

Enclosure 1 - Evaluation of CTV's August 2025 Responses

October 2025

*Carbon TerraVault Holdings LLC (CTV) III Project
Underground Injection Control (UIC) Permit Application
Class VI Pre-Construction Permit Application No. R9UIC-CA6-FY22-5.1-5.6*

EPA Region 9 has evaluated CTV's August 2025 responses to our comments on various modules of the CTV III Class VI permit application. Below please find our follow-up requests/comments for CTV regarding the responses.

I. Requests regarding CTV August 2025 responses to comments on Attachment B: Area of Review (AoR) & Corrective Action Plan

CTV's Response #4 provides an account of their reliance on the California Geologic Energy Management Division (CalGEM) databases to identify wells within the AoR. CTV cites the historical establishment of the California Division of Oil, Gas and Geothermal Resources (DOGGR) in 1915 and the subsequent tracking of oil and gas activities as assurance that their review of CalGEM data is comprehensive. CTV argues that wells drilled prior to 1915 were shallower than the project's confining zone and that deeper wells, documented post-1931, are accounted for in CalGEM records. Consequently, CTV concludes that no unidentified wells could potentially reach the confining layer or storage complex, negating the need for aerial or ground surveys.

However, as outlined in Section 4.2 of EPA's UIC Class VI Well AoR and Corrective Action Guidance¹, a comprehensive approach to abandoned well investigation involves multiple stages, including historical research, site reconnaissance, review of aerial and satellite imagery, and geophysical surveys. While CTV's review of state and local databases is a crucial first step, the Guidance also recommends the use of aerial and satellite imagery to identify any new or undocumented wells within the AoR. These imagery reviews can provide valuable insights by revealing surface features associated with drilling activities, such as drill derricks, rig platforms, and spatial patterns indicative of well sites.

- 1. Please supplement the records review of the CalGEM well databases with a review of aerial and satellite imagery to identify any abandoned wells that may penetrate the confining zone within the AoR. Provide a rationale if CTV believes a review of aerial and satellite imagery is infeasible or unnecessary for this project.*
- 2. Please add to the Well Table (Appendix B-1) the information about any additional wellbores identified according to Request 1 above.*
- 3. Please add to Figures 1 and 2 of Appendix B-1 any additional wellbores identified according to Request 1 above.*
- 4. Please provide in Attachment B wellbore diagrams that illustrate the current wellbore condition of any additional wellbores identified according to Request 1 above.*
- 5. Please provide documentation of all the well records CTV reviewed for any additional wellbores identified according to Request 1 above.*

¹ See pages 52-56 at <https://www.epa.gov/sites/default/files/2015-07/documents/epa816r13005.pdf> for details about the four stages of an abandoned well investigation within the AoR.

EPA requested CTV to provide wellbore diagrams for the 54 wellbores and CTV responded (Response #5) that current wellbore diagrams are provided in the CalGEM records which are part of the wellbore histories submission. However, no current wellbore diagrams for the 54 wellbores are found in the CalGEM records provided.

6. *Please provide the current wellbore diagrams for the 54 wellbores. If these wellbore diagrams do not currently exist, generate them based on the CalGEM records CTV reviewed.*
7. *Please provide wellbore diagrams showing the proposed corrected wellbore configuration for the 54 wellbores in the event monitoring data (see Section II comments below) indicates corrective action is needed for any of these wellbores.*

II. Requests regarding CTV August 2025 responses to comments on Attachment C: Testing and Monitoring Plan

CTV states that, based on its calculations of allowable pressure buildup at wellbores, the 54 wellbores that are outside the CO₂ plume boundary but within the pressure front boundary, do not pose a risk to Underground Sources of Drinking Water (USDWs). However, CTV also indicates a willingness to consider additional or phased monitoring wells during the injection phase in consultation with the EPA. This approach is intended to monitor the pressure changes over time in the 54 wellbores and ensure ongoing protection of USDWs.

1. *Please add to Attachment C a comprehensive plan for additional or phased monitoring wells. This plan should:*
 - a. *establish potential conditions or situations that would trigger additional or phased monitoring well installation;*
 - b. *provide a description of the proposed monitoring techniques, locations, and frequencies of the additional or phased monitoring wells, along with a justification; and*
 - c. *provide, for each condition/situation established, a schedule for additional or phased monitoring well construction, along with a justification for the timing for the construction.*

III. Requests regarding CTV August 2025 responses to comments on Appendix 4: Operational Procedures

1. *Please add to Tables 1 through 6 of Appendix 4 (Operational Procedures) the proposed maximum surface and downhole annulus pressures for each injector.*
2. *Please provide an appendix with Summary of Requirements for each injector (see Appendix 12 of the CTV II application as an example).*

IV. Requests regarding CTV August 2025 responses to comments on Appendix G-1: Corrosion Modeling and Material Selection for Injection and Monitoring Wells

1. *Please clarify if Table 4 and Table 5 of Appendix G-1 summarize the corrosion impact of various corrosion resistant alloy (CRA) materials on well tubing only. If so, please provide similar tables that summarize the corrosion impact of the CRA materials on casing and downhole equipment of the injection and monitoring wells.*
2. *Please clarify if the degradation front for Portland cement over time shown on Figure 5 of Appendix G-1 is representative for Class G Portland cement. If not, please provide a similar figure for Class G Portland cement.*
3. *Please provide documentation of well component specifications, including the thickness of the tubing and casing selected for injection and monitoring wells, and their manufacturer's tolerance for wall thickness.*

V. General comments

CTV shall revise as necessary other application attachments and appendices that are not mentioned in the requests above, such as the emergency and remedial response plan, and financial responsibility document to reflect identification and assessment of any additional wellbores. For instance, CTV may need to increase the cost estimate for well corrective action, which in turn requires a revision of the financial responsibility document.

Please ensure all references to appendices are updated in the application. For example, Appendix C-1 referenced in the current Attachment D is now called Appendix 5.