EMERGENCY AND REMEDIAL RESPONSE PLAN
40 CFR 146.94(a)

Facility Information

Facility Name: Pelican Renewables, LLC
Well Names: Rindge Tract CCS Well #1
Rindge Tract CCS Well #2

Facility Contact: John Zuckerman, Pelican Renewables – Managing Member
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Well Locations: Rindge Tract Island, San Joaquin County, California
38.021507, -121.428926 (Well #1)
38.014567, -121.415405 (Well #2)

This Emergency and Remedial Response Plan (ERRP), submitted by Pelican Renewables, LLC and its affiliates (Pelican), outlines potential risks and events that could endanger human health, the environment, or the safe functioning of infrastructure at the site. This plan addresses the components of the project at Rindge Tract Island, specifically the barge unloading terminal, transfer pipeline, and injection wells Rindge Tract CCS Wells #1 and #2 (i.e., the bottom part of Figure 1-3 that shows an overview of the project's component parts). This plan applies to the project's construction, operation, and post-injection phases. The following sections describe a list of potential technical project risks in accordance with the technical risk categories of the Screening-Level Risk Assessment (SLRA) and response to mitigate the risk.

Potential Risk Scenarios

The following events related to the Class VI injection well that constitue an emergency, and trigger the use of the ERRP are listed below:

- Injection or monitoring (verification) well integrity failure;
- Vertical migration of CO_2 or formation fluid to an underground source of drinking water (USDW) causing changes to water quality;
- Lateral migration of CO_2 or formation fluid beyond the expected plume acreage
- CO_2 leakage to land surface;
- Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.);
- A natural disaster (e.g., earthquake, tornado, lightning strike);
- Induced seismic event.

Risk Determination

Based on a review of these potential risk scenarios, a list of risk detection and early indicators that could require an emergency response are provided in **Table 11-1** below.

Table 11-1. Potential Risk Scenarios and Their Detection

Potential Risk Scenarios	Early Indicators and Risk Detection
Injection or monitoring (verification) well integrity failure	Wellhead pressure exceeds the shutdown pressure specified in the permit. Review of annular pressure indicates a loss of well containment. Internal and external mechanical integrity tests results identify a loss of mechanical integrity.
Vertical or lateral migration of CO2 or formation fluid to a USDW causing changes to water quality or land surface	Monitoring of groundwater, demonstrates overpressurization, changes in water table elevation, and/or elevated indicator parameter(s) concentration(s). Seismic surveys identify unexpected migration of CO_2.
Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.)	Continuous monitoring reveals the failure of monitoring equipment for wellhead pressure, temperature, and/or annulus pressure.
A natural disaster (e.g., earthquake, hurricane, tornado, lightning strike)	Well problems (integrity loss, leakage, or malfunction) are observed as a result of a natural disaster such as earthquake, hurricane, tornado, or lightning strike.
Induced seismic event	Seismic monitoring demonstrates events exceeding predetermined parameters, the epicenter of the seismic event is within an established distance from the injection well, and depth to the epicenter is consistent with injection interval(s).

Emergency response to these events will depend on the severity of the event(s). These emergency events are categorized as shown in **Table 11-2**.

Table 11-2. Degrees of Risk for Emergency Events

Emergency Condition	Definition
Major emergency	The event poses a substantial risk to human health, the environment, or infrastructure. Local authorities are engaged.
Serious emergency	The event poses a potentially severe (or significant) near-term risk to human health, the environment, or infrastructure if conditions worsen or no response actions are taken.

Emergency Condition	Definition
Minor emergency	The event poses no immediate risk to human health, the environment, or infrastructure.

Emergency Response Action Based on Risk Level

For all emergency scenarios, the following steps are to be implemented:

- Notify the regulatory UIC Program Director within 24 hours of the emergency event.
- Determine the event's severity, based on the information available, within 24 hours of notification.

For a minor emergency:

- Conduct an assessment to determine whether mechanical integrity is lost.
- If mechanical integrity is lost, initiate gradual shutdown plan.
- Confirm well integrity before restarting the injection.

For a major or serious emergency (i.e., release of CO_2 or formation fluid):

- Initiate immediate shutdown.
- Evaluate the cause of the emergency, characterize the release, and mitigate if necessary. This may include:
  - Venting CO_2 from surface facilities.
  - Limiting access to the wellhead.
- If warranted, initiate the evacuation of the facility and communicate with local emergency authorities to initiate evacuation plans of nearby residents.
- If contamination is detected, identify and implement appropriate remedial actions specified for each scenario discussed in the **Table 11-3** below.

Where the phrase "initiate shutdown plan" is used, Pelican Renewables, LLC will immediately cease injection. However, in some circumstances, Pelican Renewables, LLC will, in consultation with the UIC Program Director, determine whether gradual cessation of injection (using the parameters outlined in Attachment A of the Class VI permit) is appropriate.

Response Action for Emergency Scenarios

The emergency response for each of the scenarios is listed in **Table 11-3** described below.

Table 11-3. Emergency Response

Emergency Scenario	Risk Level	Emergency Response
Injection or monitoring (verification)	Minor	• Verify integrity by evaluating the well pressure, temperature, and annulus pressure. • Determine the cause and extent of failure.

well integrity failure		• Identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program director).
	Serious	• If subsurface impacts are detected, implement appropriate site investigation activities to determine the nature and extent of these impacts. • If warranted based on the site investigations, implement appropriate remedial actions (in consultation with the UIC Program director).
Vertical or lateral migration of CO2 or formation fluid to a USDW causing changes to water quality or land surface	Serious	• Initiate shutdown plan • Conduct Hall Plot analysis. • Sample and test water quality in monitoring wells above confining zone. • Conduct pressure fall-off test. • Validate plume detection with sampling. All testing parameters and monitoring methodologies are included in the Testing and Monitoring Plan of this permit application. • Consider obtaining InSAR scene and analyze for caprock breach (if feasible). • Arrange for an alternate potable water supply if the event caused an exceedance of drinking water standards to any water supplies. • If water-quality changes or CO_2 migration due to o Well failure - attempt to identify the source location in the wellbore and remediate using appropriate methods o Confining zone failure or flow along structural features - develop a plan to identify the extent of the problem and perform remedial measures • If CO_2 is detected in a reservoir other than the injection zone, lower the injection rate in the injection zone and monitor for decreasing CO_2 in the "other" reservoir. • Perform an appropriate survey to identify the extent of plume migration. • If CO_2 leakage is identified through undocumented, abandoned or substandard wells in the surrounding area post injection o Develop a well-specific plan to mitigate the leak at the well o If needed, consider alternate strategies such as remediation of the impacted area
Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.)	Minor	• If there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. • If a shut off is triggered by mechanical or electrical malfunctions, repair faulty components. • Monitor well pressure, temperature, and annulus pressure (manually if necessary) to determine the cause and extent of failure.
	Major	o In the event of an equipment failure, isolate the monitoring equipment from the tubing/annulus and repair the faulty components. Isolate the nearby area, if needed; establish a

		safe distance and perimeter using a hand-held air-quality monitor. o Perform a well log to detect CO_2 movement outside of the casing. o Conduct assessment to determine whether there has been a loss of mechanical integrity. o If there has been a loss of mechanical integrity, inititate shutdown plan. o In the event of an upcoming known disaster (e.g. hurricane), initiate shutdown.
A natural disaster (e.g., earthquake, tornado, lightning strike)	Minor	• Initiate Shutdown. • Vent CO_2 from surface facilities. • Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure. • Determine whether any leaks to USDW or surface water have occurred. • Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Director).
	Major/Serious	• Vent CO_2 from surface facilities. • Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure. • Determine whether any leaks to USDW or surface water have occurred. • Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Director).
Induced seismic event*	Major/ Serious	• Review seismic and operational data - Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director). • Determine whether leaks to groundwater or surface water occurred. If a leak is detected: o Identify and implement appropriate remedial actions (in consultation with the UIC Program Director). o Based on the project operating conditions, it is unlikely that injection operations could ever induce a seismic event outside a 1.5 mile radius from the wellhead. Therefore, this portion of the response plan is developed for any seismic event with an epicenter within a 1.5 mile radius of the injection well. o Based on the systematic analysis of the monitoring data, observed level of seismic activity, and local reporting of felt events, the site will be assigned an operating state. o The seismic monitoring system structure is presented in **Table 11-4**. The table corresponds to each level of operating state with the threshold conditions and operational response actions.

*Induced seismic event refers to minor seismic events caused by human activity resulting in changes in the stresses and fluid pressures in the earth's crust. This maybe caused from injection of fluids into the subsurface formations that lubricate and/or change the stress state of pre-existing faults which causes fault plane movement and energy release. Most induced seismic events are extremely small (microseismic) but in some instances are great enough to be felt by humans.

Table 11-4. Seismic monitoring system, for seismic events > M1.0 with an epicenter within a 1.5 mile radius of the injection well.

Operating State	Threshold Condition[1,2]	Response Action[3]
Green	Seismic events less than or equal to M1.5	1. Continue normal operation within permitted levels.
Yellow	Five (5) or more seismic events within a 30 day period having a magnitude greater than M1.5 but less than or equal to M2.0	1. Continue normal operation within permitted levels. 2. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well.
Orange	Seismic event greater than M1.5 and local observation or felt report Seismic event greater than M2.0 and no felt report	1. Continue normal operation within permitted levels. 2. Within 24 hours of the incident, notify the UIC Program Director, of the operating status of the well. 3. Review seismic and operational data. 4. Report findings to the UIC Program Director and issue corrective actions.
Magenta	Seismic event greater than M2.0 and local observation or report	1. Initiate rate reduction plan. 2. Within 24 hours of the incident, notify the UIC Program Director, of the operating status of the well. 3. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary. 4. Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director). 5. Determine if leaks to ground water or surface water occurred. 6. If USDW contamination is detected: a. Notify the UIC Program Director within 24 hours of the determination. 7. Review seismic and operational data.

[1] Specified magnitudes refer to magnitudes determined by local Operator or USGS seismic monitoring stations or reported by the USGS National Earthquake Information Center using the national seismic network.

[2] "Felt report" and "local observation and report" refer to events confirmed by local reports of felt ground motion or reported on the USGS "Did You Feel It?" reporting system.

[3] Reporting findings to the UIC Program Director and issuing corrective action will occur within 25 business days (five weeks) of change in operating state.

[4] Onset of damage is defined as cosmetic damage to structures, such as bricks dislodged from chimneys and parapet walls, broken windows, and fallen objects from walls, shelves, and cabinets.

Operating State	Threshold Condition[1,2]	Response Action[3]
Red	Seismic event greater than M2.0, and local observation or report, and local report and confirmation of damage[4] Seismic event >M3.5	1. Initiate shutdown plan. 2. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well. 3. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary. 4. Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director). 5. Determine if leaks to ground water or surface water occurred. 6. If USDW contamination is detected: a. Notify the UIC Program Director within 24 hours of the determination. 7. Review seismic and operational data. 8. Report findings to the UIC Program Director and issue corrective actions.

[1] Specified magnitudes refer to magnitudes determined by local Operator or USGS seismic monitoring stations or reported by the USGS National Earthquake Information Center using the national seismic network.

[2] "Felt report" and "local observation and report" refer to events confirmed by local reports of felt ground motion or reported on the USGS "Did You Feel It?" reporting system.

[3] Reporting findings to the UIC Program Director and issuing corrective action will occur within 25 business days (five weeks) of change in operating state.

[4] Onset of damage is defined as cosmetic damage to structures, such as bricks dislodged from chimneys and parapet walls, broken windows, and fallen objects from walls, shelves, and cabinets.

Local Resources and Infrastructure

Resources in the vicinity of the Class VI well that may be affected as a result of an emergency event at the project site include:

- San Joaquin River- 0.27 miles from the well
- White Slough River- 1.77 miles from the well
- Hog Island- 0.52 miles from the wellHog Island Cut- 0.86 miles from the well
- Spud Island- 1.06 miles from the well
- Shima Bend- 0.96 miles from the well

Infrastructure in the vicinity of the Class VI well that that may be affected as a result of an emergency at the project site include:

- Weber Point Yacht Club – 0.78 miles from the well
- Municipal Water Lines
- Minuicpal Sewer Lines
- Electric Utilities
- Communication Tower
- Major Highways

Response Personnel and Equipment

Site personnel, project personnel, and local authorities will be relied upon to implement this ERRP.

A site-specific emergency contact list will be developed and maintained during the life of the project. Pelican Renewables, LLC will provide the current site-specific emergency contact list to the UIC Program Director.

Table 11-5. Contact information for key local, state, and other authorities.

Agency	Phone Number
Local police	911
San Joaquin County Sheriff's Office	(209) 468-4400
State police	(209) 835-8920
California Emergency Management Agency (CEMA)	(916) 845-8911
Sacramento Office of Emergency Management	(916) 808-1740
San Joaquin County Office of Emergency Services	(209) 953-6200
San Joaquin County Environmental Health	(209) 468-3420
Department of Water Resources Flood Operations Branch	(916) 653-5791
UIC Injection Well Incident Reporting (24 hours)	(312) 353-7648

Agency	Phone Number
Pipeline Incidents (24 hours)	(800) 852-7550
EPA National Response Center (24 hours)	(800) 424-8802
California State geological survey	(916) 327-1850

Equipment needed in the event of an emergency and remedial response will vary, depending on the triggering emergency event. Response actions (cessation of injection, well shut-in, and evacuation) will generally not require specialized equipment to implement. Pelican Renewables, LLC will procure specialized equipment (such as a drilling rig or logging equipment)as for emergency operations.

Fire Departments, E.M.S., Emergency Preparedness

911 as initial call for all emergency situations and as an alternate to all numbers below

Stockton Fire Department Station 9	(209) 937-8029
Stockton Fire Station	(209) 937-8030
San Joaquin Fire Prevention	(209) 937-8801
Med Express Ambulance Service	(209) 468-3380
American Medical Response	(209) 948-5136
Pmj Medical Transport	(209) 918-0918
EMS-Emergency Medical Agency	(209) 468-6818

Contractors to Notify for Services

R&M Drilling (well services)____	(209) 772-2757
Restoration Management Company (site work) Stockton, CA	(209) 547-2220 [office]

Emergency Communications Plan

Pelican will communicate to the public about any event that requires an emergency response to ensure that the public understands what happened and whether or not there are any environmental or safety implications. The amount of information, timing, and communications method(s) appropriate to the event, its severity, whether any impacts to drinking water or other environmental resources occurred, any impacts to the surrounding community, and their awareness of the event.

Pelican will describe what happened, any impacts to the environment or other local resources, how the event was investigated, what responses were taken, and the status of the response. For responses that occur over the long-term (e.g., ongoing cleanups), Pelican will provide periodic updates on the progress of the response action(s).

Pelican will also communicate with entities who may need to be informed such as Reclamation District No. 2037 (District) who may have an interest in case of an emergency about or take action in response to the event, including local water systems, CO_2 source(s) and pipeline operators, land owners, and Regional Response Teams (as part of the National Response Team).

District ensures the effective performance of its safety plan with other jurisdictions performing emergency functions within and around the District. The District is an independent jurisdiction with responsibility for the operation and maintenance of the levee system in the San Joaquin Operational Area within its jurisdictional boundaries. The District is located within the Delta in San Joaquin County, California. The District is located west of Interstate 5, near the town of Stockton. The 6,834-acre tract is protected by 15.8 miles of non-project levee miles along Disappointment Slough to the north, Fourteen Mile Slough to the northeast and southeast, and the San Joaquin River (Stockton Deep Water Ship Channel) to the southwest. Surrounding districts include RD 2042 – Bishop Tract, RD 2044 - King Island, and RD 2029 - Empire Tract to the north; RD 2115 - Shima Tract to the east; RD 2119 - Wright- Elmwood Tract and RD 684 - Lower Roberts Island to the south; and RD 2030 - McDonald Island to the west. Critical infrastructure protected by District include two pumping stations, overhead utility crossings at two locations, and the Disappointment Slough Bridge crossing. The Disappointment Slough Bridge crossing is the only access to the island.

The District's policy is to maintain mitigation and emergency plans and procedures, as well as the physical condition of its levees, at the level required to be eligible for disaster public and individual assistance under the Federal Stafford Act, as well as the California Disaster Assistance Act (CDAA). Emergency operations will be conducted and documented in compliance with conditions of those programs for reimbursement of disaster expenses. The District has assigned its District Engineer to maintain necessary documentation during an emergency and to participate in any available assistance programs after a disaster on behalf of the District.

To ensure that the District takes steps to quickly access the recovery process, these actions should be considered if an incident is imminent or occurring:

- State and other Federal programs:
    - Request San Joaquin County to Proclaim the Existence of a Local Emergency
    - Notify District administration when the Proclamation is established

The District Engineer is authorized and responsible for monitoring water conditions, elevations, and forecasts for the purpose of identifying conditions warranting additional action beyond routine flood preparedness.

In the event of an emergency requiring outside assistance, the project contact lead shall call the Security Dispatch at (217) 424-4444 and ADM Corporate Communications at (217) 424-5413.

- Pelican Corporate Communications will manage all Pelican media communications with the public (through either interview, press release, Web posting, or other) in the event of an emergency situation related to the project.
- The individual to be designated by Pelican will be the first contact during an emergency event.
- This individual will contact the crisis communication team as appropriate. Emergency responses to the media from Pelican will be dealt with ONLY by the personnel so designated by Pelican.
- Those individuals should try to be reachable 24 hours a day for contact in the event of an emergency. In the event that anyone else at Pelican is contacted to comment on any situation deemed an "emergency event," the media contact should be directed to ADM Pelican's 24/7 media line at (217)-424-5413 or Media@adm.com

Plan Review

This ERRP shall be reviewed:

- At least once every five (5) years following its approval by the permitting agency;
- Within one (1) year of an area of review (AOR) reevaluation;
- Within 60 days following any significant changes to the injection process or the injection facility, or an emergency event; or
- As required by the permitting agency.

If the review indicates that no amendments to the ERRP are necessary, Pelican Renewables, LLC will provide the permitting agency with the documentation supporting the "no amendment necessary" determination.

If the review indicates that amendments to the ERRP are necessary, amendments shall be made and submitted to the permitting agency within 60 days following an event that initiates the ERRP review procedure.

Staff Training and Exercise Procedures

Periodic training will be provided, not less than annually, to well operators, plant safety and environmental personnel, the plant manager, plant superintendent, and corporate communications. The training plan will document that the above listed personnel have been trained and possess the required skills to perform their relevant emergency response activities described in the ERRP.