

## Review of San Joaquin Renewables (SJRenew) Responses to EPA's Questions about the Proposed Emergency and Remedial Response Plan

In April 2022, EPA provided questions presented in [blue text](#) to San Joaquin Renewables (SJRenew) about the proposed Emergency and Remedial Response Plan (dated October 22, 2021) for their planned GS project, SJRenew provided an updated Emergency and Remedial Response Plan (Attachment F\_ERR\_061522) and a document summarizing their responses (Response\_062122) to EPA on June 21, 2022. EPA's evaluation of how the revised Emergency and Remedial Response Plan addresses its questions and requests for revisions and additional information are presented in [red text](#).

The revised plan describes response actions, equipment, timing etc. in both a narrative form and in tables 4 and 5. While both are generally similar to the information requested in EPA's template (except as noted below), EPA recommend that SJRenew use a single presentation to avoid inconsistencies as the document is revised. The tables include additional scenarios (including CO<sub>2</sub> accumulation in indoor air) or combinations of scenarios beyond those described in the narrative. In the response document, SJRenew often referred to the wrong section of the ERR Plan, e.g., by saying information was added to table 1, but it is actually in table 5; although EPA did not note these in the evaluation, they need to be corrected.

### Area Resources

[In Table 1, please clarify the difference between the columns labeled "AoR 5-year" and "AoR 15/20-year," and their significance for emergency response planning.](#)

[The two referenced columns were removed from Table 1 as a result in the reduction of the AoR. Note that EPA's review of the revised AoR delineation approach is pending. It appears, based on Figure 2, that the list in Table 1 includes more resources than are in the AoR. This information remains in Table 2 \(the compilation of wells\).](#)

### Emergency Identification and Response Actions

For a holistic documentation of the response, [EPA recommends that, for each scenario, the following be identified: severity of the impact \(i.e., high, medium, low\); likelihood of the event; timing of the event \(i.e., project phase\); avoidance measures in place to reduce the likelihood of the event \(e.g., maintenance or monitoring\); detection methods that reflect planned testing and monitoring; response personnel; and equipment.](#)

[SJRenew provided the requested information in Section 4 and Table 4. EPA recommends the following changes to this information:](#)

- [Regarding the description of high-severity events, please also reference the potential for endangerment of USDWs or effects on human health \(i.e., reflecting the language in Table 3\).](#)
- [There are inconsistencies between the timing described in Section 4 and Table 4 \(e.g., in the timing of CO<sub>2</sub> leakage or ground water contamination\); EPA recommends SJRenew ensure Section 4 is consistent with Table 4 and describe the "Timing of event" as pre-injection, injection, and/or post-injection. EPA also recommends a few changes to the timing of certain scenarios:](#)
  - [Well failures/monitoring equipment failures could occur pre-injection \(e.g., as a result of](#)

a construction mishap).

- Brine or CO<sub>2</sub> leakage could occur in the injection or post-injection phases (i.e., as stated on Table 4).
- Natural disasters and seismic events could occur in the pre-injection phase.
- The avoidance measures should focus on how SJRenew would avoid the emergency scenario, (such as maintaining injection pressures to avoid MI failures) rather than describe monitoring activities.
- Response personnel should include the types of responders (e.g., service companies or remediation contractors) that would perform responses.
- Response equipment should include the types of equipment that would be used to address the adverse events described (e.g., drill rig, logging equipment, and cement or casing to address well failures; or groundwater remediation equipment to address USDW contamination due to CO<sub>2</sub> leakage, a natural disaster, or a seismic event).

Please elaborate on the degrees of risk for various emergency events (e.g., major emergency, serious emergency, or minor emergency) and define these degrees of risk.

This information was added in Table 3. The response is acceptable.

EPA recommends that the Emergency and Remedial Response Plan also address induced or natural seismic events. In guidance, EPA recommends a “stoplight” approach, in which the response varies (i.e., from documenting the event to gradually shutting down injection operations and investigating the event to immediately shutting in the well and performing necessary corrective and/or remedial actions) based on the magnitude or location of the event and whether it was felt.

This information was added in a new Table 6, which matches the recommendations in EPA’s template. EPA has the following additional recommendations:

- The severity of seismic events (as shown on Table 4 and in Section 4) may encompass a range from minor to severe.
- Please reference Table 6 within the response actions on Table 5.

EPA also recommends that natural disasters be addressed in the plan. While the responses to such events would be similar to other events (particularly those related to well failures), they should be described for a complete approach, as these events could affect the normal operation of the injection well or surface facilities.

This information was added to Section 4 and Tables 4 and 5. EPA has the following additional recommendations/requests:

- In Section 4 and on Table 4, the avoidance measures and detection methods are likely N/A.
- Under minor emergency (pg. 6), please add to the second bullet, “and implement procedures as described under the MI failure scenario above.”
- On Table 5, EPA suggests that ceasing injection be tied to MI loss or contamination, (i.e., shutdown may not always be necessary).
- Please revise bullet #7 to refer to “remedial action,” to avoid confusion with corrective action pursuant to 146.84.

EPA also recommends some additions/revisions to the descriptions of response actions on Table 2, which are summarized in the table below:

SJRenew responded that the requested edits have been included in the revised Table 5. Note that there is an overall inconsistency between the response activities in Table 5 and in Section 4; EPA requests that SJRenew make these consistent or clarify the difference.

Event/Scenario	EPA Comment/Recommendation
All	<p>Add a step to notify the UIC Program Director within 24 hours. The change was made as requested.</p> <p>Revise as follows: “Conduct causal investigation <u>and determine the severity of the event.</u>” The change was made as requested.</p> <p>EPA has the following additional comments:</p> <ul style="list-style-type: none"><li>• Please use consistent wording when referring to “initiate shutdown plan” throughout the document (i.e., instead of “stop injection”) to more clearly tie to the procedures on page 1. Review of these procedures in the “Summary of Requirements” is pending.</li><li>• For the response actions regarding “evaluate resumed injection at reduced pressure,” please add “upon approval by the UIC Program Director.”</li></ul>

Event/Scenario	EPA Comment/Recommendation
Injection well failure	<p>EPA recommends tying injection well failures to the types of monitoring that would detect losses of mechanical integrity, such as activation of automatic shutdown devices or detection of a failure through a mechanical integrity test. <b>The change was made as requested.</b></p> <p>Please note in the plan that, per 40 CFR 146.91(c)(3), SJRenew must notify the UIC Program Director within 24 hours of any triggering of a shut-off system (i.e., down-hole or at the surface). <b>The change was made as requested.</b></p> <p>This scenario should also address failures of monitoring wells and failure of injection well monitoring equipment (e.g., wellhead pressure, temperature, and/or annulus pressure). <b>The change was made as requested.</b></p> <p>Please distinguish response actions for a major or serious emergency (e.g., initiating shutdown and responding if contamination is detected) versus a minor emergency (e.g., conducting an assessment to determine if there was a loss of mechanical integrity, and if so initiating the shutdown plan). <b>The change was made as requested.</b></p> <p>Also include the response action: “Identify and implement appropriate remedial actions (in coordination with the UIC Program Director) if contamination is detected.” <b>The change was made as requested.</b></p> <p>EPA has the following additional comments:</p> <ul style="list-style-type: none"> <li>• Under the response actions for a serious emergency (pg. 3), please delete the reference to gradual well shut down procedures, as this scenario would require immediate shutdown.</li> <li>• On the first bullet for a minor emergency (pg. 3), please reference the steps under major or serious emergency if a loss of mechanical integrity is discovered.</li> <li>• On Table 5, please add “Notify the UIC Program Director within 24 hours” to the monitoring equipment failure scenario.</li> </ul>
Groundwater or surface water contamination	<p>EPA recommends that SJRenew expand on the response associated with evaluation of potential alternative remedial technologies. Activities may include: develop (in consultation with the UIC Program Director) a plan to install monitoring wells to delineate the extent of the impact; remediate the affected USDW; arrange for an alternate drinking water supply if maximum contaminant levels (MCLs) are exceeded; and continue remediation and monitoring until unacceptable impacts have been fully addressed. <b>This was added to Table 5 and Section 4 as requested.</b></p>

Event/Scenario	EPA Comment/Recommendation
Unexpected carbon dioxide migration	<p>Please include steps to determine if groundwater contamination occurred and to take appropriate remedial steps (similar to those described under the groundwater surface water contamination scenario). The change was made as requested.</p> <p>EPA has the following additional comments:</p> <ul style="list-style-type: none"> <li>On Table 5, please revise the language in bullet 5 to tie this specifically to USDWs.</li> <li>Add “supply alternate water to affected populations” to the responses under this scenario, similar to what is described under the groundwater contamination scenario in the table.</li> </ul>

## Response Personnel and Equipment

- EPA recommends the emergency contacts also include local/state police, CalGEM, and EPA’s National Response Center (800-424-8802).
- Are any of the listed contacts on-call 24 hours/day? If so, please note this in the plan.
- Please fill in the contact information for the Onsite Plant Operations Manager and Onsite Plant Safety Officer in the next update.

SJRenew added the requested edits to Table 7; they responded that onsite contacts will be identified when plant operations commence. This is acceptable at this point of the evaluation.

## Staff Training and Exercise Procedures

- Will the Emergency and Remedial Response Plan be incorporated into the overall Health and Safety Plan described on page 2?

Section 8 states that the ERR plan will be incorporated in the overall Health and Safety Plan. This response is acceptable.

## Communication Plan

EPA recommends that, in Section 5.2, SJRenew also describe plans to communicate with entities who may need to be informed about or take action in response to an emergency event, including local water systems, CO<sub>2</sub> source(s) and pipeline operators, landowners, and Regional Response Teams (as part of the National Response Team).

Section 6 was revised to include the requested information, which is consistent with the Emergency and Remedial Response Plan template; SJRenew’s plan also contains additional discussion of routine stakeholder communications planned by the applicant.

- EPA recommends deleting the last paragraph on page 8 as it duplicates information presented earlier on the page.

## Plan Updates

EPA recommends that Section 6 also indicate that the Emergency and Remedial Response Plan will be updated: within 1 year of an AoR reevaluation (or that SJRenew will provide documentation supporting a determination that no amendment is necessary); following any significant changes to the injection process or the injection facility, or an emergency event; or as required by EPA.

The requested information was included in Section 7 of the revised ERR Plan. The section contains information similar to that recommended in the template; the response is acceptable.