SECTION 7 – POST-INJECTION SITE CARE AND SITE CLOSURE PLAN

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7.1 Introduction

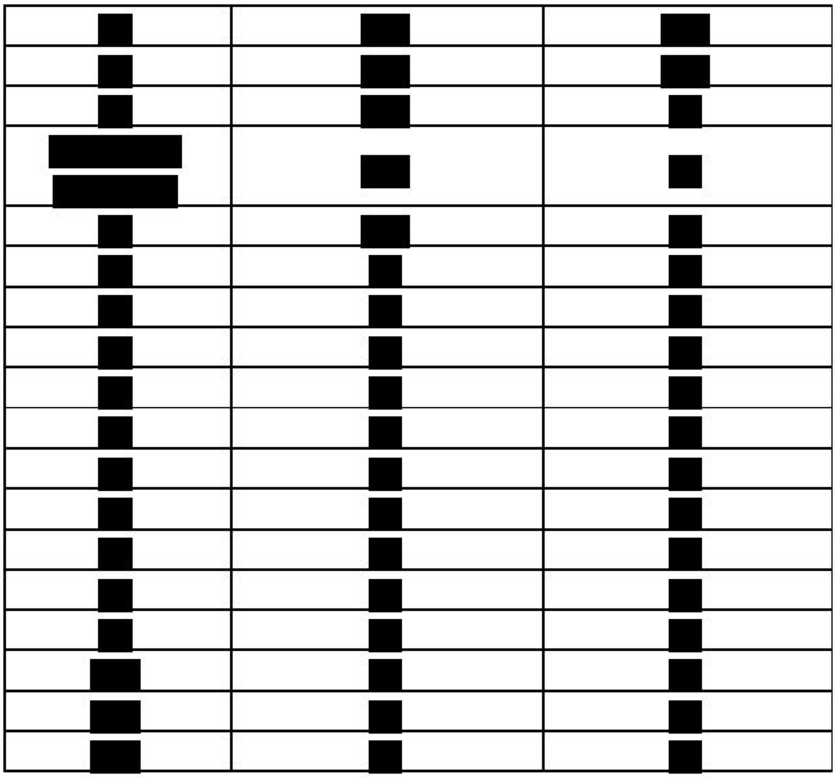
The Post-Injection Site Care (PISC) and Site Closure Plan for the Pecan Island Injection Wells No. 001 and No. 002 was prepared to meet the requirements of Statewide Order (SWO) 29-N-6 **§3633.A.1** [Title 40, U.S. Code of Federal Regulations (40 CFR) **§146.93(a)**]. This plan describes the various activities that will occur once injection has ceased and during the site closure. This plan will be implemented once ExxonMobil demonstrates that no additional monitoring is needed to ensure that this project poses no further endangerment to Underground Sources of Drinking Water (USDWs).

7.2 Pre- and Post-Injection Pressure Differentials

To meet the requirements of SWO 29-N-6 **§3633.A.1.b** [40 CFR **§146.93(a)(2)**], the following table shows the expected pressure differential between pre- and post-injection pressures in the injection zone, as determined by the plume model described in *Section 2 – Plume Model*. As discussed there and in *Section 4 – Engineering Design and Operating Strategy*, both Pecan Island injection wells will inject into sequentially shallower intervals over the life of the project, resulting in separate pressure profiles for each interval. The highest pressure differential for Well No. 001 occurs in Year 1, which is part of Completion Stage 1 and is predicted to reach [redacted] pounds per square inch (psi). The highest pressure differential for Well No. 002 occurs in Year 1, which is part of Completion Stage 1 and is predicted to reach [redacted] psi. Once injection ceases in each stage, the pressure drops down to near in situ pressures. Table 7-1 shows the maximum pressure differential at the wellbore predicted in each year modeled.

Table 7-1 – Maximum Pressure Differential by Year

Year	Max Pressure Differential (psi) Well No. 001	Max Pressure Differential (psi) Well No. 002
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]



Figures 7-1 and 7-2 present graphical representations of the data in Table 7-1, showing the differential pressure over the life of both injection wells. The dark green line represents the buildup from in situ pressure, and the light green line represents the maximum pressure gradient. The light green dashed line shows the maximum bottomhole pressure constraint, indicating that the model does not surpass this maximum pressure.

Figure 7-1 – Maximum Pressure Differential Over Time for Pecan Island Injection Well No. 001

Figure 7-2 – Maximum Pressure Differential Over Time for Pecan Island Injection Well No. 002

7.3 CO_2 Plume Position and Pressure Front at End of Closure

The area of review (AOR) consists of both the CO_2 plume and critical-pressure maximum extent. Figure 7-3 shows the AOR and its subcomponents. The CO_2 plumes are indicated by the black polygons, based on the maximum extent of all the differing plume layers in the model, extracted at 50 years post-injection. The hatch area represents the pressure front that combines the farthest extent of the calculated critical-pressure fronts from all stages at both injection Wells. The CO_2 plumes and pressure front AOR consider both CO_2 injection wells (Pecan Island Injection Wells No. 001 and No. 002). Once injection has ceased, the pressure in the injection interval will quickly revert to near reservoir pressure (Table 7-1).

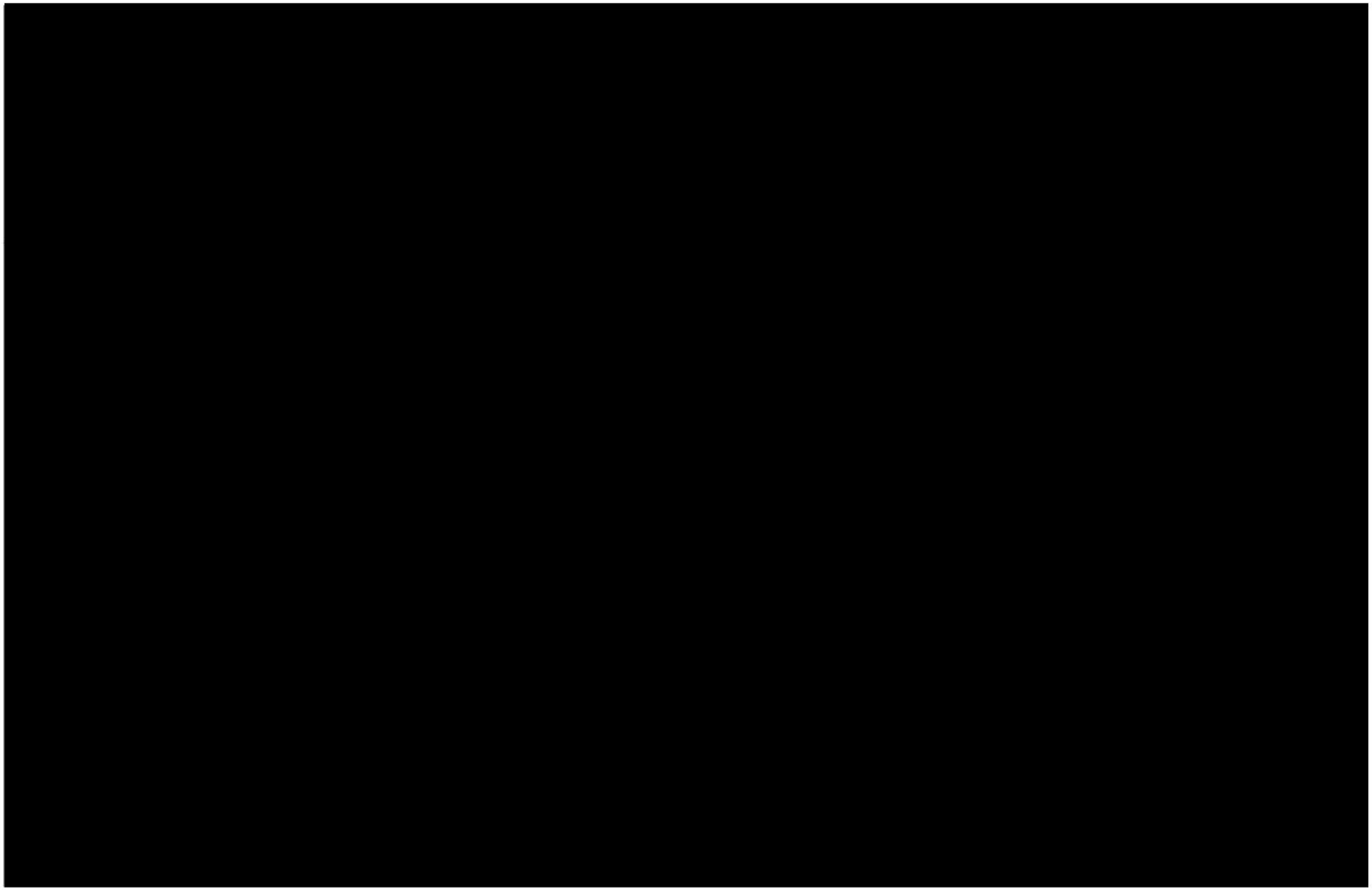


Figure 7-3 – 50-Year Maximum Combined Plume

7.4 Post-Injection Monitoring Plan

As required by SWO 29-N-6 **§3633.A.2** [40 CFR **§146.93(b)**], ExxonMobil will continue to monitor the site for 50 years or until it is demonstrated that the project no longer poses an endangerment to the USDW, as described in *Section 7.6*. The reservoir model will continue to be updated throughout the project using monitoring observations. Upon cessation of injection, an amended PISC—if needed per the updated model—will be submitted to the Underground Injection Control Program Director (UIC Director).

7.5 Post-Injection Monitoring Activities

During the monitoring period, the testing and monitoring activities, as described in *Section 5 – Testing and Monitoring Plan,* will be performed and reported at the frequency shown in Table 7-2.

Table 7-2 – Post-Injection Monitoring and Reporting Frequency

Testing/Monitoring Activity	Frequency	Reporting Schedule	Comment
USDW monitoring well fluid sampling and analysis	Every 5 years	Within 30 days after data collection and analysis	
Above-zone monitoring interval (AZMI) monitoring well-fluid sampling and analysis	Every 5 years	Within 30 days after data collection and analysis	
AZMI pressure measurements	Continuously	Annually	
Injection well wellhead pressure monitoring (tubing and annulus)	Continuously	Annually	
Injection well in-zone pressure/temperature (P/T) monitoring	Continuously, using P/T gauges in individual injection stages	Annually	[redacted]

Indirect Plume Monitoring (VSP)	Every 5 years for the first 10 years	Within 30 days after time-lapse seismic processing has finished	[redacted]
Direct plume calculations based on P/T data	Annually	Annually	

*DAS – distributed acoustic sensing; VSP – vertical seismic profile

All testing and monitoring activities listed will be performed and analyzed as discussed in *Section 5*, including quality assurance/quality control (QA/QC) measures.

7.6 Demonstration of Non-Endangerment of USDW

The primary mechanism through which the USDWs are protected is the upper confining zone (UCZ), which comprises three separate, continuous sealing layers to provide redundancy. The monitoring data that will be collected after injection ceases verifies that the UCZ is functioning as expected and that the USDW is not endangered.

The monitoring data will also be used to calibrate the simulation model and further improve its ability to accurately predict the movement of CO_2. These calibrated simulation-model predictions are used to identify any UCZ-penetrating features with which the CO_2 plume may interact prior to final stabilization. Examples of these features of concern are legacy wellbores and fault planes. Any legacy wellbores with which the CO_2 plume is modeled to interact will be assessed to determine if they are adequately abandoned. This effort ensures that (1) legacy wellbores do not compromise the integrity of the UCZ and (2) the USDW is not endangered. The calibrated simulation-model predictions are also used to verify that the CO_2 does not reach fault planes cutting through the UCZ.

Prior to the approval of the site-closure authorization, as required by SWO 29-N-6 **§3633.A.3** [40 CFR **§146.93(c)**], ExxonMobil will provide documentation that the USDW is not at risk of further endangerment from the CO_2 plume. While the PISC duration is 50 years, it may be possible to demonstrate USDW non-endangerment earlier. [redacted] ExxonMobil will submit a report to the UIC Director demonstrating the non-endangerment of the USDW, including site-specific conditions, updated plume model, predicted pressure decline within the injection zone, and any updates to the underlying geological assumptions used in the original model.

7.7 Site Closure Plan

To meet the requirements of SWO 29-N-6 **§3633.A.3** [40 CFR **§146.93(e)**], the following site-closure activities will be performed: plugging of all wells, site closure, and submittal of final site-closure reports.

7.7.1 Pre-Closure

Notice of intent to close the site will be submitted to the UIC Director at least 120 days prior to the commencement of closure operations. If any changes are made to the original PISC and Site Closure Plan, a revised plan will also be submitted. Relevant notifications and applications, such as plugging requests, will be submitted and approved by the appropriate agency prior to commencing such activities.

7.7.2 Plugging Activities

The Pecan Island Injection Wells No. 001 and No. 002, AZMI Monitoring Wells No. 001 and No. 002, and all five USDW monitoring wells will be plugged as discussed in *Section 6 – Plugging Plan*. The plugging and abandonment procedures for the injectors are designed to prevent CO_2 or formation fluids in the injection interval from migrating to the USDW. Prior to plugging the injection and AZMI wells, the mechanical integrity of those wells will be verified. Plugging schematics and procedures are provided in *Appendix H*.

7.7.3 Site Restoration

Once the injection and monitoring wells are plugged and capped below grade, all surface equipment will be decommissioned.

7.7.4 Documentation of Site Closure

Within 90 days of site closure, a final report must be submitted to the UIC Director, per the requirements of SWO 29-N-6 **§3633.A.6** [40 CFR **§146.93(f)**], and will include the following:

- Documentation of appropriate injection and monitoring well plugging, including a copy of the survey plats;
- Documentation of well-plugging report to the Louisiana Department of Natural Resources (LDNR); and
- Records of the nature, composition, and volume of the CO_2 stream over the injection period.

A record of notation in the facility property deed will be added to provide, in perpetuity, any potential purchaser of the property the following information:

- The fact that the land was used to sequester carbon dioxide;
- The name of the state agency (LDNR) with which the survey plat was filed, and the EPA or state agency to which it was submitted; and
- The total volume of fluid injected, the injection zones into which it was injected, and the period over which injection occurred.

ExxonMobil will retain all records collected during the PISC period for 10 years following site closure. At the end of the retention period, ExxonMobil will deliver all records to the UIC Director for retention at a location designated by the UIC Director for that purpose.