

## **IT ANALYSIS**

Pelican Sequestration Hub, LLC (Pelican) submits this environmental analysis in support of its pending application to construct two Class VI injection wells in Livingston Parish, Louisiana. These wells, if approved, will support the Pelican Sequestration Project (Project), a commercial-scale carbon capture and storage hub (CCS Hub). Pelican anticipates permanently sequestering [REDACTED]

[REDACTED] year injection period. The Project aligns with stated federal and state goals to reduce CO<sub>2</sub> emissions, while providing ongoing operational support to Louisiana's critical energy and petrochemical industries.

### **I. Class VI Environmental Analysis Framework**

Under Louisiana law, the applicant for a Class VI injection well shall submit an environmental analysis as part of the permit application. *See* La. R.S. 30:1104.1(A). Under La. R.S. 30:1104.1(B), the environmental analysis required shall be used to satisfy the public trust requirements of Article IX, Section 1 of the Louisiana Constitution and shall address the following questions regarding the proposed permit activity:

- (1) Have the potential and real adverse environmental effects of the proposed permit activity been avoided to the maximum extent possible?
- (2) Does a cost-benefit analysis of the environmental impact costs versus the social and economic benefits of the proposed activities demonstrate that the latter outweighs the former?
- (3) Are there alternative activities which would offer more protection to the environment than the proposed activity without unduly curtailing nonenvironmental benefits?
- (4) Are there alternative sites which would offer more protection to the environment than the proposed site without unduly curtailing nonenvironmental benefits?
- (5) Are there mitigating measures which would offer more protection to the environment than the proposed activity without unduly curtailing nonenvironmental benefits?

These items will each be addressed in turn.

### **II. Project Overview**

Pelican's proposed CCS Hub includes the development of seven well pads for two Class VI underground injection wells, five monitoring wells, and a CO<sub>2</sub> Carbon Transfer Facility (CTF). The CCS Hub would be located within an approximately 31,000-acre leased area in Livingston and St. Helena parishes, Louisiana, approximately 4 miles north of the Town of Livingston. The proposed CCS Hub components are detailed in Table 1, below.

The proposed Project requires the construction and operation of one or more CO<sub>2</sub> transmission pipelines by a third-party entity. These transmission pipelines will be separately permitted concurrently with the CCS Hub permitting process. Activities conducted at CO<sub>2</sub> sources (emitters), including CO<sub>2</sub> capture, treatment, and compression, are considered as potential impacts resulting from the Project.

Table 1- Proposed Project Components

# Claimed as PBI

Pelican would install and operate two UIC Class VI injection wells; each would inject an average of **Claimed as PBI** [REDACTED]. The injection wells will target the Frio and Anahuac sands with total depths ranging from 7,900 to 8,100 ft below ground. Delivery pressure of CO<sub>2</sub> from the pipeline system is expected to be sufficient for CO<sub>2</sub> injection initially. As such, additional compression or pumping is not proposed at the CCS Hub in the initial phase. At a later date, Pelican will evaluate installation of pumping at the existing custody transfer facility footprint.

### **III. IT Analysis**

Pelican submits this analysis of the five IT Questions as memorialized at La. R.S. 30:1104.1(B). The CCS Hub Project satisfies the public trustee requirements and should be permitted.

#### **1. Have the potential and real adverse environmental effects of the proposed project been avoided to the maximum extent possible?**

Yes, the potential and real adverse environmental effects of the Project have been avoided and/or

minimized to the maximum extent possible.

**Siting considerations:** As discussed below, Pelican considered a range of sites for the Project. However, in addition to considering the alternative sites, Pelican implemented siting criteria designed to avoid to the maximum extent practicable environmental impacts of the proposed Project. Pelican looked for sites in close proximity to existing emission sources to minimize impacts associated with transmission pipeline construction. Pelican also looked for sites with existing infrastructure, including access roads and proximity to electrical power lines, in order to minimize ground disturbance during construction. Pelican's preferred site for the CCS Hub is a commercial silviculture operation with an existing network of access roads. By identifying a site with this existing infrastructure, Pelican anticipates it will need to construct approximately 5 miles of new, permanent roads to access the planned well locations.

Pelican also used available data sources, such as aerial imagery, the Natural Resources Conservation Service (NRCS) Major Land Resource Area (MLRA) maps, and local/parish parcel and zoning data in order to identify sites that would minimize the risk of impacts to sensitive environmental components, such as wetlands or protected species. Pelican also focused on sites that were outside the vicinity of residential communities, commercial corridors, and sensitive receptors (including possible environmental justice communities).

**Construction and design considerations:** Pelican designed and developed its construction activities and sequencing to avoid or minimize environmental impacts to the maximum extent practicable. For example, Pelican plans, to the maximum extent practicable, to collocate multiple wells (USDW monitoring wells) on a single well pad to minimize the number of well pads needed and the associated disturbances. In addition, by collocating multiple wells on a single well pad, the impacts to construct or improve access roads needed for the well drilling equipment are reduced.

Pelican also designed the Project to maximize collocation of utilities and project infrastructure within existing or planned rights of way (ROW) for access roads and pipelines. For example, all new electrical poles and distribution lines for Project power will be constructed in existing ROWs for access roads and/or pipelines. And fiber optic cables running from the CTF to the injection wells will be collocated in the existing pipeline ROWs, meaning that there will not be any additional impacts for the more than 9 miles of fiber optics Pelican anticipates the Project will require.

Pelican also designed and constructed its already-drilled Class V stratigraphic test well to be converted into an in-zone monitoring well (Pelican MLR 4) to support the Project. This planned conversion reduces the number of well pads needed to support the Project, and it reduces the volume of permanent impacts associated with Project construction.

The CCS Hub is to be constructed within a leased area of approximately 31,000 acres. Construction impacts are expected to be approximately 167 total acres and the total operational footprint during the injection period will be approximately 42 acres. After injection operations stop, the footprint will be further reduced to approximately 35 acres during the post-injection monitoring period. After the post-injection monitoring period, the site will be permanently closed with only minimal surface impacts remaining. The size of the tract relative to the construction

activities affords Pelican significant flexibility to site Project components at locations within the tract to minimize their anticipated impacts.

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As these examples demonstrate, Pelican has diligently sought to avoid and minimize environmental impacts to the maximum extent practicable.

**2. Does a cost-benefit analysis of the environmental impact costs versus the social and economic benefits of the proposed activities demonstrate that the latter outweighs the former?**

Yes, the social and economic benefits of the proposed Project outweigh potential adverse environmental impacts. The overall project cost and compensatory mitigation requirements are relatively small, given the low environmental impact of the proposed Class VI injection wells. Alternatively, the environmental benefits of the proposed injection wells are to permanently sequester CO<sub>2</sub> from multiple existing industrial sources and deliver it for permanent below ground storage at the proposed well locations. As stated above, each injection well will be able to inject

Claimed as PBI 1

of

CO<sub>2</sub> removed from the atmosphere and permanently stored below ground.

The Louisiana Legislature has recognized the many benefits offered by CCS projects, stating that “[i]t is declared to be in the public interest for a public purpose and the policy of Louisiana that ... [t]he geologic storage of carbon dioxide will benefit the citizens of the state and the state’s environment by reducing greenhouse gas emissions.” See La. R.S. 30:1102(A). This Project is a significant step to achieving state and national greenhouse gas reduction objectives. The Center for Climate and Energy Solution states that in 2022, the United States (U.S.) emitted nearly 6 billion metric tons of greenhouse gases and CO<sub>2</sub> accounted for 79% of all the greenhouse gases released. Per Louisiana’s 2021 Greenhouse Gas Inventory, over 92% of all Louisiana greenhouse gas emissions (as of 2018) were CO<sub>2</sub>. It was further stated that greenhouse gases in Louisiana are heavily concentrated in industry; therefore, carbon capture and sequestration must be a focus in Louisiana to allow its energy and petrochemical industries to operate while at the same time reducing atmospheric carbon.

As reported in the Louisiana Climate Action Plan<sup>1</sup>, over 66% of Louisiana’s greenhouse gas emissions come from industrial sources. The top 20 industrial greenhouse gas emission facilities emit an average of 3.6 MMT CO<sub>2</sub>e<sup>2</sup> each year. Thus, the CCS Hub, once constructed, would have the net effect of completely eliminating the annual emissions of <sup>Claimed as</sup> of the top 20 industrial emission sources in Louisiana.

Furthermore, additional support for CO<sub>2</sub> sequestration is found in Louisiana’s Climate Action Plan, which offers, a recommended action item 5.3, “[s]upport [for] the safe and responsible deployment of carbon capture ... and storage for high-intensity and hard-to-abate emissions.” Per Louisiana’s Climate Action Plan, Louisiana has an objective of net zero CO<sub>2</sub> emissions by 2050. The Louisiana Climate Action Plan further states: “CCUS is anticipated to play a critical role in decarbonizing the global economy by addressing high-intensity and hard-to abate emissions that will be necessary to reach net zero. With expansive geologic storage potential, highly

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<sup>1</sup> Available at <https://www.epa.gov/system/files/documents/2024-02/louisiana-5d-02f36401-0-pcap-final-with-appendices.pdf>.

<sup>2</sup> CO<sub>2</sub> equivalents, or CO<sub>2</sub>e, convert the total emissions of all greenhouse gases into equivalents of CO<sub>2</sub>, the most prominent source of greenhouse gas emissions.

concentrated industrial corridors, and a trained workforce, Louisiana has potential for deployment of this technology and infrastructure. This is particularly true in the industrial sector, where high temperature processes cannot be readily transition to electrification or low-carbon alternatives and where process emissions from chemical reactions are unavoidable except with CCUS.” This Project specifically aids Louisiana in achieving the net zero CO<sub>2</sub> emission goal set forth in Louisiana’s Climate Action Plan and addresses the primary sector cited as the dominant source of CO<sub>2</sub> emissions per Louisiana’s 2021 Greenhouse Gas Inventory Report.

More importantly, combating climate change through the use of CO<sub>2</sub> sequestration will help secure the future of the petrochemical industry in Louisiana. This industry supports over 346,000 jobs and contributes over \$54 billion to the Louisiana economy<sup>3</sup>. Identifying ways to combat climate change without placing Louisiana’s workforce and economy at risk is critical to the state’s future. This Project, if permitted, will help reduce atmospheric CO<sub>2</sub> in the state without risking the continued viability of this critical industry sector. It may also facilitate new blue ammonia projects.

The environmental costs of this Project are modest and significantly outweighed by its benefits. As discussed above, the Project anticipates 167 acres of temporary impacts and 42 acres of permanent impacts. These impacts are spread across a 31,000-acre tract, meaning the impacts will not be clustered at a single location or have outsized effect on a particular area within the tract.

The Project is not expected to be a material source of air emissions, either during construction or during CCS Hub operations.

Likewise, the Project is not expected to have material effects on the local hydrologic conditions and water quality. Construction activities will be conducted pursuant to the LDEQ Stormwater General Permit for Construction Activities (or other applicable permits), and Pelican will develop and maintain a Soil Erosion and Sediment Control Plan to address stormwater runoff and changes to soil infiltration capacities from the Project. The planned injection depths are thousands of feet below the lowermost depth of the aquifer, and no impacts to USDW are anticipated.

The Project site has been and will continue to be used for silviculture activities, and the Project is not expected to disrupt those activities, except as may be necessary on acreage to construct and maintain the CCS Hub operations.

The Project operations are not expected to materially affect existing wildlife within the CCS Hub site. Human presence and noise currently exist within the site due to ongoing silviculture, and it is anticipated that CCS Hub construction activities will only slightly increase these existing levels.

Pelican has generated an Official Species List (OSL) from the US Fish and Wildlife Service (USFWS) IPaC database. Five species were identified; however, Pelican does not anticipate impacts to their habitats, as summarized below. Pelican will consult with USFWS and LDWF as needed if future field observations contradict Pelican’s investigations to-date.

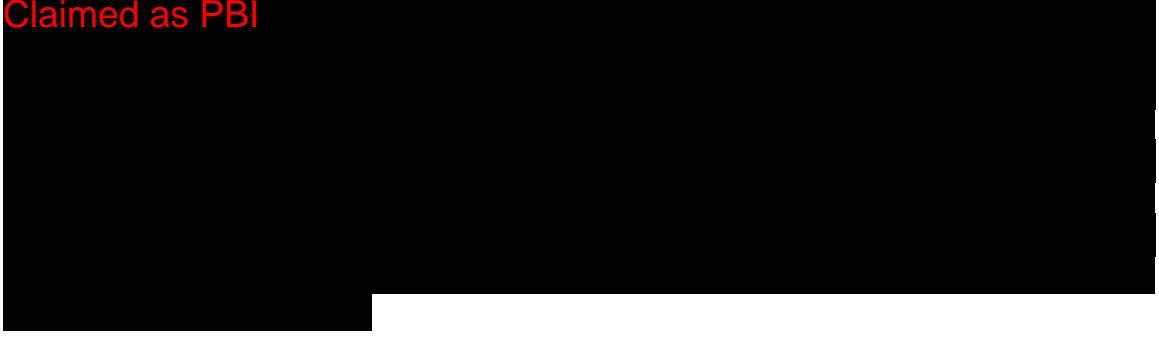
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<sup>3</sup> <https://www.api.org/-/media/files/policy/american-energy/pwc/2023/api-pwc-la-2023>

- Tricolored bat (Proposed Endangered): active silviculture does not provide a suitable habitat. No preferred tree species or bats observed during site aquatic delineation survey.
- Red-cockaded woodpecker (Threatened): active silviculture does not provide a suitable habitat.
- Alligator snapping turtle (Proposed Threatened): limited suitable habitat, as most existing waterbodies in CCS Hub site are headwater streams in forested areas and wetland limited to forested or shrubby riparian corridors.
- Clams (Proposed Threatened): No critical habitat has been designated for this species.
- Monarch Butterfly (Proposed Threatened): Suitable habitat within the CCS Hub for monarchs is likely limited to open roadside or utility ROW areas. Pelican's site does not overlap the critical habitat.

Finally, the Project is unlikely to have significant adverse socioeconomic impacts, including to sensitive receptors or environmental justice communities.

- The components of the CCS Hub would be constructed on uninhabited lands currently used for silviculture; accordingly, no direct physical impacts to any community would be realized.
- No permanent changes to the population are anticipated as a result of construction of the CCS Hub, and only a small increase in the population of the CCS Hub study area may result if operations-phase workers relocate to the CCS Hub study area.
- The CCS Hub would be constructed and operated on uninhabited lands presently used for silviculture, and few new permanent employment positions would be created; as a result, no changes to the existing communities and governments in the CCS Hub study area are anticipated.
- No significant traffic impacts are anticipated during project operations. Prior to construction, a traffic study will be completed to identify and mitigate potential traffic impacts. Traffic flow on state and parish roads would be maintained, and traffic control would be deployed during construction as may be needed. Access roads on private lands may be temporarily closed during construction.
- Less than significant impacts to public services (*e.g.*, schools, police and fire services, public utilities) are anticipated during operations. No impacts to schools or public utilities would result during the construction phase. Compliance with applicable federal, state, and local laws related to health and safety, vehicle traffic and movements, and other public concerns would be protective of public and worker health and safety. Therefore, only less than significant impacts to emergency services would be anticipated resulting from construction-phase incidents.

- There are no known applicable regional or local plans that would be affected by implementation of the CCS Hub.
- **Claimed as PBI**  


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As this analysis demonstrates, the social and economic benefits of the Project outweigh, indeed, substantially outweigh, the environmental impact costs associated with the Project.

**3. Are there alternative activities which would offer more protection to the environment than the proposed activity without unduly curtailing nonenvironmental benefits?**

There are no other alternative activities that would offer greater environmental protection than the proposed CCS Hub without significantly impairing the benefits of the proposed Project. As stated above, Pelican intends to operate the CCS Hub to capture and permanently sequester Claimed as PBI of CO<sub>2</sub> that would otherwise be emitted into the atmosphere. By partnering with the emission sources and third-party transmission pipeline operators, Pelican can prevent CO<sub>2</sub> from ever reaching the atmosphere – capturing it, compressing it, transporting via pipeline to the CCS Hub, and sequestering it underground.

Carbon capture and sequestration provides solutions for industrial sectors whose CO<sub>2</sub> emissions are “hard-to-abate” or difficult to decrease carbon intensity. The Project would provide injection well facilities to allow multiple industrial sources in the region to sequester and permanently store their CO<sub>2</sub>. Since carbon capture would occur at the source, prior to emission, this activity provides substantial emission reduction with minimal environmental impacts and at less cost than the alternatives. These alternatives are discussed below.

**Utilization:** The alternative to carbon sequestration would be utilization of the CO<sub>2</sub> in other commercial or industrial applications. While carbon utilization is advantageous because it creates products with market value, the likely scale of CO<sub>2</sub> -derived durable products is a few gigatonnes annually compared to the projected tens of gigatonnes annual global removal required in the future<sup>4</sup>. Accordingly, geologic sequestration is required to meet the full needs for carbon removal. Additionally, there is not currently a sufficient utilization market capable of storing CO<sub>2</sub> on the same scale as the proposed Project.

**No Action:** This alternative is to not execute the proposed Project. Under the No Action alternative, Pelican would not construct the CCS Hub, and no carbon sequestration would occur at the proposed CCS Hub. However, it is expected that, in the absence of the proposed Project, the emitters would continue to operate consistent with their existing operations or may choose to transport CO<sub>2</sub> to a different sequestration location.

Under the No Action alternative, no changes or impacts to land use, hydrologic conditions and water quality, geologic and soil conditions, vegetation and wildlife resources, historic and cultural resources, visual resources, health and safety factors, and solid and hazardous waste would occur. The No Action alternative could impact greenhouse emissions and climate change, groundwater quality, and environmental justice communities because the current sources of CO<sub>2</sub> emissions would not be reduced through carbon capture and sequestration.

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<sup>4</sup> National Academies of Sciences, Engineering, and Medicine. 2024. Carbon Utilization Infrastructure, Markets, and Research and Development: A Final Report. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27732>.

**4. Are there alternative sites which would offer more protection to the environment than the proposed site without unduly curtailing nonenvironmental benefits?**

Pelican did not identify any alternative sites to its proposed Project site that would offer greater environmental protection, much less such greater protection without unduly curtailing the nonenvironmental benefits of the Project at the proposed site.

**Initial Screening:** Initially, Pelican analyzed subsurface geology throughout Louisiana, using publicly available information to evaluate the geology best suited to sequester CO<sub>2</sub>. These sites were initially screened (Initial Screening) based on:

- Geological Considerations: Available geological information and positive geological characteristics, including the presence of appropriate subsurface geological features, adequate reservoir space, suitable confining layers, and avoidance of faults and fissures.
- Minimal Artificial Penetrations: Land with minimal artificial penetrations, including, but not limited to, sites that would not interact with ongoing oil and gas operations.
- Siting and Proximity to Emission Sources: Land nearby emissions sources from which the CO<sub>2</sub> would be transported, in order to minimize existing need for additional transport infrastructure and environmental disturbances.

Ultimately, Pelican determined that the Frio and Anahuac formations within Livingston Parish, Louisiana, provide the most favorable subsurface environment for the permanent storage of the CO<sub>2</sub>. Because the purpose of the proposed geologic sequestration project is to permanently sequester CO<sub>2</sub> into an area with favorable subsurface geology, requiring Pelican to consider alternatives that lack the favorable subsurface geology would frustrate the purpose of the project. Neither LDENR nor Pelican is required to consider alternatives that would “unduly curtail non-environmental benefits” of the project<sup>5</sup>.

**Further Refinement of Proposed Class VI Well Locations:** After the Initial Screening, Pelican performed a secondary qualitative evaluation based on certain features including:

- Remote Site with Land Use Compatibility: The appropriate site should be located at an appropriate distance from urban populations, preferably on a site with compatible land use, and carbon capture and storage operations should be consistent with local zoning (if applicable) for the site.
- Infrastructure: Operational infrastructure should be adequate to facilitate injection well maintenance/monitoring, including preference for sites with significant existing infrastructure to be used for the project (e.g., access roads).

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<sup>5</sup> *In re Rubicon*, 95-108, p. 8 (La. App. 1 Cir. 2/14/96); 670 So. 2d 475, 482 (quoting *Blackett v. Louisiana Department of Environmental Quality*, 506 So. 2d 749, 745 (La. App. 1 Cir. 1987) (internal quotation marks omitted)).

- Ownership: Large tracts with one or a few owners were prioritized to reduce transaction costs associated with obtaining the necessary surface and subsurface rights to operate the Project.
- Environmental Resource Impacts: Site choice also included an evaluation of potential impacts to environmental resources to avoid impacts to the maximum extent possible. Major environmental resource considerations include:
  - *Coastal Wetlands/Waters*
  - *Freshwater Wetlands/Waters*
  - *Floodplains and Local Hydrology*
  - *Threatened and Endangered Species*

As discussed above, Pelican looked for land that had existing uses and infrastructure that could be utilized to minimize the additional development and disturbances as part of Pelican's proposed operations, as well as a low population area to cause minimal impact and disruption to existing communities.

Pelican identified the proposed Project tract after an extensive search of properties within its criteria. The proposed tract is within land mostly owned by a single timber company. Moreover, siting on operating silviculture means that Pelican can utilize existing logging and access roads near the proposed site to help avoid or limit new construction and infrastructure improvements to support the Project.

Finally, the proposed Project tract includes a limited number of artificial penetrations (e.g., legacy wells) within the modeled CO<sub>2</sub> plume (the Area of Review or AOR). Artificial penetrations can potentially affect the security of the sequestered CO<sub>2</sub> within the reservoir by breaching the confining zones above and/or below the reservoir. In this case, Pelican identified Claimed as PBI existing oil and gas well Claimed as PBI and Claimed as PBI existing water wells within the currently predicted Project AOR. The Claimed as PBI penetrates the upper confining zone and the proposed CO<sub>2</sub> storage reservoir. Based on available data, it appears the proposed injection and upper confining zones were not covered with cement during the abandonment process for this well. As a result, the well will require corrective actions to isolate the injection zone properly from the upper confining zone and USDW. This corrective action is planned to occur before the start of CO<sub>2</sub> injection.

If additional existing wells are identified that penetrate the confining zone (e.g., if the AOR is re-delineated to cover a larger area as a result of injection monitoring), a revised corrective action plan would be prepared and executed. Existing water wells are not recommended for remedial action and would be managed as part of the proposed Project monitoring program.

Finally, once Pelican identified the specific acreage within its preferred location to develop the CCS Hub, Pelican worked with the landowner to coordinate the exact locations of the proposed injection and monitoring wells, so long as those well locations would meet Pelican's technical and siting criteria, including, as discussed above, avoiding environmental disturbances to the maximum practicable extent.

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Due to the foregoing reasons for the specific site selection, there are no alternative sites which would offer more protection to the environment without unduly curtailing non-environmental benefits and otherwise compromising the purpose of these proposed Class VI wells.

**5. Are there mitigating measures which would offer more protection to the environmental than the proposed activity without unduly curtailing nonenvironmental benefits?**

No, there are currently no other mitigation measures that would offer greater protection to the environment. The areas for the two proposed UIC Class VI injection wells are located in low population areas. The proposed locations will result in minimal disruption to communities, and the proposed well locations will result in limited direct human exposure to operations.

During the injection period of the CCS Hub, Pelican will continuously monitor for anomalous pressure behavior, conduct additional well logging, and modify injection rates as necessary. Maximum injection pressure would differ for each injection well, but the maximum pressure for all wells would be less than 90 percent of the well-specific fracture gradient.

The following operational designs are intended to maximize injection efficiency and minimize risk of upsets:

- Maintaining well pressure to prevent the return of injection fluid to the surface;
- Filling the well bore with a high specific gravity fluid during workovers to maintain pressure;
- Installing a well plug to resist pressure differential during workovers; and
- Installing and maintaining a blowout preventer whenever the wellhead is removed (e.g., logging, well maintenance).

Pelican may suspend injection if any of the following circumstances arise:

- Failure of the well to pass a mechanical integrity test;
- A loss of mechanical integrity during operation;
- A significant unexpected change in the annulus or injection pressure; or
- The Commissioner of the DENR Office of Conservation Division determines that the well lacks mechanical integrity.

Additionally, Pelican will maintain robust monitoring and reporting requirements consistent with Statewide Order No. 29-N-6, codified at LAC 43:XVII.3601 *et seq.* These requirements govern the construction, operation, closure, and post-closure of the wells and sequestration site. They are implemented pursuant to the U.S. EPA's grant of primacy to Louisiana for the permitting of Class VI wells under the Safe Drinking Water Act and, by law, are no less stringent than the requirements found at 40 C.F.R. parts 144-146. Pelican's proposed monitoring and incident response programs are summarized below.

Pelican's proposed monitoring well network is designed to detect CO<sub>2</sub> and/or brine leakage out of the injection zone that could endanger the USDW, migrate to different strata, or create a risk to

human health or the environment. The components that integrate the master monitoring plan for the CCS Hub are classified into the following categories:

- Operational Testing and Monitoring during Injection;
- Mechanical Integrity Testing;
- Groundwater Quality and Geochemical Monitoring;
- Carbon Dioxide and Pressure Front Tracking;
- Soil Gas Monitoring and Isotopic Fingerprinting; and
- Induced Seismicity Monitoring.

The details of these plans have previously been submitted as part of Pelican's UIC Class VI application. In addition, Pelican has several written environmental policies, procedures, or plans currently in place that would be used during the construction, operation, and monitoring at the Pelican CCS Hub. These include general waste management plans and health and safety guidelines for contractors. Project-specific plans would be developed to supplement these plans before the start of construction.

Following suspension of injection, Pelican would plug and abandon the injection wells and remove measurement system components from the CTF. The CTF would continue to function as the control and monitoring center for the well network.

Pelican would continue monitoring groundwater quality, soil gas, CO<sub>2</sub> extent, and pressure front during the post-injection period. Pelican anticipates that within 2.5 years after stopping injection the pressure front would decrease substantially and would significantly reduce the risk to USDW, surface and groundwater quality. Model results indicate that the largest changes to CO<sub>2</sub> extent would occur within approximately 15 years after the end of injection. Migration of CO<sub>2</sub> plume from 50 to 100 years post end of injection is predicted to be minimal. During the initial 15-year period from start of injection, Pelican's monitoring program would focus on tracking CO<sub>2</sub> extent and changes in the pressure front. Pelican would conduct time-lapsed three-dimensional surface seismic surveys and 3D VSP surveys within the AOR.

Pelican anticipates maintaining monitoring of the AOR in accordance with LAC 43:XVII.3633.A.2. Monitoring would continue until site closure 50 years after injection or as specified by the Commissioner of Conservation in any site closure authorization. Following the post-injection monitoring period, all surface facilities including the CTF would be removed. Injection and monitoring well locations would be re-graded as necessary to return locations as close as practicable to original grade. CCS Hub CO<sub>2</sub> pipelines would be purged and abandoned in place. Regrading areas would be reseeded with a seed mix that supports the natural vegetation communities.

## **Incident Response Program**

Pelican has developed an Emergency and Remedial Response Plan (ERRP) as part of the UIC Class VI well applications to be implemented during site operational and post-injection site care (PISC) phases. Potential emergency scenarios in the EERP include loss of well control, well integrity failure (*e.g.*, brine movement or tubing, packing, or casing leaks in injection and monitoring wells), injection and monitoring equipment failure, brine or CO<sub>2</sub> leakage to USDW or outside the AOR, natural disasters, induced seismic events, and surface impacts due to loss of containment from wellheads or pipelines. The EERP also documents response personnel and equipment, an emergency communications plan, and staff training and exercise procedures.

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As demonstrated above, Pelican has plans in place to mitigate any unavoidable environmental impacts of the project to the maximum extent practicable. No additional measures are available that would offer greater protection to the environment without curtailing the Project benefits.