

REQUIREMENTS FOR IDLE WELL TESTING AND MANGEMENT

FINAL STATEMENT OF REASONS

The Department of Conservation (Department), through its Division of Oil, Gas, and Geothermal Resources (Division), proposes to amend sections 1723.9 and 1760 of the California Code of Regulations, title 14, division 2, chapter 4, subchapters 1 and 2.¹ . Concurrently, the Division proposes to add sections 1752, 1772, 1772.1, 1772.1.1, 1772.1.2, 1772.1.3, 1772.1.4, 1772.2, 1772.3, and 1772.4, 1772.5, 1772.6, and 1772.7 to the California Code of Regulations, title 14, division 2, chapter 4, subchapters 1 and 2.

INTRODUCTION AND BACKGROUND

The Division supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells. The Division carries out its regulatory authority under a dual legislative mandate to encourage the wise development of oil and gas resources, while preventing damage to life, health, property, and natural resources, including underground and surface waters suitable for domestic or irrigation purposes. (See Pub. Resources Code, § 3106.) The Division's staff is comprised of engineers and geologists with education and experience in the field of oil and gas exploration and production. Many of the Division's staff are licensed in their fields, and most have extensive regulatory and industry backgrounds. The range and depth of expertise within the Division facilitates a thorough and comprehensive approach to regulating all aspects of oil and gas production operations, including the testing and management of idle wells associated with oil and gas production.

The Division regulates more than 28,000 idle wells statewide. It is not uncommon for wells to become idle once they are no longer financially viable to operate due to market fluctuations, operator resources, or the lack of hydrocarbon resources. Further, some exploratory wells are never productive and are essentially idle from the date that they are drilled. Existing requirements provide operators with little incentive to properly plug and abandon idle wells, and many of these wells are never returned to use. Idle wells that are not properly tested and maintained for integrity pose a range of threats to life, health, property, and natural resources, including potential contamination of groundwater, dilution of hydrocarbon resources, and emission of methane and other gases to the atmosphere.

¹ Unless otherwise specified, references in this document to a "section" are references to sections of California Code of Regulations, Title 14. Unless otherwise specified, references in this document to a "proposed section" are references to a section of California Code of Regulations, Title 14, as it would be added or amended by this rulemaking action.

The Division's current regulations do not provide for a comprehensive and regular testing regime for idle wells. Current regulations require operators to conduct a fluid level test on any well that has not produced oil or natural gas or been used for fluid injection for a continuous six-month period during any consecutive five-year period. (Cal. Code of Regs., tit. 14, § 1723.9.) The Division may require additional well tests or remedial operations if the fluid level is located above or adjacent to freshwater or potential drinking water zones. (*Id.*) Subsequent testing periods are based on fluid level in the well, the well's location in relation to freshwater zones, mitigation measures taken by the operator to prevent fluid migration, or other factors determined by the appropriate Division district deputy, upon a showing of good cause. (*Id.*)

In 2011, at the Division's request, the United States Environmental Protection Agency (US EPA) conducted an audit of the Division's Underground Injection Control (UIC) program to assess compliance with the requirements of the primacy delegation under the federal Safe Drinking Water Act. The audit found that idle wells regulation needed to be strengthened and that bonding requirements were inadequate. In 2015, the Division discussed the need to reduce the state's large inventory of idle wells and revise idle well testing requirements in its "Renewal Plan for Oil and Gas Regulation," an ongoing, four-year framework to correct past problems and to create a regulatory program for oil and gas production that ensures the environment and public health are protected.

On September 9, 2016, Governor Brown signed Assembly Bill 2729 (Williams, Chapter 272, Statutes of 2016) (AB 2729) into law. AB 2729 increased bonding requirements for new wells and increased "blanket" bond requirements for operators who have bonds covering multiple wells. AB 2729 also redefined an idle well as "any well that for a period of 24 consecutive months has not either produced oil or natural gas, produced water to be used in production stimulation, or been used for enhanced oil recovery, reservoir pressure management, or injection," and it expanded on the existing requirements for operators' management of idle wells. In addition, AB 2729 adopted Public Resources Code section 3206.1, which requires the Division to review, evaluate, and update its regulations pertaining to idle wells, including appropriate testing and remediation. It also required the Division to establish requirements for operators to submit engineering analyses for idle wells that have been idle for 15 or more years that demonstrate that the well is viable to return to operation in the future.

These regulations concerning the testing, maintenance, and abandonment of idle wells and observation wells respond to the mandate of Public Resources Code section 3206.1, as well as the Division's broader mandate under Public Resources Code section 3106, by requiring more rigorous testing of idle wells and observation wells, operator evaluations of idle wells, and engineering analyses for idle wells that have

been idle for 15 or more years. By preventing wells from becoming potential conduits for contaminating groundwater, diluting hydrocarbon resources, or leaking methane into the atmosphere, the proposed regulations will protect the public health and safety, natural resources, and the environment.

SPECIFIC PURPOSE AND RATIONALE

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

Section 1723.9. Testing of Idle Wells.

Amendments to section 1723.9 replace the existing idle well testing requirements with a reference to section 1772.1. Under the existing version of section 1723.9, operators are required to conduct a fluid level test on any well that has not produced oil or natural gas or been used for fluid injection for a continuous six-month period during any consecutive five-year period. The proposed amendments to section 1723.9 would replace the existing idle well testing requirements with a reference to section 1772.1. Proposed section 1772.1 contains expanded requirements, including periodic fluid level tests, for testing idle wells consistent with the mandate of Public Resources Code section 3206.1. To apply these requirements to all idle wells in the state, it is necessary to move them out of Subchapter 1, which is specific to onshore operations, and into Subchapter 2, which applies to onshore and offshore operations statewide. Section 1723.9 cannot simply be deleted because Public Resources Code section 3237 specifically refers to it.

The amendments to section 1723.9 are beneficial to facilitating a more comprehensive and effective testing regime for idle wells and are necessary to respond to the mandate of Public Resources Code section 3206.1 to review, evaluate, and update the regulations pertaining to idle wells, and the Division's statutory mandate under Public Resources Code section 3106 to supervise the maintenance and abandonment of wells, and to prevent damage to public health and the environment.

Section 1752. Wells Partially Plugged.

Public Resources Code section 3206.1, subdivision (c), provides the Supervisor with the discretion to provide a regulatory option for temporary or partial plugging and abandonment in lieu of compliance with the idle well testing regulations. Section 1752

allows operators to partially plug wells and to conduct less frequent testing for partially plugged wells. This is necessary to allow operators to maintain well locations and wellbores for future use in areas where a local jurisdiction does not permit the drilling of new wells, or where the well is needed to hold the lease, allowing access to potential oil and gas reserves for future production.

Subdivision (a) requires operators to obtain approval from the Division prior to partially plugging a well in accordance with Public Resources Code section 3203, subdivision (a). Requiring operators to obtain written approval from the Division before partially plugging an idle well will provide consistent oversight of wells eligible for partial plugging and abandonment and ensure that proper procedures and equipment are used in the partial plugging process.

Subdivision (b) specifies the requirements for the partial plugging of a well. Cross-referencing the proposed regulations for partially plugging an idle well with current regulations for plugging and abandonment will result in a more efficient and effective regulatory regime, while at the same time offering the protections necessary to protect the environment.

Current regulations for plugging and abandonment ensure the isolation of hydrocarbon bearing zones, reduce the risk of groundwater contamination from migration of fluids, and reduce potential liability associated with properly plugging and abandoning the well should it become deserted. Operators utilize plugs to isolate the hydrocarbon bearing zones. The isolation of the hydrocarbon zones prevents degradation of usable waters, protects surface conditions, and public health and safety. Proper hole-fluids must also be placed in the well and are required to be the proper weight and consistency to prevent movement of other fluids into the wellbore. Proper hole-fluids must be placed across all intervals that are not plugged with cement. This is necessary to prevent the crossflow of fluids if multiple holes develop in the casing over time, and to prevent the well from acting as a conduit for low-quality water to contaminate higher-quality water resources. The proposed regulations require all oil, gas, and disposal zones be isolated with cement. Further preventing the possibility of fluid migration of hydrocarbons into other strata containing groundwater and vice versa.

Similarly, current plugging and abandonment regulations require that freshwater be isolated, to protect against contamination of freshwater zones, and these regulations are designed to be consistent with those requirements. Where geologic or groundwater conditions dictate, the current regulations also provide that special plugging procedures may be specified to prevent contamination of usable waters from poor quality surface waters, separate water zones of varying quality, and isolate dry sands that are in hydraulic continuity with groundwater aquifers.

In accordance with current regulations, plugging will be done in a manner to protect oil and gas zones, to prevent fluid migration of hydrocarbons into other strata containing groundwater or vice versa, to prevent degradation of useable waters, and for public health and safety purposes. Partial plugging of a well in accordance with these requirements will provide most of the essential environmental protections of complete plug and abandonment, while also allowing operators the flexibility to partially plug an idle well in lieu of compliance with idle well testing requirements is consistent with the mandates of Public Resources Code sections 3106 and 3206.1, subdivision (c).

Subdivision (c) requires operators to conduct pressure tests on partially plugged wells every 60 months. Although all hydrocarbon zones would be plugged and high-quality groundwater zones isolated, a casing pressure test is still necessary to ensure that no holes are developing in the casing above the uppermost plug and that the partial plugging continues to prevent crossflow between lower and higher quality water resources.

Generally, partially plugged wells must be pressure tested by the date that the well becomes a long-term idle well, and at least once every 60 months after that. But subdivision (c) allows operators to comply with the new requirement. Operators are not required to test any partially plugged wells until April 1, 2024, unless a long-term idle well has been partially for more than 60 months as of the date these regulations go into effect, in which case the operator must test the well by April 1, 2020.

Subdivision (d) requires operators to conduct the pressure test in accordance with the parameters specified in section 1772.1.1, discussed below. This is necessary to verify the mechanical integrity of the well. The testing parameters of section 1772.1.1 are appropriate to use in shallow wellbores above the uppermost cement plug to determine if there is a hole in the casing that could allow crossflow.

Subdivision (e) exempts idle wells that are partially plugged and tested in accordance with the requirements of the proposed section from the testing requirements under section 1772.1 and the engineering analysis requirements under section 1772.1.2. It is unnecessary to require wells that are partially plugged and abandoned in accordance with section 1752 to comply with the testing requirements of proposed section 1772.1 because wells that are partially plugged and abandoned will be pressure tested in accordance with proposed section 1752, subdivision (c), and partially plugging the well addresses the concerns of the other testing requirements of section 1772.1. And it is unnecessary to require the engineering analysis of section 1772.1.2 because future viability is no longer a concern for a well that is partially plugged and abandoned.

Consistent with Public Resources Code section 3206.1, section 1752, provides operators the option for temporary or partial well abandonment in lieu of compliance with the requirements of the regulations. Requirements for partially plugging a well is also necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to supervise the maintenance and abandonment of wells, and to prevent damage to public health and the environment.

Section 1760. Definitions.

The purpose of Section 1760 is to define each of the key terms used in the regulations. A number of key terms require definition because they are used to convey a specific meaning, are subject to more than one interpretation, or are technical terms that are not commonly known. The amendments to section 1760 are necessary to clarify the meaning of ambiguous terms, promote transparency, and support consistent application of the regulations and to ensure that those who are subject to the Division's regulations can understand and interpret the regulations correctly and consistently.

Amendments to **subdivision (j)** define "freshwater" as water that contains 3,000 mg/L TDS or less. Although not defined in the Division's existing regulations, the Division has a long-standing practice of using the term and definition in the exercise of its regulatory authority. At least in part, this practice has been guided by the policy for designation of sources of drinking water set forth in State Water Resources Control Board Resolution No. 88-63. Adding this definition is necessary to give clear meaning to an otherwise potentially ambiguous term used in the proposed regulations. The specificity provided by this definition will improve the transparency of the Division's regulatory practices.

The Division is proposing amending the same definition of "freshwater" to subchapter 1 in the updates to the Division's updated regulations for underground injection projects (commonly referred to as the "Underground Injection Control" or "UIC" regulations. Cal Code Regs., tit. 14 §§ 1724.6-1724.10.)).

Amendments to **subdivision (n)** incorporate the definition of an "idle well" as defined by Public Resources Code section 3008, subdivision (d), into the regulations. The incorporation is necessary to aid operators' understanding of the regulations by preventing unnecessary cross-referencing between the Public Resources Code and the California Code of Regulation. By incorporating the definition into the regulations, the Division provides a single location for operators to find the regulations concerning idle wells.

Amendments to **subdivision (o)** incorporate the definition of a "long-term idle well" as defined by Public Resources Code section 3008, subdivision (e), into the regulations.

The purpose of incorporating the definition into the regulation is to aid operators' understanding of the regulations by preventing unnecessary cross-referencing between the Public Resources Code and the California Code of Regulation. By incorporating the definition into the regulations, the Division provides a single location for operators to find the regulations concerning idle wells.

Amendments to **subdivision (p)** define a "low-priority idle well." A low-priority idle well is an idle well that: does not penetrate a USDW; does not indicate any pressure at the surface and is not open to the atmosphere; is not in an area of known geologic hazards; and is not a critical well, is not in an urban area, and does not have an environmentally sensitive wellhead, as defined in existing regulations. The definition of a "low-priority idle well" is necessary to give a specific meaning to the term, which is used elsewhere in the proposed regulations. Low-priority idle wells are subject to less rigorous testing based upon the lower potential risk posed by the well. For low-priority idle wells operators may utilize passive testing, with Division approval, to satisfy the pressure testing requirements of section 1722.1, discussed below.

Amendments to **subdivision (x)** define an "underground source of drinking water" or "USDW" as an aquifer that has not been exempted in accordance with federal regulations and either supplies a public water system or meets a specific quantity and quality threshold. The definition closely tracks the definition of the same term in Section 144.3 of Title 40 of the Code of Federal Regulations. The definition is necessary to give a specific meaning to the term, which is used elsewhere in the proposed regulations as a benchmark for protection of groundwater.

The Division is proposing amending the same definition of "USDW" to subchapter 1 in the updates to the Division's updated regulations for underground injection projects (commonly referred to as the "Underground Injection Control" or "UIC" regulations. Cal Code Regs., tit. 14 §§ 1724.6-1724.10.)).

Section 1760 is necessary to avoid ambiguity and ensure that those subject to the requirements of these regulations are able to understand and interpret the regulations. Section 1760 is beneficial in providing a clear definition of key terms in the proposed regulations to promote transparency and consistency in their application. Clear definitions of terms are necessary to effectively implement the Division's statutory mandate under Public Resources Code sections 3106 and 3206.1.

Section 1772. Idle Well Inventory and Evaluation.

Public Resources Code section 3206.1, subdivision (a), requires the Division to review, evaluate, and update its regulations pertaining to idle wells. Section 1772 meets this mandate by ensuring that data about risk indicators is readily available to facilitate a risk-based approach for the management of idle wells, particularly when prioritizing plugging and abandonment or testing under an Idle Well Testing Compliance Plan, Idle Well Testing Waiver Plan, or Idle Well Management Plan. The Idle Well Inventory and Evaluation would be required for all operators of idle wells, regardless of whether the operator intends to pay idle well fees or submit an Idle Well Management Plan under Public Resources Code section 3206.

Subdivision (a) identifies the specific data operators would be required to submit, all of which is necessary for the Division to evaluate the comparative risk of an operator's idle wells:

- **Subdivision (a)(1)** requires the operator submit the API number and name of the idle well, which is necessary to assure that the operator and the Division have an accurate record of the operator's idle wells. The API number is a unique, permanent, identifier assigned to each well drilled for oil and gas in the United States. Wells are also typically given a name. Requiring both the API and the name of the idle well will ensure the Division's records are accurate which is necessary for the implementation of the proposed regulations.
- **Subdivision (a)(2)** requires the operator submit the date the well was spudded, which is necessary because the age of a well can be an indicator of the potential for the well to have integrity issues.
- **Subdivision (a)(3)** requires the operator submit identification of any surface obstacles or impediments preventing access to an idle well. Wells with impediments to surface access pose a greater risk to health, public safety, and the environment, especially in urban areas, as access for mechanical integrity testing or plugging and abandonment is difficult, or even infeasible. Surface-use activities, irrigation systems, roads, terrain, or restricted access are examples of possible impediments or obstacles that might prevent access to an idle well, increasing the potential for the idle well to pose a threat to health, public safety, and the environment.
- **Subdivision (a)(4)** requires the operator submit the results of the most recent mechanical integrity testing for the idle well, including the type of test, the date of the test, the results of the test, and a description of any remediation of the well subsequent to the test. The Division considered requiring a complete history of mechanical integrity testing for the well as part of the Idle Well

Inventory and Evaluation but determined that requiring the results of the most recent testing would be equally effective for the regulatory purposes and less burdensome for operators. A recently failed integrity test is a clear indicator that the well has an integrity issue and is potentially a threat to public health and safety.

- **Subdivision (a)(5)** requires the operator to indicate whether the idle well penetrates freshwater. This is necessary because wells that do not penetrate freshwater do not pose the same threat to high-quality groundwater as wells that do penetrate freshwater.
- **Subdivision (a)(6)** requires the operator to indicate whether it has been demonstrated that the idle well does not penetrate a USDW. Wells that do not penetrate a USDW do not pose the same threat to higher-quality groundwater as wells that do penetrate a USDW.
- **Subdivision (a)(7)** requires the operator to indicate the current tubing and casing pressures for the idle well, or that the well is open to the atmosphere. An idle well with high pressure in the tubing or casing has a greater risk of a spill from an uncontrolled release. An idle well that is open to the atmosphere similarly has a greater risk of spill from an uncontrolled release. Maintaining a record of the pressure in the tubing or casing and if the well is open to the atmosphere allows the operator and the Division to identify wells that are more likely to have an uncontrolled release due to increasing or unstable pressure over time.
- **Subdivision (a)(8)** requires an operator to indicate whether the idle well is a critical well, is in an urban area, or has an environmentally sensitive wellhead. “Critical well” is defined in existing regulations in section 1720, and “urban area” and “environmentally sensitive” are defined in existing regulations in section 1760. Flagging an idle well that is in one or more of these categories is necessary to identify wells that would have a greater potential impact to health, public safety, and the environment in the event of a failure either at the surface or subsurface.
- **Subdivision (a)(9)** requires the operator to indicate if the idle well is located in an area of known geologic hazard, such as subsidence, landslides, or a history of damage to wells in the area from seismicity. This information allows the Division to identify wells that are at risk for a variety of issues. Idle wells in areas of known subsidence are more likely to suffer from shearing of the wellbore which may ultimately prevent the well from being abandoned to current

standards. Wells in areas prone to landslides may have their surface equipment damaged during a slide that could result in an uncontrolled release or the well may become buried and inaccessible at the surface. Idle wells with a history of damage from seismicity are more likely to suffer damage which may ultimately prevent the well from being abandoned to current standards.

- **Subdivision (a)(10)** requires the operator to indicate any known downhole issues with the idle well that would make it difficult to either reactivate the well or plug and abandon the well. Downhole impediments may prevent the well from being abandoned to current standards. Depending on the type of impediments, this information may indicate that the well lacks mechanical integrity such as collapsed casing. Operations required to clean out a wellbore prior to abandonment would indicate higher liability associated with the plugging and abandonment of the well. The subdivision only requires identification of downhole issues that are known to the operator. Beyond what is otherwise required, the operator is not required to complete additional testing or evaluation in order to comply with section 1772.
- **Subdivision (a)(11)** requires the operator indicate whether the idle well is partially plugged. Wells that meet the proposed requirements for partial plugging must be identified because they are required to adhere to different testing requirements. Idle wells that have been partially plugged pose less of a risk to health, public safety, and the environment than idle wells that have not because all hydrocarbon bearing zones and freshwaters have been isolated with cement. Wells in which the productive zone has been plugged back or otherwise isolated pose a decreased risk for cross contamination of hydrocarbons and freshwaters.

Subdivision (b) requires operators to submit their Idle Well Inventory and Evaluation to the Division in a digital format by January 31, 2021, or within one year after becoming the operator of an idle well, whichever comes later, and requires updates to the Idle Well Inventory and Evaluation each year after by January 31. Unless requested by the Division, an operator would not have to resubmit any information that may have already been submitted in compliance with other requirements of these proposed regulations. The Division believes that the two years provided for initial compliance with section 1772 is sufficient, but may allow additional time for the initial submission based on an operator's total number of idle wells and challenges the operator faces in compiling the information.

Section 1772 is necessary to evaluate an operator's idle well inventory and to provide for appropriate management of idle wells in accordance with Public Resources Code Section 3206.1.

Section 1772.1. Testing of Idle Wells.

Section 1772.1 implements the Division's mandate under Public Resources Code section 3206.1, subdivisions (a)(1) to (3), to review, evaluate, and update its regulations pertaining to idle wells to include appropriate testing to determine whether the fluid level is above the base of a USDW, testing to verify the mechanical integrity of the well, and appropriate remediation of wells that lack mechanical integrity.

Subdivision (a)(1) requires operators to conduct a fluid-level test to demonstrate whether the fluid is above the base of a known USDW within 24 months of a well becoming an idle well and every 24 months after that. A fluid-level test is a passive test in which the height of fluid in the wellbore is measured using acoustic methods. The height of the fluid column can be used to calculate the pressure of the reservoir in the completed zone(s) and may be a proxy for changing reservoir conditions. An increase in the fluid column over time may indicate an increase in reservoir pressure due to changing subsurface conditions or a hole in the casing which is allowing fluid to migrate into the wellbore. If a fluid level measurement is above the base of a USDW, then there is risk for migration of fluid from the wellbore into the USDW, or, if the well lacks mechanical integrity, vice versa. If the location of the base of USDW is unknown, then it is necessary to presume that the fluid level is above the base of USDW in order to ensure protection of groundwater. But if it has been demonstrated that the well does not penetrate a USDW, then fluid level testing under subdivision (a)(1) is not required at all. These regulations provide for a gradual phase in of pressure testing requirements for idle wells through 2025, but after April 1, 2025, if the fluid level in an idle well is above a USDW, then the well must be pressure tested on an expedited, 90-day timeframe. This is necessary because the idle well poses a potential threat to higher-quality groundwater

It is necessary to repeat the fluid-level test periodically because the fluid level in a well is not necessarily constant and may vary due to several factors, including, but not limited to, production and injection in different oil zones and annual precipitation. Operators are already required to conduct fluid-level tests on idle wells on a five-year cycle under existing section 1723.9, but in the Division's experience a five-year cycle is too infrequent because fluid levels can change significantly within a year or two. A five-year testing cycle can mean that indications of potential groundwater contamination are ignored for several years. It is therefore necessary to increase the fluid level testing frequency to a two-year cycle to ensure protection of groundwater. A well that becomes

an idle well on or before the effective date of the regulations, is not required to have a fluid-level test until April 1, 2021. Providing a two-year compliance period is necessary to allow operators the opportunity to bring wells that are idle as of the effective date of the regulations into compliance.

Subdivision (a)(2) requires operators to conduct a casing pressure test within 24 months of a well becoming an idle well. Pressure testing is necessary because it is the most effective method of ensuring the mechanical integrity of a well, and a well that lacks mechanical integrity poses a range of threats to life, health, safety, and natural resources, including potential contamination of groundwater, dilution of hydrocarbon resources, and emission of methane and other gases into the atmosphere. Testing the well from the surface to a depth 100 feet measured depth above the uppermost perforation, immediately above the casing shoe of the deepest cement casing, or immediately above the top of the landed liner, whichever is highest ensures that the well is being tested in such a way to prevent contamination of not only groundwater but the hydrocarbon resources, and ensure that emission of methane and other gases to the atmosphere is not occurring. Testing under subdivision (a)(2) must be conducted in accordance with the parameters specified in section 1772.1.1, discussed below.

A casing pressure test is an active test in which the pressure within a wellbore is intentionally increased in order to demonstrate the mechanical integrity of a well. A failed casing pressure test occurs when the wellbore is unable to maintain the applied pressure and a decrease in pressure over the time it is observed. This indicates that there is a hole or other damage to the casing that is allowing the migration of wellbore fluids into the surrounding subsurface and vice versa. The depth of a hole may be identified by using plugs or packers to isolate specific intervals within the well for further testing. A casing pressure test is more effective than a temperature survey or radioactive tracer survey because these passive tests may not identify smaller, slower leaks as they identify anomalies in the wellbore. A slow leak would allow the entering fluid to reach equilibrium quicker by dispersing faster than a high-volume leak because it would mix with the wellbore fluids and not provide an anomalous reading.

Testing must be repeatedly periodically for as long as the well continues to be an idle well. How soon the next pressure test must be conducted is a function of how much integrity assurance the last pressure test provided, based on how thoroughly the idle well was stress tested:

- Repeat testing is required within 48 months for wells that are pressure tested to 200 psi or that are tested with inert gas depression testing, passive testing, or other alternatives to pressure testing.

- Repeat testing is required within 72 months for wells that are pressure tested to 500 psi.
- Repeat testing is required within 96 months for wells that are pressure tested to 1,000 psi.

These varying testing periods are proportional to the risk exhibited by the well. If an idle well can be successfully tested to 1,000 psi, there is significantly less concern about the near-term possibility of integrity failure than if the idle well was only pressure tested to 200 psi.

Subdivision (a)(3) requires operators to perform a clean out tag within eight years of a well becoming an idle well to verify the current Division-permitted depth of the well. To perform a clean out tag, the operator clears any debris or other obstructions from the wellbore and contacts, or “tags” the bottom of the well. The clean out tag has several purposes in ensuring the integrity of an idle well: it verifies the total effective depth of the well, identifies the existence of any possible obstruction, and cleans out the obstruction. Wellbore shearing from subsidence or junk-in-hole could prevent the well from being abandoned to current standards because the entire wellbore may not be reached. If shearing or junk occurs above the completed interval and the zone cannot not be reached for isolation with cement, then there is risk for fluid migration from the hydrocarbon zone to USDWs and freshwaters or vice versa. The clean out tag is used to identify shearing before the entire depth of the wellbore becomes inaccessible and to ensure an opportunity to address the well while it can still be abandoned to standard. Additionally, it requires operators to clean any junk, debris, or sand out of the wellbore on a regular basis to ensure access to the entire wellbore.

A successful clean out tag essentially means the operators can demonstrate that the well is free of obstructions all the way down to the permitted depth. To ensure that that clean out tags performed under subdivision (a)(3) accomplish this goal, the regulation specifies that the operator must use either open-ended tubing or a gauge ring of the minimum diameter of the tubing necessary to properly plug and abandon the well, and that the operator must at least reach 25 feet below the uppermost perforation in the lowermost zone not already abandoned. Verifying the effective depth of the idle well is necessary to indicate whether damage is developing within the wellbore, to ensure long-term idle wells are not degrading to the point that they pose a threat, and to ensure that it does not become infeasible to plug and abandon the well.

Operators are required to repeat the clean out tag every 48 months thereafter, but less frequent testing may be approved on a case-by-case basis based on positive results from previous testing. The Division may also require more frequent clean outs if known field or geologic conditions indicate risk to the mechanical integrity of the well.

Subdivision (b) requires operators who fail to successfully test an idle well in compliance with the testing requirements to do one of four things: bring the well into compliance, partially plug and abandon the well, plug and abandon the well, or schedule the well for plugging and abandonment under an approved Idle Well Management Plan or an approved Testing Waiver Plan. This is necessary to implement the express requirement of Public Resources Code section 3206.1, subdivision (d), that operators shall plug and abandon a well if the operator does not remediate the well as required by the Division's regulations.

Subdivision (c) requires operators to give the appropriate district office 24 hours' notice, or a notice acceptable to the district office, before conducting any of the testing required under this section. This is necessary to ensure that Division staff are given the opportunity to witness the testing.

In some instances, it may be infeasible for an operator to access an idle well, either because there is a surface impediment, such as surface construction, or because the well cannot be accurately located. In those instances, **subdivision (d)** allows operators an alternative option for compliance to ensure that the idle well does not pose a threat to life, health, property, or natural resources. If the operator demonstrates that the well cannot be accessed after a diligent effort, then the operator is excused from the testing requirements and engineering analysis requirements of proposed sections 1772.1 and 1772.1.2. Within a year of that determination, the operator is required to develop a plan to monitor the idle well to ensure that well does not pose a threat and to respond to any indication that the well has become a hazard. The plan must include planning and commitment to plug and abandon the well, should it ever become accessible. If the operator fails to develop the plan, fails to effectively address any concerns the Division identifies with the plan, or fails to implement the plan, then the operator would be in violation of the proposed regulations. In addition to other possible enforcement actions, the Division could reinstate the testing requirements of section 1772.1 and the engineering requirement of section 1772.1.2 based upon consideration of the extent of the operator' noncompliance with subdivision (d) and whether continuing the waiver will further the goal of ensuring that any hazards posed by the idle well are identified and addressed so as to prevent damage to life, health, property, and natural resources. Subdivision (d) is necessary to provide for feasible methods to address hazards associated with inaccessible idle wells.

Subdivision (e) would allow the operator to demonstrate, to the Division's satisfaction, that a wellbore is not within one-half mile of a USDW. If this demonstration is successfully made, the well does not become an idle well for an additional two years,

thereby delaying all testing requirements. This is necessary to implement the express requirement of Public Resources Code section 3206.1, subdivision (b).

Section 1772.1 provides a comprehensive testing regime for idle wells by testing for mechanical integrity and identifying and address potential hazards, as is necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources and under Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.1 implements the Division's mandate under Public Resources Code section 3206.1, subdivisions (a)(1) to (3), to review, evaluate, and update its regulations pertaining to idle wells to include appropriate testing to determine whether the fluid level is above the base of a USDW, testing to verify the mechanical integrity of the well, and appropriate remediation of wells that lack mechanical integrity.

Section 1772.1.1. Pressure Testing Parameters.

Section 1772.1.1 specifies the pressure testing parameters for testing required for idle wells, observation wells, and partially plugged wells under proposed sections 1752, 1772.1, or 1772.5. The proposed section provides operators regulatory flexibility to satisfy the pressure testing parameters. The pressure testing parameters address concerns voiced by operators about rig availability by providing multiple pressure testing parameters. In accordance with Public Resources Code, section 3206.1(a)(2), the testing parameters provide a framework to verify the mechanical integrity of idle wells, idle wells, and partially plugged wells that is informed by the potential risks posed by the wells.

The pressure testing parameters in **subdivision (a)** are designed to ensure that the well has integrity and that small leaks that would indicate a lack of well integrity are identified:

- **Subdivisions (b)(1) and (2)** require approval and consultation with the Division before conducting a pressure test with gas or using additives other than brine, corrosion inhibitors, or biocides, because such modification could affect the efficacy of the testing parameters.
- **Subdivision (a)(3)** calls for a stable column of fluid that is free of excess gasses in the wellbore before commencing pressure testing, but the regulation does not specify benchmarks to determine when this has been achieved. Achieving stability before commencing pressure increases the likelihood of a passing test,

and the Division will defer to the operator's knowledge of its own operating conditions in determining how long a well should sit before beginning testing.

- **Subdivision (a)(4)** specifies that the test must be recorded and that the pressure gauge employed must be sufficiently accurate (within 1 percent) and of appropriate scale to effectively indicate whether the well passed or failed the pressure test. Operators are required to submit test results to the Division in a digital tabular format within 60 days of testing. The actual charts or digital recording of the testing need only be provided if requested.
- **Subdivision (a)(5)** requires pressure testing be conducted at an initial test pressure of at least 200 psi. This minimal pressure is necessary to identify the presence of any existing leaks and to demonstrate the near-future integrity of the casing. The operator may elect to pressure test at a high initial pressure, as the greater demonstration of mechanical integrity allows the operator more time until repeat testing is required under section 1772.1(a)(2), discussed above.
- **Subdivision (a)(6)** provides that a pressure test is successful if there is no more than a three percent change in pressure over a continuous 30-minute period, unless the well is within the area of review of a steam injection well. For wells within the area of review for a cyclic steam injection well or a steamflood injection well, an increase in pressure of as much as 10 percent is allowable as the increase may be attributed to the temperature in the area of the wellbore.
- **Subdivision (a)(7)** provides that these testing parameters may be modified on a case-by-case basis as needed to ensure an effective test of the integrity of the casing. This is necessary as effective parameters for pressure testing may vary based on the specific characteristics of a well, such as the age of the well, casing thickness, and corrosion factors.

These parameters were developed by Division engineers in consultation with experts from the Sandia, Lawrence Livermore, and Lawrence Berkeley National Laboratories in an effort to develop consistent and effective pressure testing parameters to be employed whenever pressure testing is required for oil and gas wells. They are based on industry standards and practices, and the Division's extensive experience and expertise in supervising the pressure testing of wells.

The regulations as originally proposed provided a stricter standard for what constitutes a passing pressure test, which was more consistent with the pressure testing parameters for gas storage wells that the Division recently adopted. Based on

consideration of the relative risk profiles of gas storage wells and the wells to be tested under these parameters, as well as further consideration of various guidance's on pressure testing class II injection wells, the Division determined that a greater tolerance for pressure change is equally effective in implementing the regulatory purposes of these regulations and will be less burdensome for operators. The requirement for no more than a three-percent pressure change over a 30-minute pressure test is consistent with guidance issued by US EPA on pressure testing class II injection wells.

For the types of wells that will be subject to testing under the parameters of section 1772.1.1, inert gas depression testing is generally an acceptable alternative to conventional pressure testing. Inert gas depression test, sometimes referred to "Ada" testing, identifies leaks in the casing by applying air pressure to the annulus to depress the fluid level down to the perforations, and then comparing the final stabilized air pressure with the computed air pressure needed to depress the fluid level to the known depth of perforations. A discrepancy between the two numbers is an indicates a possible leak in the casing. Inert gas depression testing is conducted at a fixed, calculated pressure, and therefore is not an effective mechanical integrity test for operational wells where pressure testing at higher pressure is necessary. But for inactive idle, observation, and partially plugged wells, inert gas depression testing provides an adequate demonstration of casing integrity in most cases. Because inert gas depression testing can often be done without putting a rig on the well, it is a less burdensome option for complying with the testing requirements of these regulations.

An inert gas depression test may not be used to satisfy the pressure testing requirements of Sections 1752, 1772.1, or 1772.5 if the computed necessary pressure for testing the well is less than 500 psi. Given the difference of compressibility in gas and liquid and corresponding differences in pressure gradient, an inert gas depression test at 500 psi is roughly equivalent to a standard pressure test at 200 psi. This minimal pressure is necessary to identify the presence of any existing leaks and to demonstrate the near-future integrity of the casing. The inert gas depression testing parameters in **subdivision (b)** are designed to ensure the well has integrity and that small leaks that would indicate a lack of well integrity are identified:

- **Subdivision (b)(1)** requires the operator to determine the fluid level in the well and estimate the specific gravity of the fluid and based on that calculate the necessary pressure to displace the fluid to the required pressure testing depth.
- **Subdivision (b)(2)** calls for inert gas to be injected in the well in the volume to achieve the displacement, as calculated. The operator must then take another fluid level and add or remove gas needed to achieve the correct displacement.

- **Subdivision (b)(3)** specifies that the test must be recorded and that the pressure gauge employed must be sufficiently accurate (within 1 percent) and of appropriate scale to effectively indicate whether the well passed or failed the pressure test. Operators are required to submit tests results to the Division in a digital tabular format within 60 days of testing, along with the key measurements, estimates, and calculations. The actual charts or digital recording of the testing need only be provided if requested.

The parameters in subdivision (b) are informed by technical guidance published by the Railroad Commission of Texas, as well Division staff's own experience and expertise with this type of testing. Requiring testing in accordance with these parameters is necessary to ensure that inert gas depression testing is consistent, reliable, and effective.

Subdivision (c) allows operators to employ an alternate mechanical integrity testing method to satisfy the pressure testing requirements of Sections 1752, 1772.1, or 1772.5, if the alternate testing method has been approved by the Division on a case-by-case basis as being at least as effective as pressure testing to demonstrate the integrity of the well. Examples of such testing include magnetic flux or ultrasonic technologies or ultrasonic imaging tool and a cement evaluation log. This provision is necessary to ensure that the mechanical integrity testing requirements are driven by the performance standard of effective demonstration of well integrity, and that less burdensome but equally effective testing methods are not precluded by the regulation.

If an idle well is a "low-priority idle well," as defined under section 1760(p), then the primary risks and concerns associated with the idle well are not present, and less stringent testing is appropriate. If a well is a low-priority idle well, then **subdivision (d)** provides that a caliper survey may be used to satisfy the pressure testing requirement of section 1772.1(a)(2). A caliper survey does not provide the same level of assurance of casing integrity as pressure testing does, but a caliper survey does provide valuable information about the condition of the well and it is significantly less burdensome than conducting a pressure test.

Section 1772.1.1 will provide consistent and effective testing parameters that are necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources and under Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.1.2. Engineering Analysis for 15-Year Idle Wells.

Public Resources Code section 3206.1, subdivision (a)(4), requires the Division to review, evaluate, and update its regulations pertaining to idle wells, including requirements for operators to submit an engineering analysis for idle wells that have been idle for 15 or more years. The engineering analysis must demonstrate to the Division's satisfaction that the idle well is viable to return to operation in the future. Section 1772.1.2 satisfies this statutory mandate by requiring operators to submit information that demonstrates the viability of wells that have been idle for 15 years.

Proposed **subdivision (a)** requires operators to provide an engineering analysis for wells that have been idle for 15 or more years that demonstrates the well has access to potential oil and gas reserves and that the well has mechanical integrity. This performance standard is necessary because a well is not viable for future use unless the well has both access to oil and gas reserves and the well has mechanical integrity. **Subdivision (b)** specifies the minimum information operators would be required to submit in the engineering analysis to demonstrate that the well could be used to access potential oil and gas reserves, including:

- Identification of the API number and the name of the well
- A statement of the potential future use for the well
- Identification of each reservoir unit that might be accessed and the reservoir characteristics
- A representative electric log to a depth below the deepest producing zone, identifying all geologic units, formations, USDWs, freshwater aquifers, oil or gas zones, and each reservoir unit to be utilized
- A structural contour map drawn on a geologic marker at or near the top of each reservoir unit to be utilized indicating faults, other lateral containment features, and aerial extent of the productive zone

The information specified in subdivision (b) is necessary for the Division to make determinations regarding the well's access to potential oil and gas reserves, which is part of the assessment of whether a well is viable to return to operation in the future. The required information would be used by the Division to perform an evaluation of the proposed potential use for the well.

Subdivision (c) requires operators to include a casing diagram in the engineering analysis for the idle well. The casing diagram must include the construction details necessary for the Division to assess whether future use of the well is feasible. Many long-term idle wells were constructed long ago under now outdated construction standards, and safe operation of the well may not be realistic. Specification of the construction details to be included in the casing diagrams is provided in proposed section 1772.1.3, discussed below.

Subdivision (d) makes it clear that the information required provided under subdivision (b) and (c) may not address all circumstances and that in some cases additional information may be needed to evaluate the viability of the idle well to return to operation.

Subdivision (e) allows operators to submit the engineering analysis under subdivision (b) one time and reference it in subsequent analyses for wells in the same field. This is necessary to avoid unnecessary and repetitive submissions because wells located in the same field will in part rely upon the same submissions to adhere to the requirements of subdivision (b). Many long-term idle wells are completed in the same field and have similar capabilities for productivity. This benefits operators and the Division by cutting back on paperwork, eliminating duplicative submissions, and reducing staff time spent on duplicative work.

Subdivision (f) requires operators to submit the data under this section in a digital format. It also requires that all maps, diagrams, and exhibits must be clearly labeled and must clearly identify wells, boundaries, zones, contacts, and other relevant data. All of the data are necessary for effective evaluation of a well's viability. Information that has previously been submitted to the Division is not required to be resubmitted, unless the Division specifically requests it.

Subdivision (g) provides an alternative means for operators to demonstrate that an idle well that has been idle for 15 or more years is viable for future use if it is infeasible to provide the information otherwise required under proposed section 1772.2. It is necessary to provide this flexibility in the regulation because records for some long-term idle wells may be incomplete or non-existent. Some wells drilled long ago lack the geophysical well logs or test data that is called for. Proposed subdivision (g) would allow the operator to provide alternative data to demonstrate the future viability of a well.

Subdivision (h) governs situations in which the Division determines that the idle well cannot be used to access potential oil and gas reserves or does not have mechanical integrity. The operator would have 30 days to provide additional information to substantiate that the well is viable to return to use. If the Division determines that the well is not viable after the submittal of the additional information, the operator is required to plug and abandon the well within 12 months of receiving the Division's final determination or schedule the well for plugging and abandonment under an approved Idle Well Management Plan or an approved Testing Waiver Plan. Subdivision (h) is necessary to implement the express requirement of Public Resources Code section 3206.1, subdivision (d), that operators shall plug and abandon a well if the operator does not demonstrate that a well is not viable as required by the Division's regulations implementing Public Resources Code section 3206.1.

Section 1772.1.4, discussed below, allows operators a six-year compliance phase-in period for the new idle well pressure testing and clean out tag requirements of these regulations under a Testing Compliance Work Plan. **Subdivision (i)** dovetails initial compliance with the engineering analysis requirement with the initial six-year phase in of the testing requirements. Subdivision (i) provides that for idle wells that would be due for an engineering analysis in the first six years of these regulations being effective, operators are not required to submit the engineering analysis for the well until 60 days after testing has been completed on the well under the operator's Testing Compliance Work Plan. If the idle well is not yet due for an engineering analysis 60 days after testing is done, then the engineering analysis is not due until the month in which the well has been idle for 15 years. Deferring submission of the engineering analysis in this way is necessary to ensure that each engineering analysis has the benefit of the results of a pressure test and clean out tag for the idle well. And at the same it will mitigate the burden of initial compliance by allowing operators to complete the work over a six-year period.

Section 1772.1.2 will provide effective criteria and protocols to determine whether idle wells that have been idle for 15 years or more are viable for future use or should be plugged and abandoned, which is necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources and under Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.1.3. Casing Diagrams.

Section 1772.1.3 would specify the data elements that must be included in the casing diagram required as part of the engineering analysis under section 1772.1.2(c). The information required under the **subdivisions (a) and (b)** is relevant and necessary to the Division's evaluation of whether the well is viable for future use in light of the well's construction and condition. **Subdivisions (c) and (d)** provides additional standards clarifying the scope of information the Division deems relevant and necessary in a casing diagram. Finally, **subdivision (e)** will allow operators to submit a flat file data set containing the information identified in the section or actual casing diagram.

Section 1772.1.4. Idle Well Testing Compliance Work Plan.

For all the wells that are idle as of the effective date of these regulations, section 1772.1.4 allows operators six years to complete the pressure testing and clean out tags required under section 1772.1(a)(2) and (3). Section 1772.1.4 requires operators to provide the Division with a Testing Compliance Work Plan that schedules completion of

the idle well testing over a six-year period in accordance with prescribed annual benchmarks. A phased-in compliance period is necessary because many thousands of idle wells will need to be brought into compliance with these regulations, and operators will reasonably need years to accomplish this.

Subdivision (a) requires operators to provide their Testing Compliance Work Plan to the Division by June 1, 2019. The plan schedules the testing of wells over six years. The plan must address testing by April 1, 2025, for all of the operator's idle wells as of the effective date of these regulations, but must exclude wells scheduled for plug and abandonment under an Idle Well Management Plan or a Testing Waiver Plan. As discussed below, wells scheduled to be plugged and abandoned under one of those plans are tracked separately, and those wells are not counted for purposes of the annual benchmarks of the Testing Compliance Work Plan. It is necessary for the operators to provide the plan to the Division by June 1, 2019 so that the Division can approve the plan in enough time for the operator to complete the testing required in the first year of the plan.

Subdivision (b)(1) through (7) provides the annual benchmarks that the Testing Compliance Work Plan must include. Over the six years that the plan covers, operators must meet annual benchmarks for testing that will result in the testing of all the operator's wells that will not be plugged and abandoned. The benchmarks graduate over the six-year period, with testing only required for five percent of the idle wells in the first year, and only 10 percent in the second year. The smaller initial benchmarks are necessary to afford operators time to secure necessary rigs, train staff, and prioritize testing.

Subdivision (c) requires operators to prioritize testing of wells based on the considerations listed in proposed section 1772.4, discussed below. Prioritizing testing ensures that over the six-year compliance period, the wells that pose the most potential risk are tested earlier in the compliance period. The Division may adjust the order of wells to be tested based upon the prioritization factors in section 1772.4.

Subdivision (d) addresses transfers of wells that were idle as of the effective date of the regulations from one operator to another or are scheduled for plugging and abandonment under an approved Idle Well Management Plan or Testing Waiver Plan. The purpose of the Testing Compliance Work Plan is to ensure that testing is completed of all idle well as of the effective date of the regulations is completed by April 1, 2025, except for wells scheduled to be plugged and abandoned under one the other two idle well plans. For the schedule and benchmarks in the Testing Compliance Work Plan to achieve this purpose, it is necessary to revise the plan as needed to accurately reflect

the effective-date idle wells for which the operator is responsible. Subdivision (d) requires the operator to submit a revised plan within 90 days of such a change.

Subdivision (e) provides that proper plugging and abandonment or partial plugging and abandonment of a well can apply towards the annual benchmarks for testing. An operator may initially believe that they want to bring an idle well back to operation but after testing decide that the well should instead be plugged and abandoned. Allowing operators to plug and abandon those wells and apply those wells to the annual benchmarks for testing is necessary to encourage operators to plug and abandon such wells and not force operators to continue testing and remediating wells that are not going to be brought back to operation. The proposed subdivision also provides that testing conducted prior to April 1, 2019, can be applied towards the Testing Compliance Work Plan if the testing was conducted in accordance with the testing parameters specified in these proposed regulations. This is necessary to ensure that these regulations will not require unnecessarily redundant testing.

Subdivision (f) provides that if an operator does not complete testing on the number of wells required under their Testing Compliance Work Plan, then each well the operator fails to test constitutes a separate violation. In accordance with Public Resources Code, section 3206.1, subdivision (e), and proposed Section 1772.1, this will ensure that failure to comply with this requirement of the regulations is conclusive evidence of desertion, permitting the supervisor to order each well the operator has failed to test abandoned. This is necessary to implement the express requirement of Public Resources Code section 3206.1, subdivision (d), that operators shall plug and abandon a well if the operator does not remediate the well as required by the Division's regulations.

Subdivision (g) explains that once an idle well covered by the Testing Compliance Work Plan, the well must be tested in accordance with the timeframes for repeat testing found in section 1772.1(a)(2) and (3). Likewise, wells that become idle wells after the effective date of the regulations, must be tested in accordance with the timeframes specified in section 1772.1(a)(2) and (3). This section is necessary to ensure that the extended timeframe for compliance with the new testing requirements only applies to initial compliance.

The gradual compliance phase-in provided under section 1772.1.4 is necessary to implement the statutory mandate of Public Resources Code section 3206.1, subdivisions (a)(1), (a)(2), and (a)(3) which requires appropriate testing and remediation of idle wells. While the pressure testing requirements and timeframes in section 1772.1 are necessary to implement the statutory, it would be too great of a burden for operators

to immediately implement the new requirements many thousands of idle wells. Effective compliance will require extensive planning, training, and mobilization of resources.

Section 1772.2. Idle Well Testing Waiver Plan.

Public Resources Code section 3206.1, subdivision (a)(3), requires the Division to review, evaluate, and update its regulations pertaining to idle wells, including the “appropriate remediation, as determined by the Supervisor, of idle wells if there is an indication of a lack of mechanical integrity.” Public Resources Code section 3206.1, subdivision (c), authorizes the Supervisor to promulgate regulations that “provide an option for ... well abandonment in lieu of compliance” with idle-well testing otherwise required by regulation. Section 1772.2 provides for appropriate remediation and implements Public Resources Code section 3206.1 by waiving the required testing and engineering analysis for wells that are scheduled to be plugged and abandoned in an Idle Well Testing Waiver Plan approved by the Division.

In some cases, an operator may suspect from a well’s production history, outdated construction, or other indicia that a well would not pass mechanical integrity testing and should be plugged and abandoned rather than repaired for future production. It would be inappropriate to test such a well. First, pressure testing might damage the well, increasing the well’s risk to public safety and the environment. Second, testing the well would not add relevant data to decide the well’s future disposition because its abandonment is already determined. Finally, testing would divert resources from the testing of wells not slated for plugging and abandonment, for which the integrity and disposition needs to be determined. If there is a firm commitment to plug and abandon an idle well, then it is simply not as important to test and analyze the well.

Subdivision (a) allows an operator to comply with an approved plan to plug and abandon specified wells rather than comply with other idle well management requirements for those wells. An Idle Well Testing Waiver Plan is a schedule for plugging and abandonment of idle wells that exempts those wells on the plan from the testing requirements of sections 1772.1, 1772.1.1, and the engineering analysis requirements of section 1772.1.2. The option to plug and abandon rather than test and analyze wells that the operator does not intend to return to use benefits operators by allowing them to allocate resources efficiently. And it benefits the public and the environment by promoting plugging and abandonment of idle wells, which more effectively addresses the potential hazards that idle wells pose than testing and analysis.

Subdivision (b) specifies requirements for Testing Waiver Plans. Subdivision (b) requires a list of the idle wells the operator has elected to include in the plan with basic

information necessary to evaluate the plan, including, for each well, its API number, the date by which it is scheduled to be plugged and abandoned, any known wellbore integrity deficiencies, and any prior attempts to remediate the wellbore. All of the idle wells included in the Testing Waiver Plan must be scheduled for plugging and abandonment within eight years. Operators have flexibility to manage how many wells they address in each year of the plan, as long as at least 10 percent of the total number of wells on the plan are addressed in each year of the plan and no well is scheduled for plugging and abandonment more than eight years out. An eight-year limit is necessary to ensure that wells are not effectively deferred indefinitely. Each year that plugging and abandonment is deferred poses additional risks to the environment and risks that the wells will ultimately be deserted.

Subdivision (c) allows operators to modify the list of wells within the plan by providing a reason for the changes, the required information required for any idle wells to be added to the plan, and a plan for quickly addressing compliance for any idle wells to be removed from the plan. There may be any number of reasons that modification of the plan subsequent to approval by the Division would be necessary and consistent with the purpose Section 1772.2. In particular, as operators comply with the proposed regulation's requirement to test all idle wells, they may identify wells not previously scheduled for plugging and abandonment, which require plugging and abandonment more urgently than previously known. Although each well included in the Testing Waiver Plan must be scheduled for plugging and abandonment within eight years, the Division intends for the Testing Waiver Plan to be an ongoing option for operators' management of idle wells, and after each year of adherence to the plan the operator may add additional idle wells to an additional year of the plan.

Subdivision (c)(3) requires operators to prioritize plugging and abandonment of the idle wells on the Testing Waiver Plan based on the considerations listed in proposed section 1772.4, discussed below. Prioritizing which wells are plugged and abandoned ensures that over the eight-year compliance period, the wells that pose the most potential risk are addressed earlier. The Division may adjust the order of wells to be tested based upon the prioritization factors in section 1772.4.

Subdivision (d) provides that the Division may revoke a Testing Waiver Plan if the operator fails to comply with the plan. If the plan is revoked, the operator cannot submit another Testing Waiver Plan, unless and until the operator is in compliance with all of the requirements of Sections 1772.1, 1772.1.1, and 1772.1.2. This is necessary to encourage operators to prepare their plans based on the best information about their idle wells, and to act while the information is still accurate. Allowing operators to submit a new Testing Waiver Plan for approval if the operator comes into compliance is necessary to encourage operators to come into compliance but also encourage the

operator to continue plugging and abandoning their idle wells. This subdivision is also necessary to prevent avoidance of necessary testing that might result if an operator listed more idle wells than can actually be plugged and abandoned.

Subdivision (e) provides a necessary specification that “plugging and abandonment” in this section means plugging and abandonment in accordance with Public Resources Code section 3208 or partial plugging and abandonment in accordance with Section 1752.

The Testing Waiver Plan provisions of section 1772.2 implement the Division’s statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources by promoting the plugging and abandonment of idle wells as an alternative to testing. These provisions also implement the statutory mandate of Public Resources Code section 3206.1, subdivision (a)(1), which requires appropriate remediation of idle wells if there is an indication of a lack of mechanical integrity, and of Public Resources Code section 3206.1, subdivision (c), which authorizes well abandonment in lieu of testing. The addition of section 1772.2 facilitates a more comprehensive and effective testing regime for idle wells and is necessary to respond to the mandate of Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.3. Idle Well Management Plan.

Separate from any Testing Waiver Plan under section 1772.2, some operators schedule long-term idle wells for plug and abandonment under an Idle Well Management Plan filed to comply with the idle well management requirements of Public Resources Code section 3206. As discussed above in the context of the Testing Waiver Plan, it is appropriate to waive the required testing and engineering analysis for wells that are scheduled to be plugged and abandoned under an Idle Well Management Plan approved by the Division under Public Resources Code section 3206, subdivision (a)(2), and section 1772.3 includes provisions necessary to implement this policy.

Subdivision (a) exempts wells scheduled to be plugged and abandoned as part of an approved Idle Well Management Plan from the testing requirements of sections 1772.1 and 1772.1.1 and the engineering analysis requirements of section 1772.1.2, provided the operator is complying with the plan. Idle Well Management Plans must schedule the “elimination” of long-term idle wells, which is achieved by either returning a long-term idle well to use or by plugging and abandoning a long-term idle well. The exemption from testing and analysis under section 1772.3 only applies to idle wells scheduled for plugging and abandonment under an Idle Well Management Plan. For this reason, **subdivision (b)** requires operators to specify in their Idle Well Management

Plan whether a long-term idle well scheduled to be eliminated will be plugged and abandoned or returned to use.

Subdivision (c) requires operators to prioritize the elimination of long-term idle wells based on the considerations listed in proposed Section 1772.4, discussed below. Prioritizing which wells are addressed ensures that wells that pose the most potential risk are addressed earlier. The Division may adjust the order of wells to be tested based upon the prioritization factors in section 1772.4.

The provisions of section 1772.3 implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources by promoting the plugging and abandonment of idle wells as an alternative to testing. These provisions also implement the statutory mandate of Public Resources Code section 3206.1, subdivision (a)(1), which requires appropriate remediation of idle wells if there is an indication of a lack of mechanical integrity, Public Resources Code section 3206.1, subdivision (c), which authorizes well abandonment in lieu of testing, and Public Resources Code section 3206, subdivision (a)(2)(B)(i), which allows the Division to prioritize the plugging and abandonment of specific wells under an Idle Well Management Plan. The addition of section 1772.3 facilitates a more comprehensive and effective testing regime for idle wells and is necessary to respond to the mandate of Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.4. Prioritization of Idle Wells for Testing and Plugging and Abandonment.

Section 1772.4 specifies the considerations that operators and the Division must take into account when prioritizing testing or plug and abandonment of wells under a Testing Compliance Work Plan, a Testing Waiver Plan, or an Idle Well Management. Specification of these considerations is necessary to facilitate a risk-based approach for the prioritization of wells to be tested or plugged and abandoned and to ensure that idle wells that may pose greater risks are addressed in a timely manner.

- **Subdivision (a)(1)** requires consideration of whether the well is a critical well, in an urban area, or has an environmentally sensitive wellhead. "Critical well" is defined in existing regulation 1720, and "urban area" and "environmentally sensitive" are defined in existing regulations in section 1760. Flagging an idle well that is in one or more of these categories is necessary to identify wells that would have a greater potential impact to health, public safety, and the environment in the event of a failure either at the surface or subsurface.

- **Subdivision (a)(2)** requires consideration of whether the idle well is located in an area of known geologic hazard, such as subsidence, landslides, or a history of damage to wells in the area from seismicity. This information allows the Division to identify wells that are at risk for a variety of issues. Idle wells in areas of known subsidence are more likely to suffer from shearing of the wellbore which may ultimately prevent the well from being abandoned to current standards. Wells in areas prone to landslides may have their surface equipment damaged during a landslide that could result in an uncontrolled release or the well may become buried and inaccessible at the surface. Similarly, wells with a history of damage from seismicity are more likely to suffer shearing of the wellbore or have their surface equipment damaged during a landslide.
- **Subdivision (a)(3)** requires consideration of whether the idle well has pressure in the casing or tubing at the surface, and whether the well is open to the atmosphere. An idle well with high pressure in the tubing or casing has a greater risk of spill from an uncontrolled release. An idle well that is open to the atmosphere similarly has a greater risk of spill from an uncontrolled release. Consideration of the pressure in the tubing or casing and if the well is open to the atmosphere allows the operator and the Division to identify wells that are more likely to have an uncontrolled release due to increasing or unstable pressure over time.
- **Subdivision (a)(4)** requires consideration of whether the idle well has surface obstacles or other impediments preventing access to the wellhead, including but not limited to buildings or structures, surface-use activities, irrigation systems, roads, terrain, or restricted access. Wells in locations with impediments to surface access pose a greater risk to health, public safety, and the environment, especially in urban areas, as access for mechanical integrity testing or plugging and abandonment is difficult, or even infeasible. Other surface-use activities, irrigation systems, roads, terrain, or restricted access can also prevent access to an idle well posing a threat to health, public safety, and the environment. It is necessary to consider any surface obstacles or impediments on the surface preventing access to an idle well, so that if access to the idle well becomes available the well can be prioritized for plugging and abandonment while access is available.
- **Subdivision (a)(5)** requires consideration of whether the idle well has known downhole issues that would make it difficult to either reactivate the well or plug and abandon the well, such as known hole in casing, collapsed casing, stuck rods, packer, or fish. Downhole impediments may prevent the well from being

abandoned to current standards. Depending on the type of impediments, this information may indicate that the well lacks mechanical integrity such as collapsed casing. Operations required to clean out a wellbore prior to abandonment would indicate higher liability associated with the plugging and abandonment of the well.

- **Subdivision (a)(6)** requires consideration of whether the fluid level in the idle well is above the base of freshwater. If the fluid level is above the base of freshwater the well is considered higher risk because of the increased potential that fluids may migrate from the wellbore into the freshwater, or vice versa.
- **Subdivision (a)(7)** requires consideration of whether the fluid level in the idle well is above the base of a USDW. If the fluid level in the idle well is above the base of a USDW because if the fluid level is above the base of a USDW the well is considered higher risk because of the increased potential that fluids may migrate from the wellbore into the USDW, or vice versa.
- **Subdivision (a)(8)** requires consideration of the age of the idle well. Considering the age of the well is necessary because the age of a well can be an indicator of the potential for the well to have integrity issues.
- **Subdivision (a)(9)** requires consideration of any other indications that the idle well potentially poses a threat to life, health, property, or natural resources. Considering any other indications that the idle well poses a threat is necessary to capture any threats the well may pose or other prioritization considerations that may not be enumerated in the regulation.
- **Subdivision (a)(10)** requires consideration of any operational or economic efficiencies that may be achieved by ordering work in a particular manner. There are significant costs associated with the testing and plugging and abandonment requirements of these regulations, and consideration of operational or economic efficiencies that may be achieved by ordering work in a particular manner is necessary to reduce the compliance costs associated with these regulations.

Subdivision (b) allows the Division to adjust the order of idle wells to be tested or plugged and abandoned under a Testing Compliance Work Plan, Testing Waiver Plan, or Idle Well Management Plan. Based upon the information the operator provides, the Division will evaluate the comparative risks of an operator's idle wells within one of these plans and adjust the order of the work as necessary to ensure that the idle wells that pose the greatest risks are prioritized.

Section 1772.4 encourages operators with a Testing Compliance Work Plan, Testing Waiver Plan, or Idle Well Management Plan to prioritize testing and plugging and abandonment of idle wells based on risk indicators that may present a risk to public health or safety or to the environment. The ability to prioritize testing and plugging and abandonment based on risk is necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources, its mandate under Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells to address appropriate remediation where there is an indication of a lack of mechanical integrity, and its authority under Public Resources Code section 3206, subdivision (a)(2)(B)(i), to prioritize the plugging and abandonment of specific wells under an Idle Well Management Plan.

Section 1772.5. Requirements for Active Observation Wells.

Section 1772.5 requires operators to test and monitor the integrity of observation wells, which are by definition wells that penetrate a hydrocarbon reservoir, and therefore these non-operational wells are potential conduits between hydrocarbon zones and groundwater. As with idle wells, testing of observation wells is necessary to ensure integrity, although the risks associated with observation wells are lower due to the fact that they are regularly monitored.

If an observation well penetrates a USDW, then **subdivision (a)** requires the operator to conduct a casing pressure test in accordance with section 1772.1.1, discussed above, within six months of a well becoming an observation well and every 60 months thereafter. As with an idle well, this testing is necessary to verify the mechanical integrity of the well casing to ensure that the observation well will not act as a conduit to other formation zones. This benefits the public and environment by preventing cross contamination of hydrocarbon fluids into freshwater zones or USDWs and the intrusion of freshwaters or USDWs into hydrocarbon zones.

Subdivision (b) provides that within 12 months of failing to successfully complete testing under this section the operator must either bring the well into compliance, partially plug and abandon the well, plug and abandon the well, or schedule the well for plugging and abandonment under an approved Idle Well Management Plan or an approved Testing Waiver Plan, as failing to address the mechanical integrity of an observation well poses a potential threat to life, health, property, and natural resources.

Proposed section 1772.3 will provide an effective testing regime to ensure that observation wells are not potential conduits for contamination of groundwater or dilution

of hydrocarbon resources, which is necessary to implement the Division's statutory mandate under Public Resources Code section 3106 to prevent damage to life, health, property, and natural resources.

Section 1772.6. Verification of Production or Injection.

Public Resources Code section 3008, subdivision (d), which defines the term "idle well," provides that a well's production or injection is subject to verification by the Division. It also provides that an idle well ceases to be an idle well when it is either properly plugged and abandoned or shown to the Division's satisfaction to have been used for a continuous six-month period. To implement Public Resources Code section 3008, subdivision (d), and in response to Public Resources Code section 3206.1's mandate to review, evaluate, and update its idle well regulations, the Division proposes to make specific some of the criteria for a satisfactory showing that a well is no longer idle.

Section 1772.4 requires an operator who reports injection or production from a well to demonstrate, at the Division's request, that the well can, and actually did, produce or inject as reported. Proposed section 1772.4 would allow the Division to require an equipment check, well test, or verifying documentation including, but not limited to:

- Operability of the production or injection equipment
- Filling of production tanks
- Field production reports
- Lease oil inventory at the beginning or end of the month
- Run tickets or automated shipping data, which includes the shipping and/or purchasing company and the volume received
- Lab data, such as gravity, water cut, and/or temperature
- Details of the methods used to allocate production to wells
- Any other documentation or means by which the Division may reasonably require an operator to verify production.

This section is necessary to prevent and detect misrepresentations that a well is active. These regulations are designed to eliminate non-viable wells and reduce their potential for unfunded financial liability to the state. The fees and required testing that help to ensure the safety of idle wells also creates financial incentives to plug and abandon wells that are not reasonably likely to be used for production. To prevent and detect misrepresentations, the Division must require a demonstration, including the information specified in section 1772.4, that the well has been in use as reported. This benefits the public and environment by ensuring that idle wells are tested as required or are properly plugged and abandoned.

Section 1772.4 will protect public safety and natural resources by making specific the criteria required for showing to the Division's satisfaction that a well has been continuously in use for six months, as described in Public Resources Code section 3008, subdivision (d), and by preventing and detecting misrepresentations about idle wells. The addition of section 1772.4 facilitates a more comprehensive and effective testing regime for idle wells and is necessary to respond to the mandate of Public Resources Code section 3206.1 to review, evaluate, and update its regulations pertaining to idle wells.

Section 1772.7. Idle Wells Penetrating a Gas Storage Reservoir.

Public Resources Code section 3180, subdivision (d)(1), required the Division to promulgate regulations establishing regulations to ensure that integrity issues for gas storage wells are identified and addressed before they can become a threat to life, health, property, or natural resources. The Division has adopted comprehensive regulations addressing safe operation of underground gas storage facilities, including section 1726.6, which requires mechanical integrity testing for all wells that penetrate a gas storage reservoir. Proposed Section 1772.7 exempts idle wells that are subject to the mechanical integrity testing requirements under section 1726.6 from the testing requirements in proposed section 1772.1, the pressure testing parameters in proposed section 1772.1.1, the engineering analysis in proposed section 1772.1.2, and the requirements for active observation wells in proposed section 1772.5. This is necessary to avoid duplication or conflict with the more stringent requirements that these wells are already subject to

NONSUBSTANTIAL CHANGES

The following nonsubstantial changes have been made in the final text of the regulations that were not included in the originally proposed regulations or the modifications to the proposed regulations when they were made available for public comment:

- In Section 1772.1(a)(2) "cement casing" has been changed to "cemented casing" in two places for correct grammar.
- In Section 1772.1(d)(3) a missing "s" was added to "operator's" for correct spelling.
- In Section 1772.1.1(b)(1) "cement casing" has been changed to "cemented casing" in two places for correct grammar.

- In Section 1772.1.4(b) the word “under” has been removed for correct grammar.
- In Section 1772.5(a) “cement casing” has been changed to “cemented casing” for correct grammar.
- In Section 1772.5 the authority reference has been changed to include Public Resources Code sections 3224 and 3237.

LOCAL MANDATE DETERMINATION

The adoption of this rulemaking does not impose a mandate on local agencies or school districts.

STANDARDIZED REGULATORY IMPACT ASSESSMENT

The Department has completed a Standardized Regulatory Impact Analysis for the proposed rulemaking action, which was included in the Initial Statement of Reasons as “Attachment A.” The Department has made an initial determination that the adoption of these regulations may create a significant, but absorbable burden, on statewide operators. Small operators, however, could exit the industry if they are unable to meet the proposed requirements. However, the economic impact stemming from the costs to comply with the regulations would create positive indirect secondary impacts to statewide gross output, contract service jobs, earnings, and value added, despite the short-term possibility of downsizing or small operators exiting the industry. In the long-term, operators are expected to continue innovating both their processes and their technologies to make the extraction of hydrocarbons profitable.

DETERMINATION REGARDING ALTERNATIVES CONSIDERED

The Division held informal meetings and conversations with stakeholders in the lead-up to the formal rulemaking process to collect feedback on the ongoing development of idle well testing and management requirements. The stakeholders included oil and gas operators, industry representatives, environmental groups, staff from the California State Legislature, and members of the general public.

On June 17, 2017, the Division publicly released pre-rulemaking draft regulations to receive public input on the development of updates to the regulations specific to governing idle well management and testing. On July 14, 2017, the Divisions held a pre-rulemaking workshop in Bakersfield, California. At the workshop the public was invited to provide oral and written comments on the pre-rulemaking draft regulations.

Due to significant public interest regarding the draft regulations, the Division extended the first informal comment period through August 21, 2017.

Additional in-person discussions with operators and industry representatives and environmental groups about the proposed regulations continued beyond the close of that informal public comment period. The comment submissions and in-person feedback were reviewed and carefully considered by the Division throughout the pre-rulemaking process while developing these proposed regulations.

A public comment period on the originally proposed regulations was held from July 27, 2018 through September 13, 2018, pursuant to the Notice of Proposed Action mailed to interested parties and duly published in the California Regulatory Notice Register on July 27, 2018 (Register 2018, No. 30-Z, 07/27/2018). During that public comment period, two public comment hearings were conducted, one in Bakersfield on September 12, and one in Los Angeles on September 13. A public comment period on the first revised text of the proposed regulations was held from October 29, 2018 through November 14, 2018. A public comment period on the second revised text of the proposed regulations was held from February 7, 2019 through February 22, 2019.

In the course of developing the proposed regulations, the Division considered various alternative approaches and suggestions included in the stakeholder comments, and the originally proposed regulations were revised in response to public input received during the rulemaking process.

The Division has determined that no alternative to the final regulations identified for consideration would be more effective in carrying out the purpose for which the regulations are proposed, as effective and less burdensome to affected private persons than the adopted regulations, or more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law. This determination is based in part upon the SRIA completed for this rulemaking action and the statement of benefits in the Notice of Proposed Rulemaking Action. The following is supporting information for this determination and explanation setting forth reasons for rejecting proposed and considered alternatives, including alternative that might lessen and adverse economic impact on small businesses:

- The Division considered, but rejected, alternative compliance period timelines that would omit, shorten, or lengthen the testing compliance period established in the regulations. A shorter initial compliance phase-in would likely not allow enough time to safely and effectively build capacity to address the approximately 28,000 existing idle wells in the state. And allowing for a slower phase-in of these requirements would increase the risk that hazards will manifest or that wells will be deserted before they are addressed. In addition to the six-year

compliance phase-in, the Division adopted various proposed alternatives for more flexible testing requirements. These include the use of an inert gas depression test, alternative testing methods approved by the Division, and caliper surveys for low-priority idle wells in lieu of pressure testing to meet the pressure testing requirement of section 1772.1(a). These tests do not always require a rig and can be done more quickly and inexpensively than a casing pressure test. These alternative testing methods should alleviate some difficulties related to rig availability identified by industry stakeholders. Finally, wells scheduled for plugging and abandonment under an operator's Idle Well Management Plan or Idle Well Testing Waiver Plan will be exempt from the requirements for pressure testing, clean out tags, and engineering analysis. While the initial compliance period remains at six years, the alternatives adopted, while equally effective in carrying out the regulatory purposes, significantly the burden on operators.

- The Division considered, but rejected, an exemption from conducting a casing pressure test where there is either no known USDW or no fluid above the base of fresh water, as determined by a fluid test. The potential hazards associated with idle wells are not limited to potential contamination of groundwater, and Public Resources Code section 3206.1 requires the Division to adopt appropriate regulations that verify the mechanical integrity of idle wells. Although it may be a lower priority to test an idle well if it clearly does not pose a threat to groundwater, pressure testing is needed to verify the mechanical integrity of the casing regardless of whether there is a known USDW or no fluid above the base of freshwater.
- The Division considered, but rejected, including the required fluid level test in the six-year testing compliance phase-in. These regulations require the fluid level test to be completed within 24 months of the effective date of the regulations, but this test is already required by existing regulations within five years of a well becoming an idle well. The fluid level test is needed to determine if the fluid level is above a USDW, which is important information for prioritizing the other idle well testing., so it does not pose an additional burden on operators. Without early access to fluid level test results, the regulations would be less effective.
- The Division considered, but rejected, a reduced depth requirement for a clean out tag. These regulations require an operator to perform a clean out tag to the Division approved depth, or to at least 25 feet below the uppermost perforation in the lowermost zone not abandoned under Sections 1723 and 1723.1. The purpose of the cleanout tag is to either: (1) verify the ability to plug the well to depth when the time comes for plugging and abandonment; or (2) demonstrate that a well can access the formation if an operator elects to return the well to use,

rather than plug and abandon the well. If the operator cannot reach 25 feet below the uppermost perforation, it will be difficult to perform a proper plugging and abandonment, making the well higher risk, or the operator will not be able to reach the formation, making the well not viable.

- The Division considered, but rejected, shortening the timeframe between each clean out tag, or removing the clean out tag requirement from the regulations altogether. These regulations require operators to perform a clean out tag on wells that have been idle for eight years, and then every 48 months thereafter. A well that has been idle for eight years is considered a “long term idle well.” The purpose of the cleanout tag is not to verify depth, but to ensure that the bottom of the well can be accessed for proper plugging and abandonment, or to verify that a well can access the formation if the operator elects to return the well to service. The cleanout tag also verifies mechanical integrity of the well by demonstrating that there are not collapsed, sheared, pinched, or doglegged sections of casing that would indicate a loss of integrity. The clean out tag can identify shearing before the entire depth of the wellbore becomes inaccessible and to ensure an opportunity to address the well while it can still be abandoned to standard. Additionally, a successful clean out tag means the operators can demonstrate that the well is free of obstructions and is necessary to indicate whether damage is developing within the wellbore, to ensure long-term idle wells are not degrading to the point that they pose a threat, and to ensure that it does not become infeasible to plug and abandon the well. Accordingly, it requires operators to clean any junk, debris, or sand out of the wellbore every 48 months for as long as the well is idle to ensure the entire wellbore is accessible. The regulations specify that the Division may authorize lesser or more frequent clean out tags based upon factors that may indicate risk to the mechanical integrity of the well. Where there is little risk of subsidence, geologic movement, recurrence of obstructions, or other risk factors, the Division will likely provide operators with longer timeframes to repeat clean out tags. Because the clean out is only secondarily for the purpose of determining mechanical integrity of the wells, the regulations are equally effective without requiring an earlier clean out tag. But the clean out tag does provide valuable information for evaluating and prioritizing long-term idle wells and removing the requirement would be less effective to carry out the regulatory purposes.
- The Division considered, but rejected, requiring pressure testing of idle wells to be conducted at an initial pressure of at least 500 psi. To avoid unintended consequences from uniform testing requirements, the regulations allow for tiered pressure-testing that allow testing pressure appropriate to avoid damage each idle well as determined by the operator. If an operator opts to test a well at a

lower pressure, they must conduct pressure tests more frequently. Many long-term idle wells, including some that were drilled in the late nineteenth and early to mid-twentieth centuries, were not constructed to modern standards or may be corroded. Testing them uniformly at 500 psi may cause damage the well causing it to leak or present other threats to public safety or natural resources. The tiered approach will adequately integrity assurance for idle wells. If an idle well can withstand a greater pressure, then it is more likely to have a high degree of mechanical integrity and does not have to be tested as frequently. If the operator is reticent to pressure test a well at a high pressure, they will have to test it more frequently to ensure the well is not experiencing integrity deficiencies.

- The Division considered but stricter pressure testing parameters. The regulations require a stabilized pressure for 30 minutes with no more than a three percent change, consistent with US EPA Region 5 guidance for pressure testing class II injection wells. A ten percent increase is permitted for idle wells within the area of review for a cyclic steam injection well or a steam flood injection well. Operators will be responsible for ensuring the well has stabilized before beginning the test. The Division believes these parameters will be effective for determining the mechanical integrity of idle wells.
- The Division considered, but rejected, allowing the inert gas depression test to be conducted at less than 500 psi. The regulations allow operators to use inert gas depression testing only if the pressure necessary to depress fluid in the well is 500 psi or above. The decision to allow inert gas depression testing was an attempt to reduce the demand for rigs and associated costs. Due to the difference of compressibility in gas and liquid and corresponding difference in pressure gradient, using the same surface pressure for each test would result in the casing experiencing a lesser pressure with gas than water at depth and not test mechanical integrity with the same level of rigor. The test protocols were established to ensure that the inert gas depression test is conducted at the same level of rigor as a pressure test and is thus an equivalent test. Meaning that the same interval of the wellbore is tested to comparable pressures at depth.
- The Division considered, but rejected, the inclusion of other passive testing options for low-priority wells, such as temperature and spinner surveys. The regulations allow operators to conduct a caliper survey on a low priority well to satisfy the pressure testing requirements of sections 1752, 1772.1 or 1772.5 provided that the Division has approved the testing protocols as effective for evaluating well integrity. Where an idle well has been inactive for many years, the wellbore fluid and the associated reservoir are often the same temperature, making it impossible to detect a temperature change associated with a

mechanical integrity issue. While a temperature or noise log may show a static environment, the tests would be inconclusive with respect to competency of the well bore if the well bore does not have mechanical integrity and fluid inside and outside the well had stabilized. Temperature surveys can also fail to detect small leaks, where the temperature differential would be very small. The temperature can dissipate before changes in temperature could be recorded, making it impossible to detect any temperature differential, rendering the temperature survey inadequate.

- The Division considered, but rejected, changing the data submission requirements for the prioritization factors and the casing diagram. The data submitted for the prioritization factors is necessary to ensure that specific risk factors are considered in prioritizing wells for testing and plugging and abandonment, allowing operators and the Division to make informed decisions regarding testing and plugging and abandonment of wells under a Testing Compliance Work Plan, a Testing Waiver Plan, or an Idle Well Management Plan. Any additional data requirements would make the regulation overly burdensome, while removing any of the data requirements would make the task of prioritizing idle wells ineffective. The regulations already contain a clause specifying that data that has been previously submitted to the Division is not required to be resubmitted. The data submitted for the casing diagram is sufficient to evaluate whether the well is viable for future use in light of the well's construction and condition. Requiring any additional data would be overly burdensome, while removing any of the data requirements would be less effective for evaluating the risk profile of idle wells.
- The Division considered, but rejected, shorter and longer timeframes for initial compliance with the Idle Well Inventory and Evaluation requirements. The timeframe for initial compliance with the inventory and evaluation requirements is set for January 31, 2021, allowing for more than eighteen months to comply with this requirement once the regulations take effect. The evaluation is needed to prioritize work under the Testing Compliance Work Plan, the Testing Waiver Plan, and Idle Well Management Plans. A shorter timeframe would likely impose too substantial a burden on operators, but a longer timeframe would delay and hinder the Division's ability to prioritize work on idle wells with the highest potential risk to the life, health, property, and natural resources, and would therefore be less effective to carry out the regulatory purposes.
- The Division considered, but rejected, shorter and longer timeframes for the Testing Waiver Plan. The proposed timeframe allows for a rolling eight-year compliance period. The compliance period allows enough time for operators to plug and abandon wells while also reducing the burden on available resources,

such as the State's inventory of workover rigs. The intended effect of the regulations is to incentivize the plugging and abandonment of idle wells that the operator does not intend to return to use. The Division determined that a shorter timeframe would be overly burdensome on operators and possibly infeasible due to resource constraints. At the same time, an eight-year limit is necessary to ensure that wells are not effectively deferred indefinitely. Each year that plugging and abandonment is deferred poses additional risks to the environment and risks that the wells will ultimately be deserted.

CONSISTENCY WITH COMPARABLE FEDERAL REGULATION OR STATUTE

The proposed regulations are not inconsistent or incompatible with federal statutes or regulations. The Division is the main regulatory body for idle wells in the state of California. On federal land, the Bureau of Land Management (BLM) and the Division both have regulatory jurisdiction. The proposed regulations for the testing and maintenance of idle wells and observation wells are more stringent than the federal counterpart and more protective of the public and environment. Federal regulations require operators to promptly plug and abandon wells newly completed or recompleted wells in which oil or gas is not encountered in paying quantities or is no longer capable of producing oil or gas in paying quantities, possibly due to casing damage, unless BLM approves use as a service well for injection or subsurface disposal. (43 CFR, § 3162.3-4, subd. (a).) Also, no wells may be temporarily abandoned for more than 30 days without BLM approval. (43 CFR, § 3162.3-4, subd. (c).) Nothing in the proposed regulations is inconsistent or incompatible with federal statutes or regulations.

DOCUMENTS RELIED UPON

- Interstate Oil and Gas Compact Commission, Produce or Plug? A Study of Idle Oil and Gas Wells. <http://groundwork.iogcc.ok.gov/sites/default/files/2000%20Produce%20or%20Plugging.pdf> (2000).
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- Jacqueline Ho, Alan Krupnick, Katrina McLaughlin, Clayton Munnings, Jih-Shyang Shih, Resources for the Future, *Plugging the Gaps in Incentive Well Policy*, (May 2016).

- Erin Waldner. Wells without Owners. <http://www.bakersfield.com/news/business/wells-without-owners/article_057fd3f5-b421-5f8e-894e-ce4ecf0caea8.html> (as of Feb. 10, 2006).
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- James D. Walker, Horsley Witten Group, California Class II Underground Injection Control Program Review <<http://www.conservation.ca.gov/dog/Documents/DOGGR%20USEPA%20consultant%27s%20report%20on%20CA%20underground%20injection%20program.pdf>> (June 2011).
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- New Mexico Oil Conservation Division, Underground Injection Control Program Manual, dated February 26, 2004.
- United States Environmental Protection Agency, Region 5, Regional Guidance #5: “Determination of the Mechanical Integrity of Injection Wells,” revised February 2008.
- Government of Saskatchewan, Annulus Test Reporting Requirements, Guideline PNG 029, revised November 2015.
- BC Oil and Gas Commission, Water Service Wells Summary Information, October 2017.

- Alberta Energy Regulator, Interim Directive ID 2003-01, January 30, 2003.
- Railroad Commission of Texas, “ADA’ Pressure Test Procedures for Texas,” last updated March 2016.
- AnaLog Services, Inc. and Kenneth R. Ingle Associates, Inc. “ADA’ Pressure Mechanical Integrity Test (MIT),” last updated October 2010.

SUMMARY OF AND RESPONSE TO PUBLIC COMMENTS RECEIVED

Public comment summaries and responses for the initial public comment period held from July 27, 2018 through September 13, 2018 can be found under Tab “M” in the original rulemaking file. Public comment summaries and response for the first 15-day public comment period held from October 28, 2018 through November 14, 2018 can be found under Tab “N” in the original rulemaking file. Public comment summaries and responses for the second 15-day public comment period held from February 12, 2019 through February 28, 2019 can be found under Tab “H” in the resubmission binder. These separate documents are hereby incorporated by reference into this document.