision (b)**, provides that the operator must account for the specific conditions and circumstances of the location of the production facility and facility specific characteristics such as age, condition, geologic hazards, history, and proximity to sensitive populations and environmental resources when estimating the cost to decommission the production facility. This ensures that the cost estimate provided by the operator is specific to each production facility and that the operator understands the need to adjust their estimates for differing conditions at the production facility.

Section 1753.3.1, **subdivision (c)**, reminds operators that in addition to submitting a Production Facility Decommissioning Cost Estimate that complies with the requirements of section 1753.3.1, the operator must submit supporting documentation consistent with section 1753.1.1. This cross reference is important to remind operators of the documentation requirements. This subdivision is necessary because CalGEM cannot verify the accuracy of cost estimates from operators using Method 2 without validating documentation that supports the accuracy of the costs provided.

1753.3.2 Site Remediation Cost Estimate Method 2

Under **section 1753.3.2**, Site Remediation Cost Estimate Method 2, operators develop a cost estimate that does not rely upon values prescribed by CalGEM. Rather operators provide their own cost data for each of the categories listed in the section.

Method 2 provides operators with the opportunity to submit estimates for these assets where they feel the additional research and documentation are warranted and for any site remediation associated with offshore wells and production facilities attendant to offshore wells operated by the operator, and is necessary to respond to the mandate found under Public Resources Code section 3205.7, subdivision (b)(2) that CalGEM provide a method by which operators will submit cost estimates for site remediation for each of the operator's wells and production facilities, which includes offshore wells.

Section 1753.3.2, **subdivision (a)**, describes the specific steps the operator must take to calculate a cost estimate for site remediation under using Method 2. The operator sums the costs listed in the subdivisions consistent with the goal of remediating each of the operator's sites in accordance with California Code of Regulations, title 14, section 1776.

To generate a Site Remediation Cost Estimate under this section, the operator must:

- Under **subdivision (a)(1)**, provide a description, the quantity, unit type, and unit cost data for remediating the site. This information will ensure that all features of the site, including any known contaminated soil, is described and identified so that cost estimates can be verified by CalGEM. It is necessary to include these costs for the cost estimate to reflect the total costs to perform the work.
- Under **subdivision (a)(2)**, identify the cost to develop and obtain permits. Even if site remediation is performed under a state contract, the contractor is required to develop and obtain all necessary permits. It is necessary to include these costs in the overall cost estimate, or the estimate will underestimate these preparation and approval costs.
- Under **subdivision (a)(3)**, provide the costs for project management and engineering. These costs will incorporate costs specific to the site and should account for difficulties such as unique access challenges or local jurisdictional requirements. Allowances for these costs will ensure that the cost estimate reflects the management costs associated with site remediation, which may vary greatly depending upon the unique characteristics of the site. Allowances for these costs will ensure that the cost estimate reflects a well-managed site remediation program engineered for effective protection of public health and the environment and reflects the total costs associated with site remediation.
- Under **subdivision (a)(4)**, provide the cost to develop safety, environmental, and emergency response plans including spill response and incident response plans. CalGEM regulations, among others, require an operator have a spill contingency plan and emergency provisions for common hazards. Where a specific location may have unique hazards, the cost estimate should account for those hazards; operators should not provide a cost for emergency planning and response that is the same for all of their sites as that cost element would be affected by on the ground conditions and the estimate should account for those differences to ensure that the cost estimate reflects the total cost to perform the work.
- Under **subdivision (a)(5)**, provide the cost to mobilize and demobilize the equipment and crews required to perform the site remediation work, to ensure that sufficient allowance is provided for the costs associated with movement of equipment and people. The benefit of this requirement is the cost estimates will include allowances for the mitigation of the potential harm to life, health, property, and natural resources from an incomplete mobilization that lacks the

proper staff and equipment, or the harm associated with equipment. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.

- Under **subdivision (a)(6)**, provide the costs associated with materials removal and transportation. Site remediation work can often include removal and transport of large volumes of soil and other materials. For example, a bulldozer and large truck may be required to move and then transport the soil and may require specialized personnel costs associated with transportation. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.
- Under **subdivision (a)(7)**, provide the costs associated with materials recycling or disposal. These costs are a part of every site remediation operation. They include materials which may already be present on site, materials that have been brought onsite for the purpose of the site remediation, and any debris on the site, and which may need to be gathered and disposed of to complete the site remediation process. It is necessary to include these costs so that the cost estimate reflects the total costs to perform the work.
- Under **subdivision (a)(8)**, provide the costs associated with access to the site location. Ensuring that equipment can access the site to perform site remediation is a fundamental requirement for successful remediation. Where a site has specific access issues that may require specialized equipment or special procedures, these access costs must be incorporated into the cost estimate for that site remediation. Similarly, depending upon the rights the operator has associated with the well, there may be additional costs associated with obtaining access. Ensuring that access costs are provided for ensures the cost estimate accurately reflects the cost to remediate the site.
- Under **subdivision (a)(9)**, incorporate a contingency of 10 percent of the sum of the costs estimated under subdivisions (a)(1) through (a)(8). The contingency ensures that the cost estimate includes costs for unexpected events that are difficult to plan for, but which often occur. This contingency amount is based on industry standards for site remediation and ensures that the cost estimate incorporates hazards and risks that must be mitigated at the time of remediation, but which were not specifically planned for. This contingency percentage will ensure the cost estimate reflects the total costs to perform the work.

Section 1753.3.1, **subdivision (b)**, provides that the operator must account for the specific conditions and circumstances of the location and characteristics of the site such as condition, geologic hazards, history, and proximity to sensitive populations and environmental resources when estimating the cost to remediate the site. This ensures that the cost estimate provided by the operator is specific to each site and that the operators understand the need to adjust their estimates for differing conditions.

Section 1753.3, **subdivision (c)**, reminds operators that in addition to submitting a Site Remediation Cost Estimate that complies with the requirements of section 1753.3.1, the operator must submit supporting documentation consistent with section 1753.1.1. This cross reference is important to remind operators of the documentation requirements. This subdivision is necessary, because CalGEM cannot verify the accuracy of cost estimates from operators using Method 2 without validating documentation that supports the accuracy of the costs provided.

ALTERNATIVES CONSIDERED

On April 4, 2022, CalGEM publicly released pre-rulemaking draft regulations specific to cost estimates and received informal public comments. CalGEM also met with public interest advocates and operators to discuss their concerns and comments in multiple virtual small group meetings that were well attended.

While developing the proposed regulations, CalGEM considered and rejected various alternative approaches. No alternative considered by CalGEM would be more effective in carrying out the purposes of the proposed regulations or would be as effective but less burdensome to affected private persons and small businesses than the proposed regulations.

- CalGEM considered, but rejected, limiting the criteria in the regulations to the due date of the reports and allowing operators to submit their costs estimates without prescribing a methodology. This alternative was rejected because it would be inconsistent with Public Resources Code section 3205.7, which requires CalGEM to establish criteria that operators must adhere to when developing their cost estimates. In addition, this alternative would be too open-ended and likely to result in inconsistent cost estimates across operators. The alternative would also be more burdensome for those operators who would prefer to follow specific instructions for standardized calculations to make compliance as easy as possible.

- CalGEM considered, but rejected, requiring all operators to use Method 1 with its proscribed methodology, including the base numbers and unit costs for their cost estimates. This alternative was rejected because Method 1 will not work for offshore wells. Alternatively, CalGEM considered allowing Method 2 only for offshore wells, but rejected that alternative and recognized that some operators may prefer to utilize Method 2 for those assets where they feel the additional research and documentation are warranted. Allowing operators to use Method 2 when they feel like their costs may be more accurate than Method 1 base numbers provides operators with flexibility to provide their most accurate cost estimate consistent with the level of effort they are interested in expending for Method 1 or Method 2.
- CalGEM considered, but rejected, requiring operators to submit their cost estimates and cost estimate reports directly into the Well Statewide Tracking and Reporting System (WellSTAR) via the Operator Financial Liability module. In support of this requirement, CalGEM developed step by step instructions for the use of the WellSTAR system. However, CalGEM determined that a user who is not familiar with WellSTAR may be unable to meet the requirement, and that operators should be encouraged, but not required, to submit their data in WellSTAR. CalGEM has developed materials to support operators in the process, including spreadsheet templates for Method 1, clearly written instructions for each step in the cost estimate process, and WellSTAR instructions for those who choose to use that submission method.
- CalGEM considered, but rejected, providing a Method 1 for offshore wells as was requested by some operators. Although a Method 1 for offshore wells would theoretically make offshore cost estimates easier, there are two primary reasons why a Method 1 for offshore wells was not provided. First, offshore operations are idiosyncratic and do not lend themselves to formulaic calculations of cost, particularly given the large cost variations between options for platform and facility retirement. Second, offshore operators already have developed cost estimates, consistent with Method 2, under Public Resources Code section 3205.6 which have been approved by CalGEM.
- CalGEM considered, but rejected, a provision that would have allowed CalGEM to require an operator to generate a Method 2 cost estimate because of a belief that the Method 1 cost estimate significantly underestimated the liability. Operators expressed concerns that hard work done to generate Method 1 cost estimates could simply be thrown out by CalGEM to require the more

burdensome work of Method 2 and that documentation for Method 2 costs may be difficult to locate and provide. Consistent with this concern, CalGEM removed this provision and replaced it with a process whereby CalGEM would return a report to the operator if it does not meet the requirements of the regulations. The operator would then have at least 30 days to provide CalGEM additional information to substantiate the cost estimate.

- CalGEM considered, but rejected, not issuing operators a written notice that their cost estimates do or do not comply with the requirements of the applicable section. Public advocacy representatives were concerned that the lack of a specific and final determination of compliance would make enforcement difficult and would make it difficult for the public to determine if the submitted reports complied with applicable requirements. Consistent with the request for a final determination, CalGEM will issue written notice that the cost estimate does or does not comply with the requirements of the applicable section.

CONSISTENCY WITH COMPARABLE FEDERAL REGULATION OR STATUTE

The proposed regulations are not inconsistent or incompatible with federal statutes or regulations. The Bureau of Land Management (BLM) has overlapping jurisdiction over oil and gas production operations on federal land, but BLM's regulations do not require operators to submit cost estimate reports similar to what is required under Public Resources Code section 3205.7.

The US Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) is the federal agency primarily responsible for pipeline regulation and safety. (49 USC, § 108, subd. (b), (f)). It adopts regulations that prescribe minimum pipeline safety standards for the pipeline transportation of natural gas and hazardous liquids. (See 49 CFR, §§ 190-192, 195.) In California, the PHMSA requirements are implemented by the Public Utilities Commission on behalf of PHMSA. These regulations implementing the cost estimate reporting requirements of Public Resources Code section 3205.7 do not conflict with the PHMSA requirements for testing and inspecting pipelines.

ECONOMIC IMPACTS

The Department has completed an Economic Impact Analysis for the proposed rulemaking action, which is included as a separate document in the rulemaking package. The Department has made an initial determination that the adoption of these regulations will not have major statewide adverse economic impacts directly

affecting businesses and will most likely not affect the ability of California businesses to compete with businesses in other states.

As discussed in the Economic Impact Analysis, the Department has made the following determinations:

- Will benefit the health and welfare of California residents, worker safety, and the environment.
- May affect the creation of new jobs within the State of California.
- Will not create new business nor eliminate businesses within the State of California.
- Will not affect expansion of businesses currently doing business within the state.
- Will most likely not affect the ability of businesses within California to compete with businesses in other states.

As discussed above, the proposed regulations are necessary to address the mandates of Public Resources Code section 3205.7 and are in furtherance of the statutory purposes of Public Resources Code sections 3011, 3106, and 3205.3. No alternative considered by the Department would be more effective in carrying out the purposes of the proposed regulations or would be as effective but less burdensome to affected private persons than the proposed regulations.

The development of a database of cost estimates that will result from the implementation of these regulations will improve long-term outcomes by clarifying the specific amount of these liabilities, identifying operators who fail to comply with the cost estimate requirements and are therefore likely to be insolvent or verging on insolvent, and providing CalGEM, policy makers, and community members with information needed to plan for future potential harm that would result from failure to complete required well plugging and abandonment, facilities decommissioning and site remediation.

DOCUMENTS RELIED UPON

The Department relied upon the following documents in proposing this rulemaking:

- The Department's Economic Impact Analysis and STD 399 for the proposed regulations.

- CalGEM's Basis of Reasoning for Base Costs. SB 551 Cost Estimate Regulations for Oil and Gas Operations. March 2023.
- AACE International Recommended Practice No. 17R-97. Cost Estimate Classification System. TCM Framework: 7.3 – Cost Estimating and Budgeting. Rev. August 7, 2020.
- AACE International recommended Practice No. 18R-97. Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries. TCM Framework: 7.3 – Cost Estimating and Budget. February 2, 2005.
- Boomhower, Judson (et.al.). Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells. California Council of Science & Technology. November 2018.
- CalGEM's Customized Dataset. Oil and Gas Production Data. California Geologic Energy Management Division (CalGEM). Generated in 2021.
- CalGEM Entity Review data updated May 2021.
- CalGEM Fiscal Year 2018-2019 Orphan List Determination and Estimated Costs to Plug and Abandon.
- CalGEM Liability Estimate Review Flowchart.
- CalGEM Master Plugging and Abandonment List Fiscal Year 2011-2022.
- CalGEM Operator Liability Point System Description.
- CalGEM Plug and Abandonment Review and Analysis, SB 551 Benchmarking Data, California, July 2021.
- CAW Resources, State of California, Department of General Services Standard Agreement, Agreement Number 2020-009, February 21 through June 30, 2021.
- Current Employment Statistics (CES). Average Annual Employment for the Oil and Gas Extraction Industry in California in 2021. California Employment Development Department. Labor Market Division. Industry Employment Data Search Tool (Official Estimates). Accessed in 2022.

- Department of Conservation. WST_Production_Forecast_CalGEM_1977_2020_WST_Data. Produced in 2022.
- DrillTek. Abandonment Cost Estimate for Oil and Gas Assets in California State Waters. April 27, 2020.
- ICF Incorporated, LLC, in collaboration with the Bureau of Safety and Environmental Enforcement. Decommissioning Methodology and Cost Evaluation. BPA No. E13PA00010. Call Order No. E14PB00056. n.d.
- Interstate Oil & Gas Compact Commission. Idle and Orphan Oil and Gas wells: State and Provincial Regulatory Strategies. 2019.
- Lachapelle, Erick (et.al.). Citizens' Willingness to Support New Taxes for COVID-19 Measures and Role of Trust. Politics & Policy. Vol. 49. No.3. Pp. 534-565. Published in 2021.
- May, P.J., and Wood, R.S. At the Regulatory Front Lines: Inspectors' Enforcement Styles and Regulatory Compliance. Journal of Public Administration Research and Theory. Vol. 13. No/ 2.Pp. 117-139. Published in 2003.
- Newman, Matthew and Blosser, Shawn. Impacts of a Prevailing Wage Requirement for Market Rate Housing in California, An Assessment of the Likely Impact on Construction Costs. Blue Sky Consulting Group, August 24, 2017.
- Orphan Well Association, Alberta Canada. OWA 2016/17 Annual Report.
- Orphan Well Association, Alberta Canada. OWA 2020/21 Annual Report.
- Petroleum and Other Liquids Data, Historical Cushing. OK WTI Spot Price FOB, U.S. Energy Information Administration. Accessed in 2022.
- Quarterly Census of Employment and Wages (QCEW) program. Quarterly Size of Business Data for California, (Q 2: 2021). Table 2B: Number of Employees by Size Category Classified by North American Industry Classification System (NAICS) for California, Oil and Gas Extraction (211). California Employment Development Department, Labor Market Division, Size of Business Report. Accessed in 2022.
- Raimi, D, et al. Decommissioning Orphaned and Abandoned Oil and Gas Wells: New Estimates and Cost Drivers, Environmental Science & Technology, 2021, 55, 10224-10230.

- Rothwell, Geoffrey. SIEPR Discussion Paper No. 04-05, Cost Contingency as the Standard Deviation of the Cost Estimate for Cost Engineering. Stanford Institute for Economic Policy Research, February 9, 2004.
- State of California Contracts for Well Plug and Abandonment, Production Facilities Decommissioning, and Site Remediation:

Agreement Number	Term Dates
2011-007	5/21/2012 - 5/21/2013
2011-008	6/28/2012 - 6/28/2013
2011-011	6/5/2012 - 6/5/2013
2012-004	3/25/2013 - 3/5/2014
2012-005	3/25/2013 - 3/5/2014
2012-007	5/24/2013 - 5/24/2014
2012-008	5/24/2013 - 5/24/2014
2012-010	6/18/2013 - 6/18/2014
2013-001	7/1/2014 - 12/1/2015
2013-006	7/1/2014 - 2/28/2015
2013-008	7/1/2014 - 10/31/2015
2014-002	10/20/2014 - 10/20/2016
2014-003	10/1/2014 - 2/26/2016
2014-016	5/18/2015 - 5/31/2016
2014-017	6/1/2015 - 5/31/2016
2015-030	6/23/2016 - 9/29/2016
2015-031	6/1/2016 - 9/30/2016
2015-033	6/1/2016 - 9/30/2016
2017-001	7/1/2017 - 12/31/2018
2017-002	10/5/2017 - 11/16/2018
2017-016	6/20/2018 - 5/25/2020
2017-019	6/20/2018 - 12/31/2019
2017-020	6/20/2018 - 5/25/2019
2018-020	6/3/2019 - 6/30/2020
2018-027	6/3/2019 - 6/30/2020
2019-001	8/19/2019 - 10/23/2019
2019-002	9/16/2019 - 6/30/2020
2019-003	9/16/2019 - 6/30/2020
2019-004	9/16/2019 - 6/30/2020
2019-008	9/30/2019 - 9/30/2020

Agreement Number	Term Dates
2019-009	8/19/2019 - 10/23/2019
2019-010	7/1/2020 - 6/30/2021
2020-026	6/1/2021 - 12/31/2022

- TSB Offshore, Inc., Decommissioning Cost Update for Pacific OCS Region Facilities, Volume 1. A study for the Bureau of Safety and Environmental Enforcement (BSEE). October 2016.
- U.S. Army Corp of Engineers. A Guide to Developing and Documenting Cost Estimates During the Feasibility Study. Hazardous, Toxic, and Radioactive Waste Center of Expertise, Omaha Nebraska. EPA 540-R-00-002, OSWER 9355.0-75, July 2000.
- United States Department of the Interior Office of Surface Mining Reclamation and Enforcement. Handbook for Calculation of Reclamation Bond Amounts, 1987.
- Vralstad, Torbjorn, et al. Plug & Abandonment of Offshore Wells: Ensuring long-term well integrity and cost-efficiency. Journal of Petroleum Science and Engineering, 173 (2019) 478-491.
- WellSTAR Database. Production Facility Data. California Geologic Energy Management Division (CalGEM). Accessed in 2022.
- WellSTAR Database. Notice of Intention (NOI) Data. California Geologic Energy Management Division (CalGEM). Accessed in 2022.
- WellSTAR Database. Well Information. California Geologic Energy Management Division (CalGEM). Accessed in 2022.
- Working Partnership USA and Dr. Kevin Duncan Colorado State University-Pueblo, Economic Policy Brief, Economic, Fiscal and Social Impacts of Prevailing Wage in San Jose, California, April 25, 2011.
- CPI for All Urban Consumers (CPI-U), Series ID CUUR0000SA0, U.S. Bureau of Labor Statistics, July 2023.