



RED TRAIL ENERGY, LLC

The following list details the requested technical comments, questions, and concerns regarding the ARB CCS Program Concept Paper released May 8, 2017:

- If there is an additional overlay of monitoring requirements above and beyond U.S. Environmental Protection Agency (EPA) Class VI and State Certification, the program may disincentivize producers from considering storage; reciprocity with respect to outside state permitting programs should be considered.
- Regulating/restricting mineral and pore space owners in other states may not be feasible or even effective, as mineral rights may be separate from pore space rights.
- Public participation and subsequent policy comments are key to directing staff on the quantification methodology (QM) concept as they move toward proposing amendments to the Low Carbon Fuel Standard (LCFS) to the ARB.
- With respect to a third-party independent reviewer, would it be one party chosen by ARB for all applicants? It is suggested that ARB consider accepting a third-party reviewer who will be assuming the long-term care, such as a state or governing body.
- Is the compliance obligation only for California entities?

"The amount of CO₂ sequestered through CCS would be deducted from the entity's total emissions to determine its compliance obligation."
- Please qualify the term "substantial."

"Under the LCFS, staff plans to draw a system boundary that includes the substantial sources of emissions for CCS projects..."
- Please elaborate on what metrics are considered when determining "ideal injection locations," i.e., clarification is needed regarding what constitutes "clearly minimal risk" and "state of the art."

"This set of prescriptive standards would be conservative and would be expected to be used only with ideal injection locations. Ideal injection locations would consist of sites with specific characteristics, such as geologic features with clearly minimal risk, newly built wells, and state of the art monitoring plans."
- Please elaborate on what constitutes a "more geologically complex site" and "sites with legacy wells that would need to be remediated." For example, are these sites more complex because that would not have the features intended in the comment above? Also, is it suggested that sites with legacy wells must be remediated?

"The second option of satisfying the permanence protocol would be for cases in which the project does not meet all of the prescriptive requirements but still has a valid and reliable CO₂ injection site; this could include more geologically complex sites and sites with legacy wells that would need to be remediated."
- Please elaborate on, or clarify, the term "parallel standard," i.e., is the monitoring, reporting, and verification plan the parallel standard to the permanence protocol?

"The current thinking is CCS projects would be allowed to submit their Class VI permitting material as part of their submittal to meet the permanence protocol requirements, however a parallel standard is necessary due to differences in objective; consistency in requirements; unique

considerations of California regulations and stakeholders; and the potential for international projects (which wouldn't be under U.S. jurisdiction) to be covered."

- Please elaborate on how the ARB permanence protocols deviate/expand on the EPA Class VI requirements.
- It is suggested that ARB set performance standards rather than prescribe means and methods in the performance protocol. This approach will allow operators to employ the most effective technologies and collect measurements at the appropriate frequency and spatial density, as determined by site-specific conditions.
- It is important to note that a site-specific monitoring approach should be adopted. Many monitoring options are not practical or applicable in all parts of the United States. It is also recommended that Class VI permitting monitoring plans meet the LCFS pathway and not include additional layers unless they are clearly defined upfront and can be easily added to an existing project so as not to preclude early adopters of CCS from being compliant.
- The extent of detail suggested in the permanence protocol is beyond that of just properly accounting for the CO₂ emissions stored. It is recommended that ARB require CCS projects to submit the EPA Class VI permit material to meet the permanence protocol.
- It would be preferable to have detailed metrics for measuring certainty, levels of quantity, and appropriateness of mitigation.

"...that if a leak occurred, it would be detected with a high degree of certainty, quantified, and mitigated appropriately."

- Will the ARB specify the technologies used to look for leaks?
- What entity is envisioned as being responsible for identifying leaks? It is recommended that the permitting authority and site operator be responsible.
- With respect to the preinjection period, how long are the baseline and project monitoring efforts expected to occur?
- For clarification, it would be best to indicate if "postinjection" means postclosure monitoring as well. It is recommended that postinjection monitoring be consistent with permitting requirements.
- For clarification, what sort of monitoring is expected at the wellhead? A mass balance approach may not be accurate enough. Perhaps the use of a custody transfer meter near the injection point would accurately measure the CO₂.
- ARB presents a "first option" and "second option" for the permanence protocol. It is recommended that ARB should explicitly specify what is, and is not, included in the "first option," consisting of a list of checkbox-like requirements. It is mentioned in both the Concept Paper and ARB CCS Summary Paper that the permanence protocol should be "risk-based" and "site-specific." Therefore, prescribing all of the technologies in Table 1 of the Summary Paper would be overly prescriptive and onerous. If ARB were to push a monitoring plan similar to Table 1, it is expected that most operators would choose to use the second option of satisfying the permanence protocol.

Respectfully submitted by:

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