

October 6, 2025

Carbon Capture, Removal, Utilization, and Storage Program

California Air Resources Board

1001 I Street

Sacramento, CA 95814

Submitted electronically

California Resources Corporation (CRC) appreciates the opportunity to comment on the California Air Resources Board (CARB) “Information Solicitation to Inform Implementation of Carbon Capture, Removal, Utilization, and Storage Program: Senate Bill 905,” published on August 22, 2025.

CRC operates exclusively in California as an independent, publicly traded energy company. CRC’s produces low carbon intensity oil and natural gas, supported by an extensive network of production wells, injection wells, pipelines, and associated facilities, all designed, installed, operated and maintained under the strictest local, state, and federal rules since 1965. CRC has decades of experience operating pipelines, wells, and injection facilities in a safe and responsible manner. Our operational track record reflects a long-standing commitment to safety, environmental stewardship, and regulatory compliance and transparency.

CRC’s experience with Carbon Capture and Sequestration / Storage

In 2021, CRC launched Carbon TerraVault (CTV) as part of our carbon management business to support California’s climate and air quality goals. Through CTV, CRC advances commercial-scale carbon capture and storage (CCS) projects to safely transport and permanently store carbon dioxide from industrial sources into geologically secure formations.

In late 2024, CRC received the nation’s third approved Class VI permit from the US EPA and a conditional use permit (CUP) from Kern County, both firsts in California. Subsequent regional and local permits followed and in mid-2025, CRC began construction on the Carbon TerraVault I (CTV I) project. The permitting path proved arduous, inasmuch as no other applicant had ever successfully charted the path forward. CRC believes this experience makes us uniquely qualified to comment on the development of CARB’s CCS guidelines and the “unified permit application,” which should provide both project applicants and agencies guidance for project consideration and, when justified, approval.

Comments on CARB Information Solicitation: SB 905

CRC offers the following comments in response to CARB's solicitation. The comments address broad categories in the solicitation (i.e., "Financial Responsibility," "Criteria and Toxic Monitoring," etc.) without attempting to dwell on each specific question within those categories.

As a preamble to those comments, CRC notes the following regarding the breadth of agencies already involved in the permitting of an industrial facility such as a CCS project. A CCS project applicant must secure some form of approval from a long list of federal, state, and local agencies, depending upon where the applicant seeks to locate the proposed CCS project. CRC provides a list of those agencies we identified in our experience to date, but CRC in no way represents the list as exhaustive. The list includes 21 specific permits, 10 of which apply in almost every case. To facilitate CCS project deployment and avoid unnecessary obstacles and delays, CRC recommends that CARB rely upon existing applicable regulatory requirements to the extent feasible to meet the SB 905 direction to establish a Carbon Capture, Removal, Utilization and Storage Program.

Regarding Financial Responsibility

CARB's solicitation requests input regarding financial responsibility provisions for CCS projects. Pursuant to SB 905, CARB's regulations shall meet the provisions of Health and Safety Code Section 39741.5, which references the substantive requirements of Section 71464 of the California Public Resources Code (PRC) and shall be no less stringent than Section 146.85 of the Code of Federal Regulations (40 CFR 146.85). PRC Section 71464 specifies that the financial mechanism cover specified short- and long-term costs associated with the CCS project necessary to ensure that carbon dioxide leakage from the CCS project poses no threat to public health, safety and the environment and that terminates no earlier than 100 years after the date of last carbon dioxide injection into a geologic storage reservoir.

CRC recommends that CARB's SB 905 rules recognize all financial mechanisms authorized by 40 CFR 146.85 for Class VI CCUS injection projects under the federal Safe Drinking Water Act without restriction as to type of financial mechanism. CARB's regulation should allow for acceptance of a single financial assurance mechanism from a CCUS project operator to meet the federal Class VI injection project requirements, requirements of PRC Section 71464, and requirements in the CCS Protocol under the Low Carbon Fuel Standard (Section C.7). In instances where the federally-required Class VI financial mechanism does not meet the CA Public Resources Code Section 71464 requirements, CARB's proposed regulation should allow for consultation with the CCUS project operator similar to the provisions of Public Resources Code 3205.3, which establishes a procedure for determining appropriate bonding requirements for oil and gas facilities by the California Geologic Management Division in consultation with individual oil and gas operators.

With regard to continuity of coverage by the financial mechanism, CRC notes that the existing federal rules for Class VI projects (40 CFR 146.85) and financial responsibility requirements in the CCS Protocol under LCFS (C.7) contain provisions for such continuity, including not only transfer of ownership, but also allowances for one or multiple qualifying financial instruments for specific project phases. CRC recommends that CARB adopt this approach to financial mechanisms.

Regarding Criteria and Toxics Monitoring

CARB's solicitation requests input regarding monitoring of criteria pollutants and potential toxic air contaminants at CCS project sites, including mobile and fixed sites. Additionally, CARB seeks input regarding monitoring of ambient carbon dioxide concentrations over the geologic complex to facilitate leak detection.

With regard to carbon dioxide monitoring, CRC recommends that CARB take notice of, and not duplicate in proposed regulations, existing requirements of a Class VI CCS injection project, including Subpart RR monitoring, reporting and verification requirements (40 CFR 98.440). Class VI permits require:

- analysis of the CO₂ stream;
- continuous monitoring of injection pressure/rate/volume and annulus pressure/volume;
- quarterly corrosion monitoring;
- groundwater quality/geochemical monitoring above the confining zone;
- well testing; tracking of the CO₂ plume and pressure front; and,
- surface air and/or soil-gas monitoring.

Subpart RR requires:

- adoption of strategies to detect and quantify any surface leakage, and
- reporting of CO₂ received, injected, produced, and emissions from equipment leaks and/or venting between the flow meter and wellhead.

Similarly, the CCS Protocol under LCFS (section C.4) requires extensive monitoring in the subsurface and surface/near-surface to identify potential CO₂ leakage to the atmosphere.

Given the robust CO₂ monitoring required under federal Class VI permits and CCS Protocol under LCFS, and their associated monitoring, reporting and verification plans, CRC recommends that CARB not enact duplicative CO₂ monitoring requirements.

With regard to criteria pollutant and potential toxic air contaminants, CRC notes that CCS projects must meet rigorous federal, state, regional, and local permitting, compliance, and monitoring programs for criteria air pollutants and toxic air contaminants. In obtaining authorization for CRC's CTV I project, CRC complied with New Source Review requirements and Title V requirements for monitoring, recordkeeping and reporting for NO_x, SO_x, CO, PM, VOCs, and hazardous air pollutants.

CRC recommends that CARB's SB 905 regulation take note of existing air quality monitoring requirements, recognize that CCS projects do not pose any additional risk to air quality than other industrial sources, recognize the effectiveness of existing air quality regulations, and impose no new criteria pollutant or potential toxic air contaminant emission control requirements.

Many different modelling techniques exist to predict dispersion of CO₂ or other gasses in the event of a leak or rupture. When local land use agencies conduct environmental review of CCS projects, they likely will employ one of these dispersion modelling techniques to identify areas and receptors that could be impacted by a leak from a CCS project. The existence of different modelling techniques can give rise to points of challenge over the adequacy of the environmental review of the CCS project. CRC suggests that CARB evaluate different modelling techniques and include a recommendation in the unified permit application guidelines regarding appropriate modelling with the aim of reducing sources of dispute in permitting of CCS projects. CRC notes that SB 614 (Stern; enrolled and presented to Governor on 9/23/25) specifies the use of, "...validated, engineering-based computational fluid dynamics modeling..." to identify levels of risk of exposure to carbon dioxide from a carbon dioxide pipeline leak when conducting environmental review of a project.

Regarding Minimizing local water and air quality impacts

Several existing regulatory frameworks that provide demonstrated protection for both surface and groundwater apply to CCS projects. The federal Clean Water Act prohibits unpermitted discharges of pollutants, including stormwater containing pollutants, through a point source into waters of the U.S. (33 U.S.C. § 1342). The State Water Resources Control Board (SWRCB) and regional water quality control boards (RWQCB) require and oversee general permits for Industrial and Construction Stormwater discharge activities. Dischargers whose projects disturb one (1) or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, must obtain coverage under the Construction General Permit (CGP), which requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer (Construction General Permit Order 2009-0009-DWQ). Operators of certain industrial activities are required to obtain Industrial General Permit (IGP) Coverage (Industrial General Permit Order 2014-0057-DWQ). Operators of industrial projects such as a CCS project obtain either the CGP or IGP through the SWRCB's Stormwater Multiple Application and Report Tracking System (SMARTS). CARB should rely upon and reference existing surface water protection requirements rather than attempt to develop duplicate CCS program requirements.

The Class VI well permit under the federal Safe Drinking Water Act (SDWA) provides the foundational permit for a CCS project. Without a Class VI permit, no injection of CO₂ for storage/sequestration in a subsurface storage reservoir may occur. The Class VI permit requires, at a minimum, rigorous site characterization demonstrating the presence of sufficient confining zone

to prevent carbon dioxide migration from the injection zone, including identification and mitigation of any potential conduits (i.e., legacy wells) from the storage zone prior to injection. Class VI permits specify periodic re-evaluation of the injection project via monitoring wells, with potential project modification required if monitoring indicates a necessity for change in injection. Once the US Environmental Protection Agency (USEPA) approves the Class VI project for construction and construction finalizes, CCS project applicants must apply for further USEPA approval to begin injection, requiring demonstration that the project construction meets the standards of the approved Class VI permit. Monitoring during injection includes subsurface monitoring in the confining zone above the injection zone, as well as tracking the carbon dioxide plume over the duration of the injection and into the post-injection phase to detect and remedy any migration risks as soon as possible. All of these Class VI SDWA permit requirements prevent migration of CO₂ into groundwater. CARB may reliably satisfy the statutory direction in SB 905 by relying on existing Class VI permit requirements with no additional regulation necessary.

Additional Considerations

CARB should consider the following elements in the proposed SB 905 rulemaking:

- ❖ **In the unified permit application, include recommendation that California Environmental Quality Act Lead Agencies consult with state or regional regulators when the Lead Agency's proposed CCS project mitigation measures include reliance on compliance or consultation with those state or regional regulators.**

As noted above, a variety of existing state, regional, and local requirements provide robust protections for public health, safety and the environment when applied to CCS projects. Coordinating those protections in CCS environmental impact mitigation ensures that existing rules work in concert. However, CCS project proponents attempting to meet mitigation requirements can encounter project delay when a local Lead Agency assigns a mitigation role to a state or regional regulator and that regulator has neither the resources nor the authority to conduct the mitigation task.

- ❖ **In the unified permit application, include recommendation that CCS project mitigation requirements match the proposed project phasing.**

CCS projects progress in phases. As noted earlier, the USEPA Class VI permit to construct the CCS project, does not impart automatic authority to begin to inject into the project's target reservoir. Timing of mitigation measures should match the presence of potential impact subject to the mitigation. Installation of a seismic monitoring network, for instance, should precede injection, but serves no purpose prior to initiating construction of the CCS facility's surface equipment or drilling and constructing the wells through which injection will occur. Failure to

phase mitigation requirements with project phases can lead to inefficiencies and delays in project deployment and the potential to increase overall project cost without benefit.

❖ **Recognize the interplay between the SB 905 rulemaking and future Cap and Invest Program rules.**

The SB 905 rulemaking should help alleviate some of the uncertainty about CCS projects by defining what permits a project proponent must secure in order to gain approval for a project. However, the economic value of these projects rely upon their ability to reduce compliance obligations under the Cap and Invest Program in a straightforward manner. In developing the SB 905 regulation, CRC recommends CCS project compliance under the Cap and Invest Program rest upon values like the volume of carbon dioxide captured and the duration of the storage and not whether a CCS project met a voluntary unified permit application process arising from the SB 905 rulemaking.

CRC appreciates the opportunity to provide input to CARB's SB 905 Information Solicitation. CRC understands these comments will inform CARB's development of regulations to implement the provisions of SB 905. CRC looks forward to active participation in the rulemaking process and believes that our experience in permitting of CTV I can serve as a resource in the coming months of regulatory development.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Marshall". The signature is fluid and cursive, with a large initial "J" and a stylized "M".

Jason Marshall
Vice President, Regulatory Affairs
California Resources Corporation