Plan revision number: 1
Plan revision date: 12/20/2023

ATTACHMENT F: POST-INJECTION SITE CARE AND SITE CLOSURE PLAN 40 CFR 146.93(a)

DONALDSONVILLE SITE

Facility Information

Facility name: Ciel
CIEL NO.1

Facility contact: Lauren Read –Vice President BKVerde, LLC
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Well location: Donaldsonville, Ascension, Louisiana
NAD 1927 (Louisiana South Zone) X: 2,114,245.33′; Y: 511,857.41′

This Post-Injection Site Care (PISC) and Site Closure plan describes the activities that BKVerde, LLC (BKVerde) will perform to meet the requirements of 40 CFR 146.93. BKVerde will monitor groundwater quality and track the position of the CO_2 plume and pressure front for the PISC timeframe. BKVerde may not cease post-injection monitoring until a demonstration of non-endangerment of underground sources of drinking water (USDW) has been approved by the Underground Injection Control (UIC) Program Director pursuant to 40 CFR 146.93(b)(3). Following approval for site closure, BKVerde will plug all monitoring wells, restore the site to its original condition, and submit a site closure report and associated documentation.

Pre- and Post-Injection Pressure Differential [40 CFR 146.93(a)(2)(i)]

Based on modeling the pressure front as part of the area of review (AoR) delineation, pressure at the injection well is expected to decrease to pre-injection levels by June 17, 2035, as described below. Additional information on the projected post-injection pressure declines and differentials is presented in the permit application and the AoR and Corrective Action Plan (Attachment C).

The maximum predicted pressure differential over the life of the project is approximately 504 psi, expected to be during the injection into Zone 3 at the end of July 01, 2025. The predicted pressure plume dissipates completely approximately 115 days after injection has ceased. The maximum size of the pressure plume is expected to occur during injection Zone 2 at the end of November 2024. Figure 1 shows the pressure plume for Zone 2.

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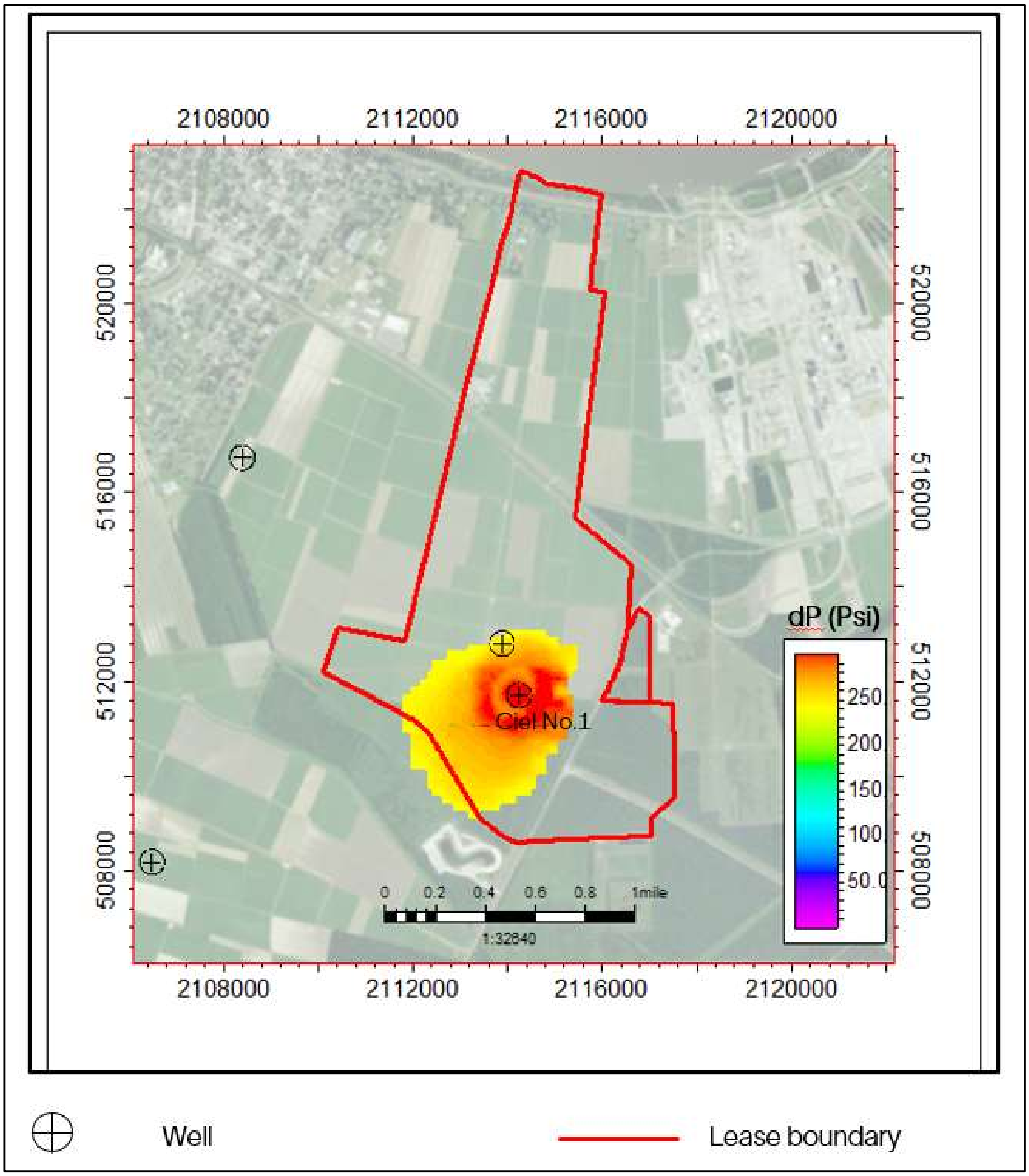

Figure 1. The largest pressure plume obtained is during injection into Zone 2.

Predicted Position of the CO_2 Plume and Associated Pressure Front at Site Closure [40 CFR 146.93(a)(2)(ii)]

Figure 2 shows the predicted extent of the plume and pressure front, representing the maximum extent of the plume and pressure front. This map is based on the final AoR delineation modeling results submitted pursuant to 40 CFR 146.84.

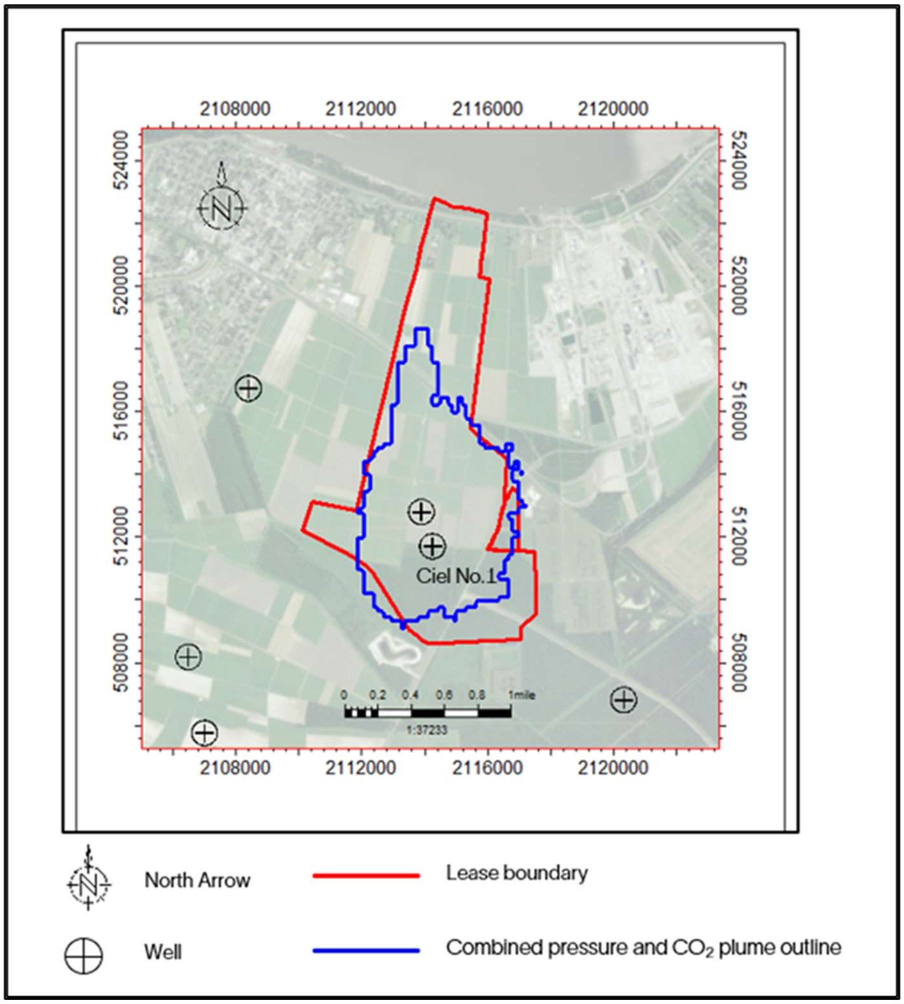

Figure 2. Map of the combined CO_2 and pressure AoR as delineated by the injection model simulations.

The predicted pressure plume, however, dissipates completely at the end of injection into each zone, leaving the CO_2 plume in the injection interval. The pressure decline to pre-injection pressure happens in approximately 115 days. The CO_2 plume 50 years post injection (site closure) is shown in Figure 3.

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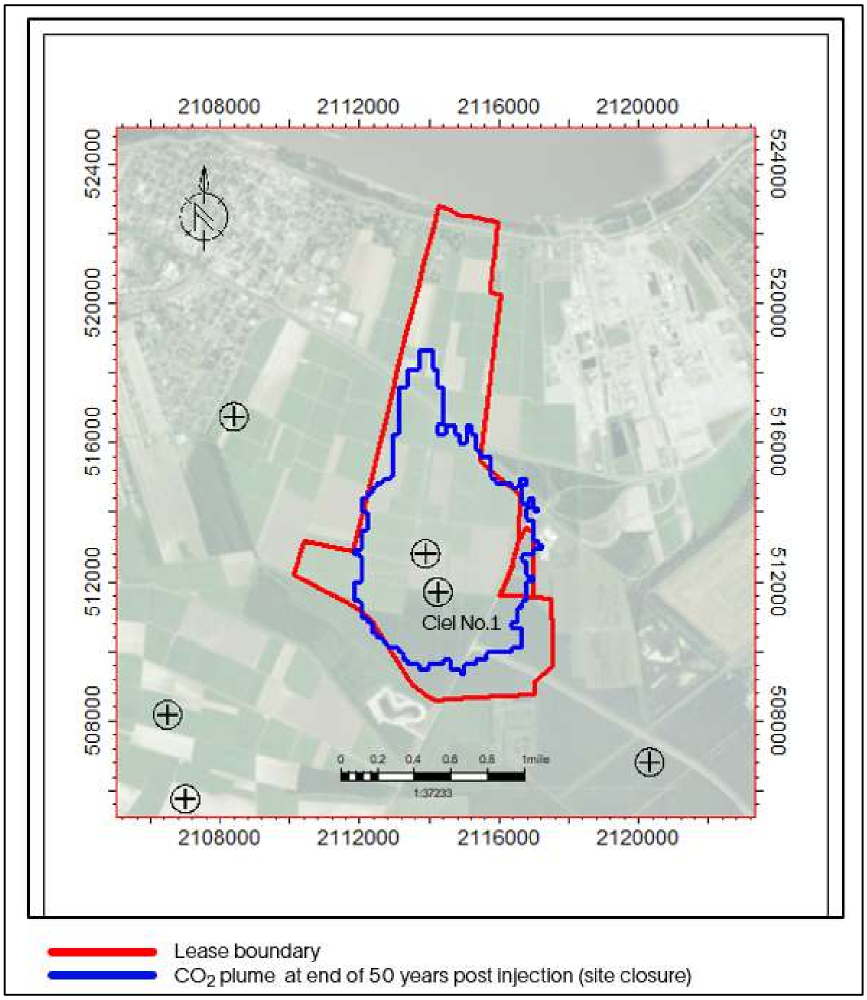

Figure 3. Map of the predicted extent of the CO_2 plume and pressure front at site closure.

Post-Injection Monitoring Plan [40 CFR 146.93(b)(1)]

BKVerde will perform groundwater quality monitoring and plume and pressure front tracking as described in the Testing and Monitoring Plan, Attachment D, during the post-injection phase which will meet the requirements of 40 CFR 146.93(b)(1). These methods are described below. All post-injection phase testing and monitoring results will be submitted annually, within 60 days of the anniversary date of the injection ceasing, as described under "Schedule for Submitting Post-Injection Monitoring Results" below. A quality assurance and surveillance plan (QASP) for all testing and monitoring activities during the injection and post-injection phases is provided in the permit document as Appendix E.

BKVerde will utilize monitor wells that include groundwater monitor wells, underground source of drinking water (USDW) well(s), above-zone monitoring (AZM) well(s), in-zone monitoring (IZM) well(s), injection well, soil monitoring station(s) and a seismicity monitoring station. Subsurface zones to be monitored include the basal confining zone, injection zones, upper confining zone, first sand immediately above the upper confining zone, USDW, and freshwater zones. BKVerde has a lease agreement with the landowner that allows BKVerde access to any portion of the leased area for Class VI operations such as corrective action, drilling wells, remedial activity on wells, and monitoring activities on the lease premises for the duration of the project under the lease terms.

Monitoring Above the Confining Zone

Lune No.1 will be drilled and completed as an AZM well approximately 45 feet from Ciel No. 1 injection well. This well will be permitted as a Class V soon and drilled prior to the Ciel No.1 or immediately after.

Lune No.1 will be drilled 85 feet into the upper confining zone (Miocene), and the total depth of the well will be approximately 4,200 feet as shown in Figure 4. The well will be cased with 5-1/2-inch casing. The bottom section of the 5-1/2-inch casing (4,050 to 4,200 feet) in the confining zone will be 25CrS pipe, and the casing section from the surface to 4,050 feet will be L80 carbon steel. The tail cement (3,500 to 4,200 feet) will use CO_2-resistant cement, and lead cement will be Class H cement from the surface to 3,500 feet. The 5-1/2-inch casing will be perforated in the 3,800 to 3,820 feet interval and then completed with 2-7/8-inch tubing and packer set at 3,700 feet.

C. Schexnayder No. 1 etal. (API 170052026500) is an existing plug and abandoned wellbore as shown in Figure X. The well will be reentered, corrective action performed, and completed as an above zone monitor (AZM) well with fiber optic cable to PBTD (plug-back-total-depth) that will perform indirect monitoring via vertical seismic profile (VSP) protocol. Figure Z illustrates the proposed C. Schexnayder etal. (API 170052026500) monitoring completion.Figure 4

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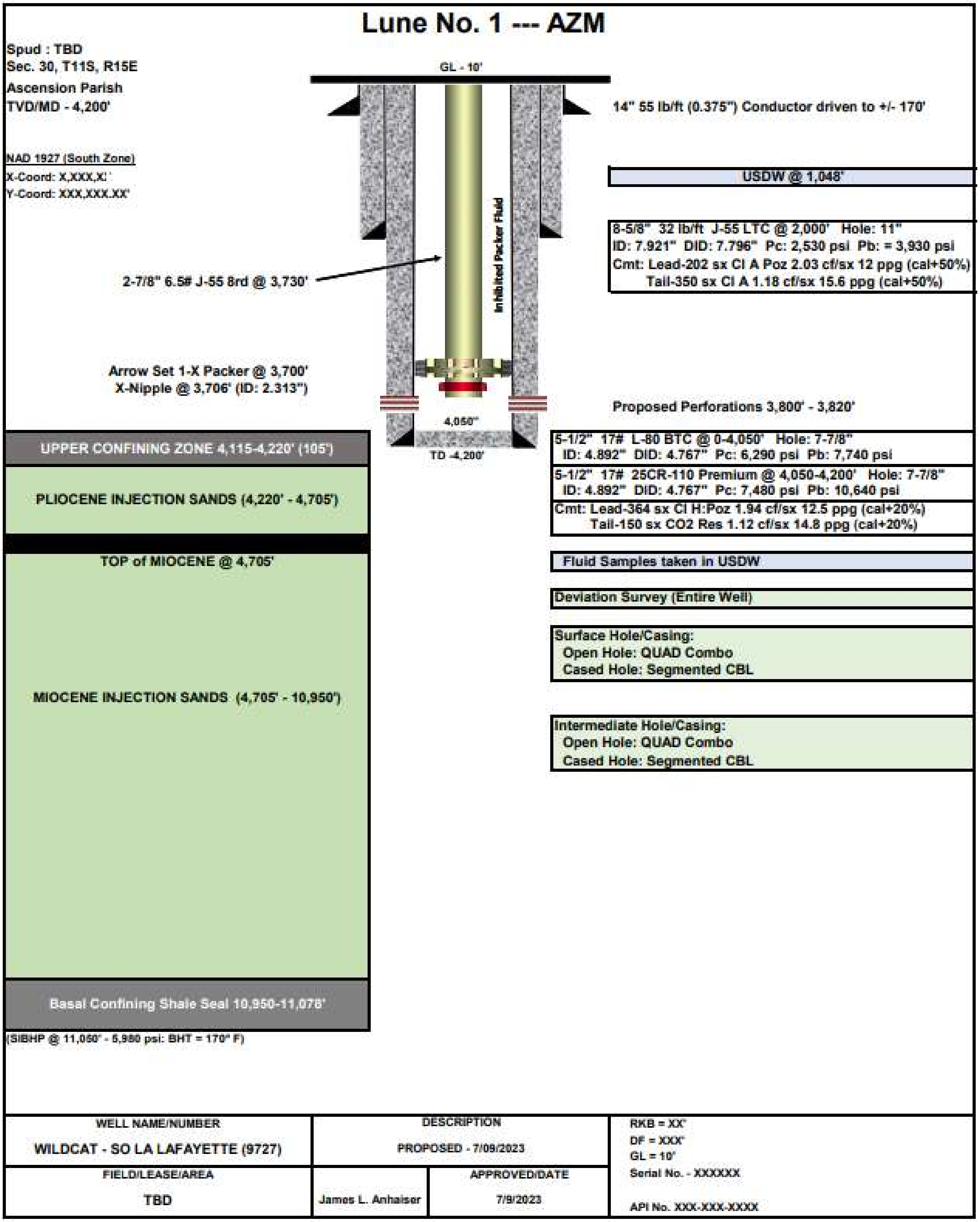

Figure 4. Lune No.1 AZM well schematic.

Table 1 presents the monitoring methods, locations, and frequencies for monitoring above the confining zone. Table 2 identifies the parameters to be monitored and the analytical methods BKVerde will employ.

Tables 1 and 2 present the planned direct and indirect monitoring methods, locations, and frequencies for groundwater quality monitoring above the confining zone in the specified formations. Table 3 identifies the parameters to be monitored and the analytical methods employed.

Table 1. Monitoring of groundwater quality and geochemical changes above the confining zone.

Target Formation	Monitoring Activity	Monitoring Location(s)	Spatial Coverage	Frequency
Mississippi River Alluvial Aquifer USDW Bottom Sand (Miocene) Sand Above UCZ (Miocene)	Fluid sampling (all wells)	GM1 (Soleil No. 1) GM2 (Schexnaydar No. 1) GM3 (Ciel No. 1) USDW1 (Ciel No 1) USDW 2 (Schexnaydar No. 1) Lune No. 1 (Schexnaydar No. 1)	Near wellbore (all wells)	Baseline Annual Baseline Annual Baseline Quarterly for Schexnayder No. 1 Annual for Lune No. 1
Miocene	Bottomhole pressure/temperature	Lune No.1 Soleil No.1 Ciel No.1	Near wellbore Near wellbore Near wellbore	Annual Continuous Continuous
Miocene	Wellhead Temperature-pressure: tubing/annulus/surface casing/intermediate casing/injection casing	Lune No.1 Soleil No.1 Ciel No.1	Near wellbore Near wellbore Near wellbore	Continuous Continuous Continuous
Miocene	Pulsed neutron log	Soleil No.1 Ciel No.1 (Schexnaydar No. 1)	Near wellbore Near wellbore Near wellbore	Baseline Annual

Table 2. Summary of analytical and field parameters for ground water samples.

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Parameters	**Analytical Methods**
Mississippi River Alluvial Aquifer & Miocene zones	
Cations:	ICP-MS
Al, Ca, Mn, As, Cd, Cr, Cu, Pb, Sb, Se, and TI	EPA Method 6020
Cations:	ICP-OES,
Ca, Fe, K, Mg, Na, and Si	EPA Method 6010B
Anions:	Ion Chromatography,
Br, Cl, F, NO3, and SO4	EPA Method 300.0
Dissolved CO_2	Coulometric titration, ASTM D513-11
Total Dissolved Solids	Gravimetry; APHA 2540 C
Alkalinity	APHA 2320B
pH (field)	EPA 150.1
Specific conductance (field)	APHA 2510
Temperature (field)	Thermocouple
Lowermost USDW Sand	
Same parameters as above in Table 2	

Table 3. Sampling and recording frequencies for continuous monitoring.

Parameter	**Device(s)**	**Location**	**Minimum Sampling Frequency**	**Minimum Recording Frequency**
tubing pressure/casing-tubing (annulus) pressure/tubing temperature	Electronic & Face gauge	Ciel No. 1, Lune No. 1 Schexnayder No. 1 Soleil No. 1	5 seconds	5 seconds
Ciel No.1 injection rate	Coriolis Meter and Orifice Meter	Surface Facility (Ciel No. 1)	5 seconds	5 seconds

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Parameter	Device(s)	Location	Minimum Sampling Frequency	Minimum Recording Frequency
Ciel No.1 injection volume	Coriolis Meter and Orifice Meter	Surface Facility (Ciel No. 1)	5 seconds	5 seconds
Ciel No.1 annulus fluid volume	Turbine flow meter and Tank measurements	Surface Facility (Ciel No. 1)	5 seconds	5 seconds
Bottomhole pressure & temperature	Electronic gauge	Ciel No. 1, Soleil No. 1	5 seconds	5 seconds
Ambient temperature	Electronic gauge & face gauge	Surface facility (Ciel No. 1)	5 seconds	5 seconds
Ciel No.1 shut in	All devices as mentioned above	At each location as mentioned above	5 seconds	5 seconds

Notes:

- Sampling frequency refers to how often the monitoring device obtains data from the well for a particular parameter. For example, a recording device might sample a pressure transducer monitoring injection pressure once every 5 seconds and save this value in memory.
- Recording frequency refers to how often the sampled information is recorded in digital format (such as a computer hard drive). For example, the data from the injection pressure transducer might be recorded on a hard drive once every minute.
- Above-ground pressure and temperature instruments will be calibrated over the entire operational range at least annually using ANSI or other recognized standards. Downhole pressure/temperature gauges with current calibration certification will be installed on the tubing to measure the pressure near the injection perforations. Pressure transducers shall have a drift stability of less than 0.5% of the full-scale range per year over the operational period of the instrument and an accuracy of ± 5 psi. Sampling rates will be at least once per 5 seconds. Temperature sensors will be accurate to within 1°C.
- Flow will be monitored with a Coriolis mass flowmeter at the meter run downstream of the pipeline and/or compressor. The flowmeter will be calibrated using accepted standards and be accurate to within ±0.5%. The flowmeter will be calibrated for the entire expected range of flow rates. An orifice meter measuring differential pressure will be utilized as the check meter for the Coriolis meter measurement. The orifice meter instrumentation will be calibrated for the entire expected range of flow rates using accepted standards.

Monitoring Injection Zones

Soleil No.1 will be drilled and completed as an in-zone monitor (IZM) well at the coordinates (X: 2,115,602.75'; Y: 511,781.60' (NAD27S)). This well will be permitted as a Class V.

Soleil No.1 will be drilled through the basal confining zone. The total depth of the well will be approximately 11,500 feet, and the well will be cased with 5-1/2 inch casing. Fiber optic cable will be installed on the outside of the 5-1/2 inch casing from the surface to total depth. To cover the CO_2 injection interval with CO_2 compatible material, the 5-1/2 inch. casing will be 25CrS from 3,800 feet to 4,300 feet, 13Cr-80 from 4,300-11,100 feet, Cement will be circulated from

11,055 feet to surface with CO2 resistant cement placed from 3,300 feet to 11,500 feet. Class H cement will be placed from surface to 3,500 feet with 5-1/2 inch L80 casing from 0-3,500 feet and 11,100 –11,500 feet.

Stratigraphic Well Construction Period

Initially, the well will be drilled as a stratigraphic well to obtain petrophysical, structural, and fluid data. Data obtained from this well will be populated in Table 4. The plan is detailed in Attachment B.

Figure 5 shows the detailed stratigraphic wellbore geometry.

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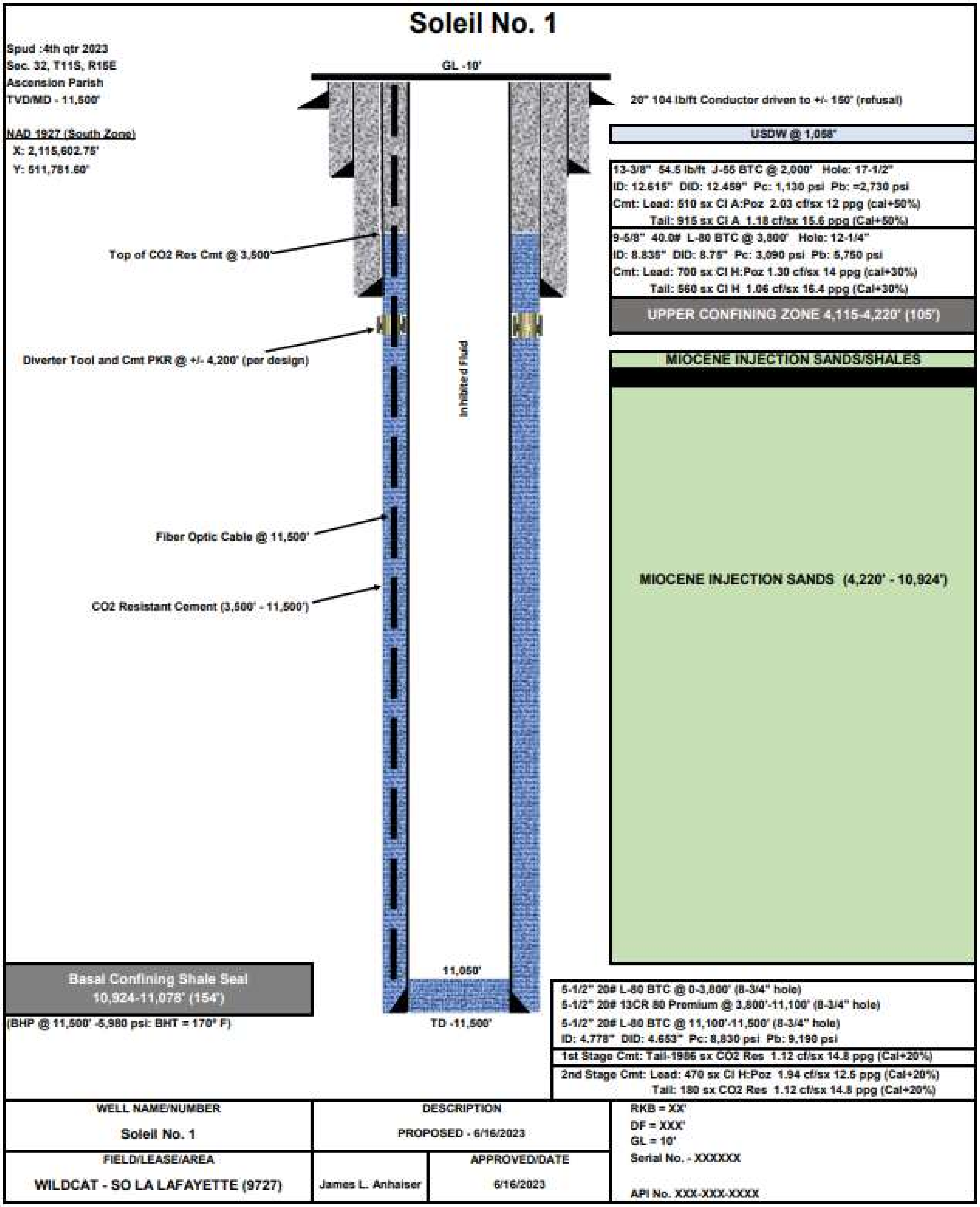

Figure 5. Soleil No.1 stratigraphic well schematic.

Initial-Injection-Monitoring Period

At the initial injection phase, the Soleil No.1 well will be completed for initial injection monitoring (Figure 6). The 5-1/2 inch casing will be perforated at the zones shown in the completion schematic below per the final correlation from open hole logging operations. The well will be completed with 2-7/8 inch 13Cr tubing. A tubing encapsulated conductor (TEC) cable will be installed on the outside of the 2-7/8 inch tubing. One hydraulic-set retrievable packer and three swell packers will be installed to isolate each perforated zone. TEC cable will pass through the packers, and pressure and temperature sensors will be installed at each perforation zone. Data that will be acquired in Soleil No.1 well are detailed in Table .

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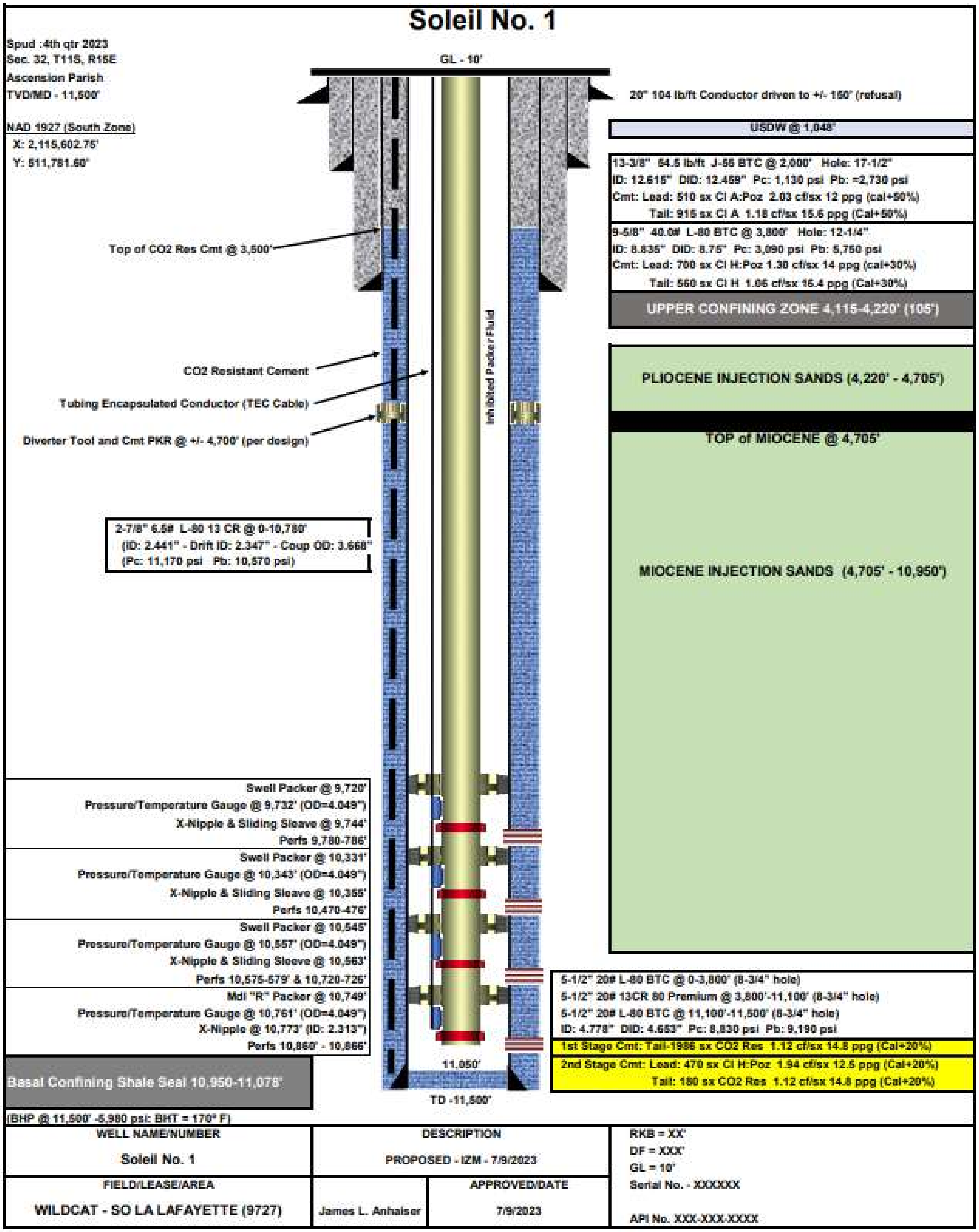

Figure 6. Soleil No.1 IZM well initial completion schematic.

Table 4. Soleil No.1 downhole data acquisition.

Monitoring Activity	**Monitoring Location(s)**	**Frequency: Interim Period**	**Frequency: Injection Phase**	**Frequency: Post-Injection Phase**
Wellhead tubing, tubing-casing (annulus) pressure and temperature	Soleil No.1	Weekly	Continuous	Continuous
Bottomhole pressure and Temperature	Soleil No1	Weekly	Continuous	Continuous
Pulsed Neutron Log	Soleil No. 1	Baseline	Annual	Annual
Time-lapse VSP seismic survey	Soleil No. 1	Baseline	Every 5 years	Immediately after injection phase ends. Then once every five years.
Fluid Samples	Soleil No.1	Baseline	Not Applicable	Not Applicable

Post-Injection-Phase Period

During the injection phase of the project, the Soleil No. 1 will be recompleted up hole in increments of four injection zones in coordination with the Ciel No. 1 injection zone completion. At the end of the injection operation phase, the Soleil No. 1 will be completed, as shown in Figure 7 for the post-injection period. The well will be completed in the uppermost monitoring zone with 2 7/8-inch 13Cr tubing and a chrome allow retrievable packer. TEC cable will be installed on the outside of the tubing to the depth of the packer. Pressure and temperature gauges will be installed on the outside of the tubing to a depth near the packer and will be connected to the TEC cable.

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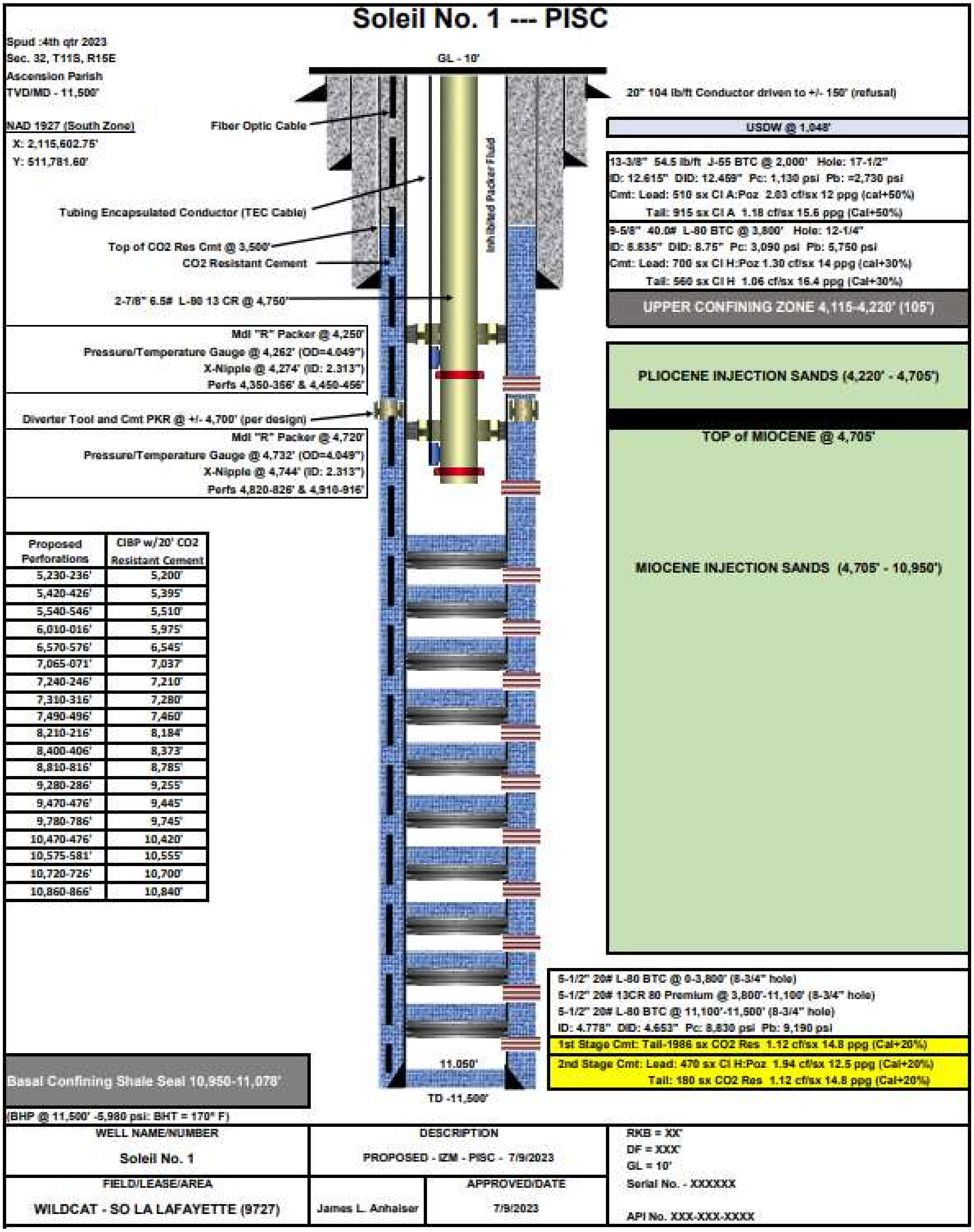

Figure 7. Soleil No.1 IZM well post-injection-phase completion schematic.

Carbon Dioxide Plume and Pressure Front Tracking [40 CFR 146.93(a)(2)(iii)]

BKVerde will employ direct and indirect methods to track the extent of the CO_2 plume and the presence or absence of elevated pressure.

Table 4 presents the direct and indirect methods BKVerde will use to monitor the CO_2 plume, including the activities, locations, and frequencies BKVerde will employ. The parameters to be analyzed as part of fluid sampling are presented in Table 7. Table 8 describes the post-injection phase pressure front monitoring protocol.

Fluid sampling will be performed as described in Section 2.2.1.2 of the QASP, sample handling and custody will be performed as described in Section 2.3 of the QASP, and quality control will be ensured using the methods described in Section 2.5 of the QASP. Quality assurance procedures for seismic monitoring methods are presented in INSERT SECTION of the QASP. Descriptions of gauges and other equipment used for monitoring purposes and the range and precision of said equipment are described in Section 1.4.1 and Section 1.4.7 of the QASP of the QASP.

Table 4. Post-injection phase plume monitoring.

Target Formation	Monitoring Activity	Monitoring Location(s)	Spatial Coverage	Frequency
DIRECT PLUME MONITORING				
Miocene (current injection zone)	CO2 Gas Detection Tubes	Lune No. 1 tubing Soleil No.1 tubing Schexnayder No. 1 tubing	Near wellbore	Weekly
Injection Zones	Bottomhole P/T	Soleil No. 1	Near Wellbore	Continuous
Injection Zones	Bottomhole P/T	Ciel No. 1	Near Wellbore	Continuous
INDIRECT PLUME MONITORING				
Injection Zones	Bottomhole P/T	Ciel No. 1	AoR	Continuous
Injection Zones	Bottomhole P/T	Soleil No. 1	AoR	Continuous
Upper confining zone: First sand above the upper confining zone: USDW to surface and Miocene injection zones	Pulse Neutron Logging	C. Schexnayder etal. No.1	Near wellbore—continuous to full well depth	Baseline Between each injection zone re-completion
All formations	Time-lapse VSP seismic survey	Ciel No. 1 Soleil No. 1	Modeled plume area	Baseline Year 5, 10 15

Table 5. Summary of analytical and field parameters for fluid sampling in the injection zone.

Parameters	Analytical Methods
FORMATION NAME: First sand above the Upper Confining Zone: USDW to surface	
Cations: **AL, Ba, Mn, As, Ce, Cr, Cu, Pb, Sb, Se, & TI**	ICP-MS, EPA Method 6020
Cations: **Ca, Fe, K, Mg, Na, & Si**	ICP-OES, EPA Method 6010B
Anions: **Br, Cl, F, NO3, & SO4**	Ion Chromatography, EPA Method 300.0
Dissolved CO2	Coulometric titration, ASTM D513-11
Isotopes: δ13X of DIC	Isotope ratio mass spectrometry
Total Dissolved Solids	Gravimetry; APHA 2540C
Water Density (Field)	Oscillating body method
Alkalinity	APHA 2320B
PH (Field)	EPA 150.0
Specific Conductance (Field)	APHA 2510
Temperature (Field)	Thermocouple

Table 6. Post-injection phase pressure-front monitoring.

Target Formation	Monitoring Activity	Monitoring Location(s)	Spatial Coverage	Frequency
DIRECT PRESSURE-FRONT MONITORING				
Miocene	Bottomhole Pressure/ temperature	Ciel No. 1 Soleil No. 1	Near Well bore	Continuous
INDIRECT PRESSURE-FRONT MONITORING				
All formations	Passive seismic	Surface monitoring stations as determined by modeling	Passive seismic monitoring network will capture events of magnitude 1.0 and greater within the AoR.	Continuous
Miocene	Bottomhole Pressure/Temperature	Soleil No. 1 Ciel No. 1	AoR (Pressure transient and Gradient correlation)	Continuous during injection. Continuous after injection until pressure fall-off returns below critical pressure. Continuous during injection

Soil Gas Monitoring/Other Testing and Monitoring

BKVerde will monitor surface air and soil gas per federal rule (40 CFR 146.9 (h)) and the Louisiana rule (LAC 43.XVII.3625.A.8, attached) to detect movement of CO_2 that could impact the USDW. If any CO_2 is emitted by surface leakage, BKVerde will report to the EPA annually. Soil gas monitoring will be used to check chemical compositions of the near-surface environment and soil vadose zone. These environments are subjected to strong seasonal effects and are influenced by various natural processes and human activities. Best industry practice has shown that fixed soil-gas profile stations provide the most accurate data. The location of the stations will be selected to minimize the agricultural impacts of plowing, planting, irrigation, and harvesting. Samples will be collected and sent to a reputable laboratory for analysis. Quality assurance and traceability methods will ensure proper handling of samples and laboratory techniques.

Schedule for Submitting Post-Injection Monitoring Results [40 CFR 146.93(a)(2)(iv)]

All post-injection site care monitoring data and monitoring results collected using the methods described above will be submitted to EPA in reports submitted annually. The reports will contain information and data generated during the reporting period, i.e., well-based monitoring data, sample analysis, and the results from updated site models.

As monitoring results are collected, the data will be compared to baseline data, prior collected data, averaged data, and predicted modeling results. Any significant inconsistencies in the comparisons will be analyzed, documented, and reported as necessary or required. Analyses of the monitoring results may necessitate an adaptive nature for additional monitoring locations and/or frequencies. Timeframes such as the pre-injection phase, injection phase, PISC phase, and abandonment phase may trigger some modifications to the monitoring frequency and or monitoring locations. Likewise, a CO_2 plume or pressure plume result not in agreement with the predicted model may trigger a modified or enhanced monitoring plan.

Alternative Post-Injection Site Care Timeframe [40 CFR 146.93(c)]

BKVerde will conduct post-injection monitoring until the end of the PISC period, following the cessation of injection operations. An alternative timeframe may be developed during the PISC period. Regardless of any alternative PISC timeframe, monitoring and reporting as described in the sections above will continue until BKVerde demonstrates, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the project does not pose an endangerment to any USDWs, per the requirements at 40 CFR 146.93(b)(2) or (3).

Computational Modeling Results – 40 CFR 146.93(c)(1)(i)

The pressure plume dissipates completely once injection is stopped for each zone. The CO_2 plume, however, remains and evolves, as shown in Figure 8. The predicted pressure decline to pre-injection pressure happens in approximately 115 days.

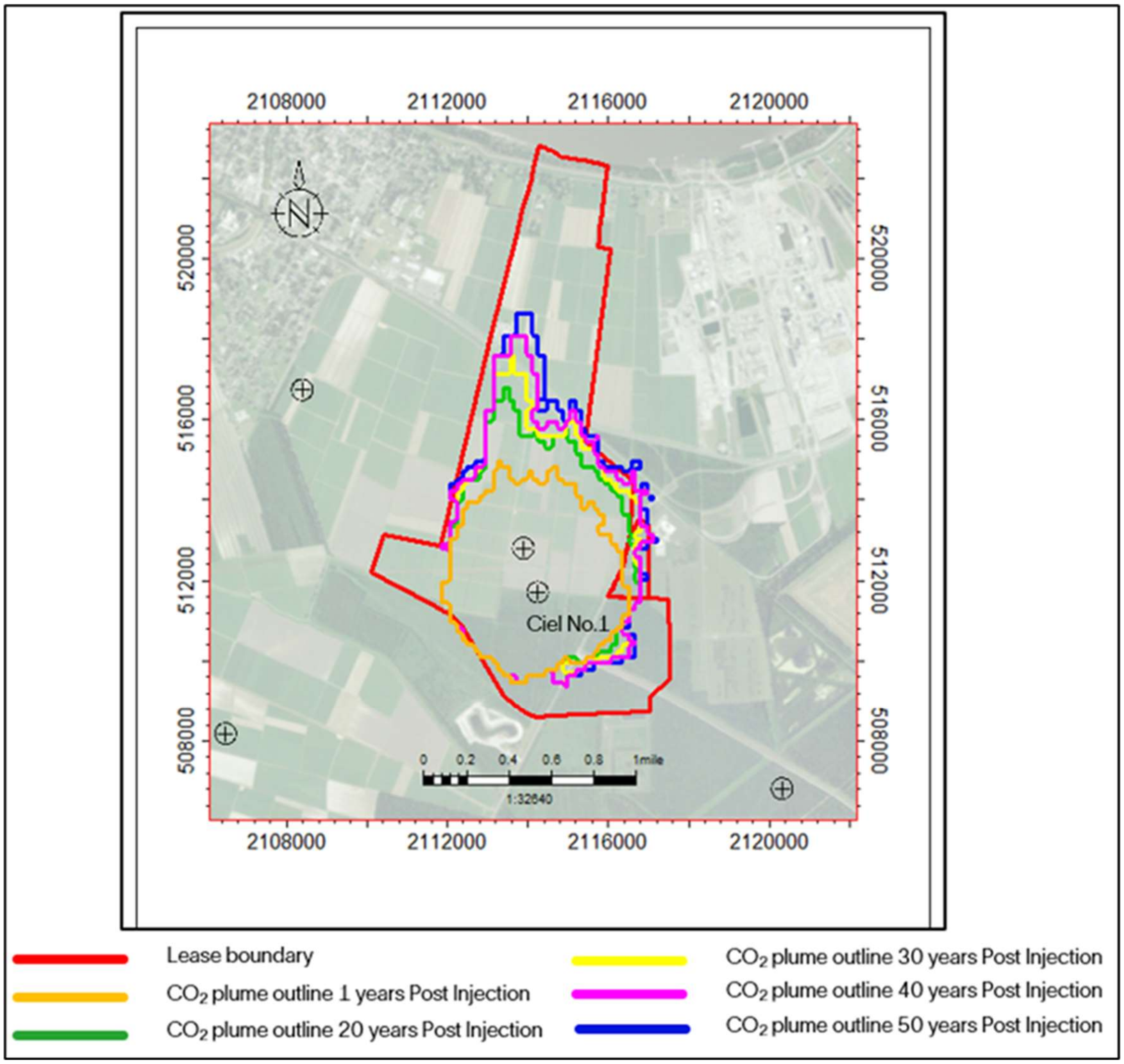

Figure 8. The evolution of the CO_2 plume with time after 1-, 20-, 30-, 40-, and 50- years post injection.

The vertical migration of the CO_2 in each injection zone is prevented by laterally continuous shale facies established by historical correlative open hole logs and seismic review. Figure 9 shows the vertical cross section in the north-south direction of the CO_2 plume near the injection well.

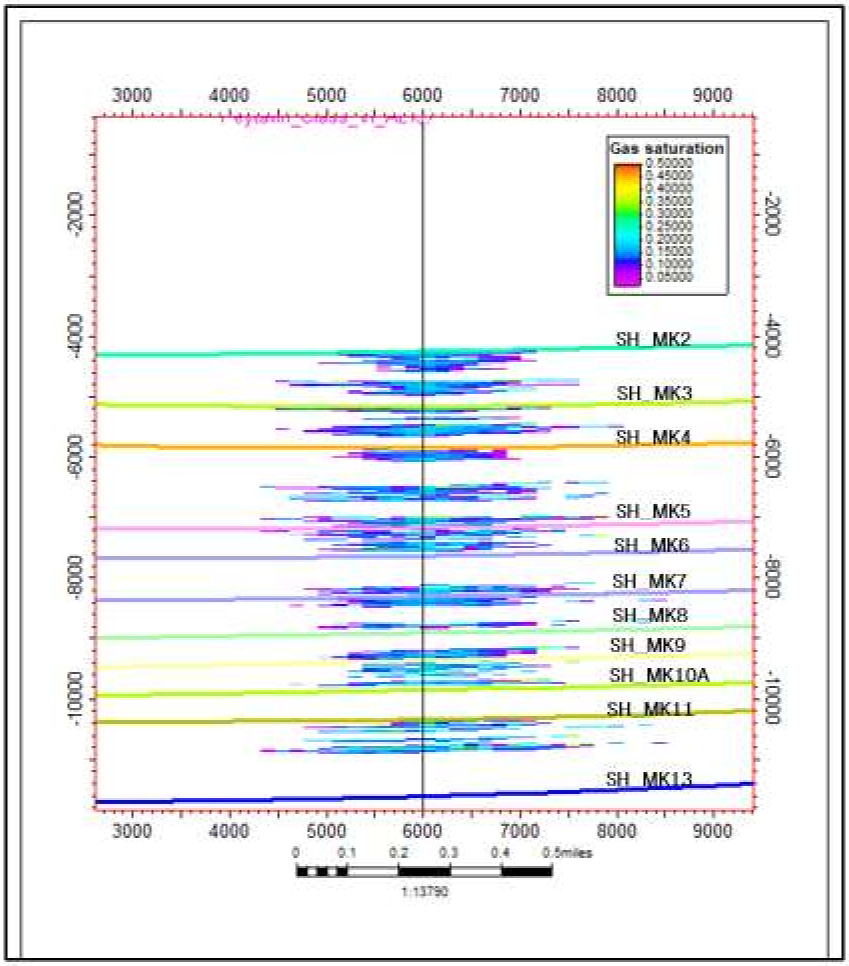

Figure 9. Vertical cross section of the CO_2 plume at the end of 50 years post injection.

Multiple simulations were run to optimize the injection duration into each zone to determine the final CO_2 plume. Optimization runs were performed to ensure the CO_2 plume stayed within the lease boundary post-injection. The initial simulation had 24 target zones, each injecting 1 million metric tons/year for a 1-year duration. Eight separate scenarios were run, and the optimal scenario had 19 injection zones. The injection duration for each zone ranges from 4 to 15 months. The injection duration is governed by the rock properties and the number of perforations in each zone. Figure 10 shows the CO_2 plume sizes for the various scenarios, with the optimized scenario in blue.

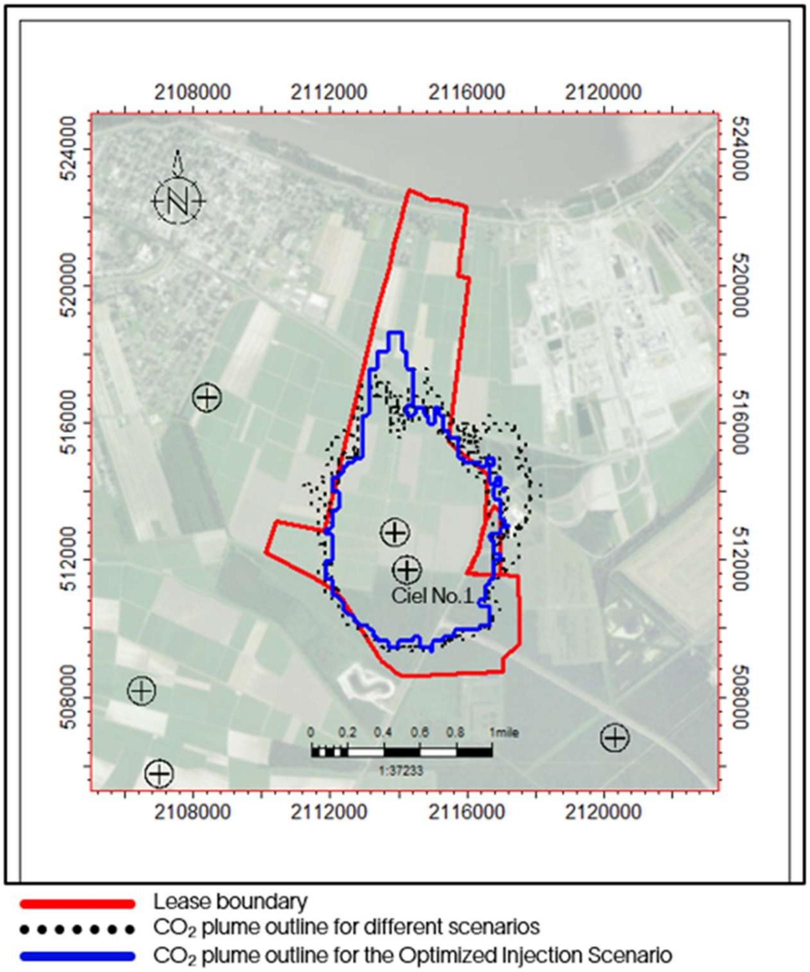

Figure 10**. The different CO_2 plume sizes for different scenarios with the optimized scenario shown in blue.**

Predicted Timeframe for Pressure Decline – 40 CFR 146.93(c)(1)(ii)

The maximum spatial extent of the pressure front is approximately 0.34 square miles, as shown in Figure 1. It is expected to be reached at the end of injection into Zone 2 on March 1, 2025. Following the cessation of injection into the last injection zone (Zone 19) on June 1, 2035, the pressure decline to pre-injection pressure happens in approximately 115 days, by September 1, 2035.The parameters that affect the predicted pressure decline are petrophysical rock properties such as permeability and porosity, and the thickness of the injection zone. The primary factor that affects the pressure decline post-injection is the effect of sand permeability. Figure 11 shows the bottomhole pressure of Ciel No.1, with a pop-out of the time interval at the end of injection into Zone 19.

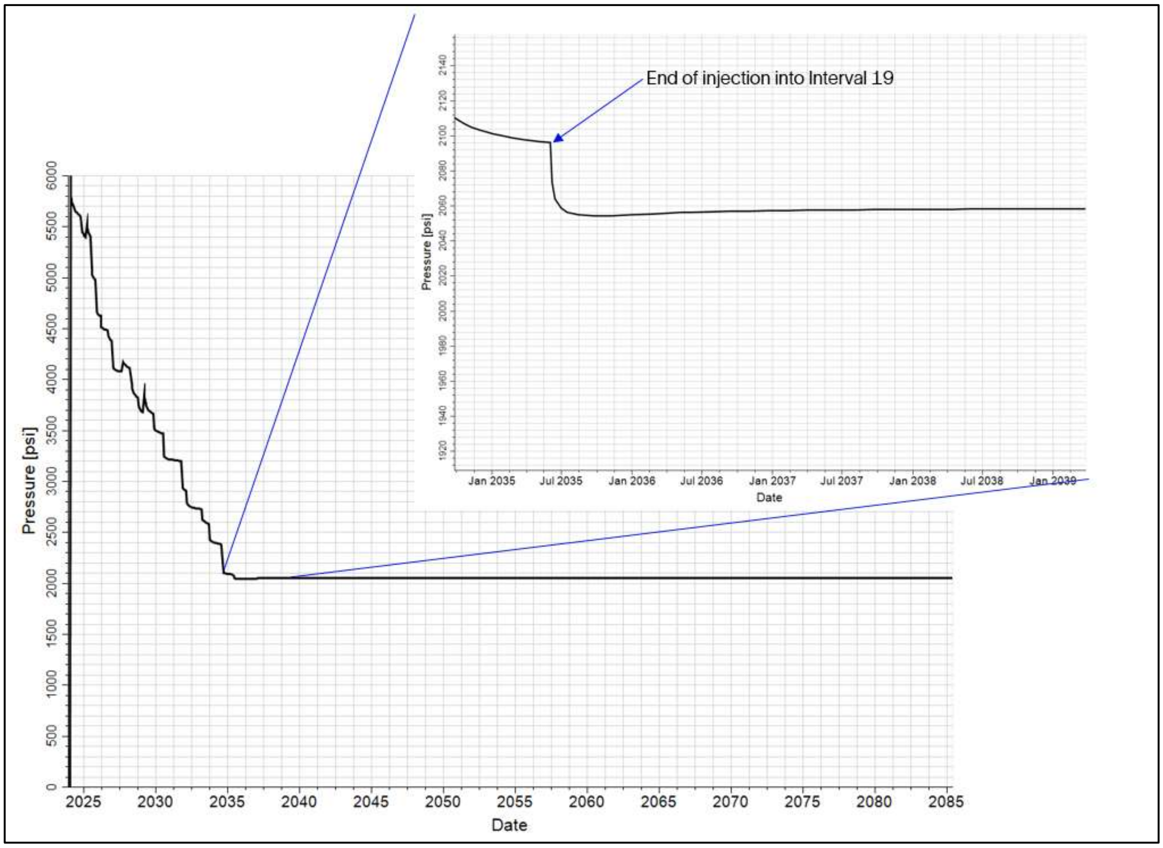

Figure 11. Bottomhole pressure of the Ceil No.1 well showing a pop-out of the time period around the end of the injection into Zone 19.

Predicted Rate of Plume Migration – 40 CFR 146.93(c)(1)(iii)

The maximum areal extent of the CO_2 plume is approximately 1.04 square miles at the end of the 50 years post-injection. Figure 8 shows the evolution of the CO_2 plume with time.

During the injection phase, the CO_2 plume and pressure plume move rapidly primarily due to the injection pressure applied at the injection zone. The model predicts that at an injection rate of 1 million metric tons of CO_2/year, the CO_2 fills each injection zone in a period sensitive to factors such as permeability, porosity, sand thickness, pressure, and temperature. Once injection ceases, the primary driving force, injection pressure, changes to a falloff pressure scenario in which the pressure dissipates and returns to pre-injection pressure in about 115 days. After the injection zone has been shut-in for about 115 days, pressure depletion ceases to be the primary driving force for CO_2 migration.

Site-Specific Trapping Processes – 40 CFR 146.93(c)(1)(iv)-(vi)

The injected CO_2 will remain in the proposed injection site due to the four trapping mechanisms expected in CO_2 storage in aquifers: structural trapping of the CO_2, the solubility of the CO_2 in the saline aquifer, the trapping of the CO_2 as residual gas in the pore spaces and the trapping of CO_2 in minerals by its reaction with the minerals in the injection zone rock. In this simulation work, it is assumed that the trapping of the CO_2 due to mineralization is minimal during the simulation time (50 years post-injection) and hence not considered in the simulation.

The structural trapping of the CO_2 is modeled with the compositional equation of state as described in the model description with a CO_2 property variation with pressure defined and the appropriate geocellular grid structure and boundary conditions set in the model. When injected, the CO_2 percolates up through the injection zones until it reaches the top of the formation, where it is trapped by an impermeable layer, as seen in the simulation model.

The trapping of the CO_2 in the pore spaces is modeled using the appropriate relative permeability models with proper endpoints defined and hysteresis effects. As the CO_2 flows through the injection interval rocks, it displaces brine (drainage). When the injection ends, the brine returns (imbibition), and some of the CO_2 is left behind and trapped in the narrow pore spaces, becoming immobile.

The solubility trapping of the CO_2 is calculated using the options in the simulator that calculate mutual solubilities of CO_2 in water and water in CO_2.

Simulation results show that 27.85% of the CO_2 will be dissolved in water, 12.61% of the CO_2 will be mobile in the gas phase, and 59.53% will be trapped in the gas phase. Figure 12 Figure 12 shows the total mass of CO_2, the mass of CO_2 dissolved in water, the mass of CO_2 in the mobile gas phase, and the mass of CO_2 trapped in the gas phase over time. CO_2 dissolved in water and the CO_2 in trapped gas increases over time while the CO_2 in the gas phase decreases. The total mass of CO_2 in the aquifer remains constant once injection stops.

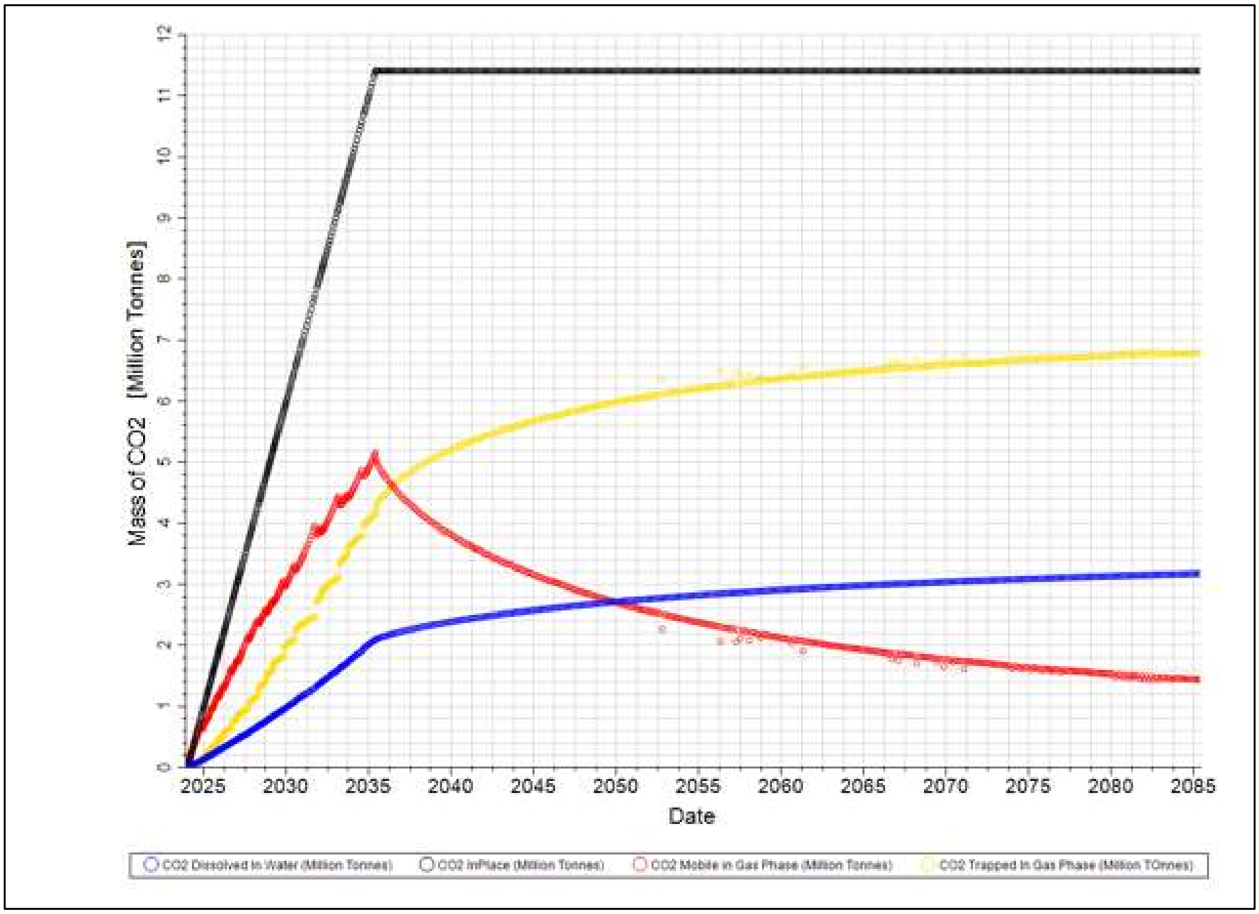

Figure 12. The total mass of CO_2, mass of CO_2 dissolved in water, mass of CO_2 in the mobile gas phase, and the mass of CO_2 trapped in the gas phase over time.

Confining Zone Characterization – 40 CFR 146.93(c)(1)(vii)

Assessment of Fluid Movement Potential – 40 CFR 146.93(c)(1)(viii)-(ix)

The potential for fluid movement through wells penetrating the injection interval is present in one existing legacy wellbore. The C. Schexnayder etal. No. 1 (API 1700520265) well penetrates the entire injection interval. The well is currently plugged and abandoned. The C. Schexnayder etal. No. 1 (API 1700520265) is approximately 2,056 feet north of the proposed Ciel No.1 injection well location. It will be located within the predicted CO_2 and pressure plumes. During each injection zone sequence, the CO_2 plume should reach this well no later than within 3 to 6.5 months of beginning injection on a particular zone.

BKVerde plans to conduct corrective action on the C. Schexnayder etal. No. 1 (API 1700520265) wellbore to achieve protection of the USDW at 1,048 feet in three phases. Prior to

CO_2 injection operations, Phase 1 corrective action and barrier protections to be installed are as follows:

(1) Re-enter wellbore. Run diagnostic electric logging tools from total depth to the surface to determine casing cement bonding, formation cement bonding, casing thickness, and reservoir saturation.

(2) Perform remedial squeeze on upper confining zone: Create an exterior casing seal bonded by CO_2-resistant cement (20 feet minimum continuous bond) to the upper confining zone shale formation. This will be accomplished with cement squeeze operations. The distance from the top of the upper confining zone (4,115 feet) to the USDW (1,048 feet) is 3,067 feet.

(3) Remedial squeeze on the basal confining zone: Create an exterior casing seal bonded by CO_2 -resistant cement (20 feet minimum continuous bond) to the basal confining zone shale formation. This will be accomplished with a cement squeeze operation.

(4) Set a corrosion resistant CIBP at 10,950 feet with 50 feet of CO_2-resistant cement placed on top of the CIBP. This will provide an internal seal.

In Phase 2, BKVerde plans to operate the C. Schexnayder etal No. 1 (API 1700520265) as an indirect vertical seismic profile (VSP) in-zone monitor well in combination with an above-zone monitor well completed in the first sand immediately above the upper confining zone. BKVerde will install completion equipment and monitoring protocols to protect the USDW while the injection well is active from the first injection zone (10,849 to 10,907 feet) until after injection is completed in the injection zone from 5,213 to 5,317 feet. The USDW will be located 4,165 feet from this injection zone. Prior to CO_2 injection operations, the well will be completed with structural and monitoring components designed to protect the USDW as follows:

(1) The first sand above the upper confining zone (4,115 to 4,220 feet) will be perforated for fluid and pressure monitoring.

(2) A packer will be installed above and below the monitoring perforations so that the casing/tubing annulus pressure integrity can be monitored from the surface to the first sand above the upper confining zone and from just below the perforations to the total plug back depth.

(3) Tubing will be installed with fiber optic cable attached on the outside of the tubing to further assist in the VSP monitoring of the CO_2 plume.

(4) Fluid sampling will be part of the monitoring and testing program to ensure that the baseline saline water has not changed.

(5) Gas detection tubes will be used periodically to detect any increase in CO_2 concentration.

(6) The tubing will provide a conduit for pulsed neutron logging operations to detect any upward migration of CO_2 along the outside of the 9 5/8-inch casing.

In Phase 3, BKVerde will mobilize a workover rig to the location to properly plug and abandon the well as required in 40 CFR 146.92. The primary plugging action that will be employed to permanently abandon the CO_2 injection interval is as follows:

(1) Place corrosion resistant CIBP at 4,320 feet.

(2) Place corrosion-resistant balanced cement plug from 4,300 to 4,320 feet on top of the CIBP at 4,320 feet.

(3) Section mill 9 5/8-inch casing across the upper confining zone from 4,115 to 4,250 feet.

(4) Place corrosion-resistant balanced cement plug across the upper confining zone from 4,015 to 4,300 feet.

(5) Place corrosion-resistant CIBP at 4,015 feet.

The remainder of the cement plugs are described in Attachment C (Area of Review and Corrective Actions). Regulations promulgated by the State of Louisiana will be followed to properly plug and abandon the remainder of the well above the CIBP set at 4,015 feet.

Location of USDWs – 40 CFR 146.93(c)(1)(x)

The injection zone to the base of the USDW does not change vertically and laterally for the extent of the CO_2 plume. The final (shallowest) injection zone to the base of USDW in Ciel No.1 is estimated to be 4,331 feet. The CO_2 plume is contained within the Donaldsonville lease, and the depth of the USDW is estimated to be 1,000 feet at Ciel No.1. The Dugas and LeBlanc No.1 well (API 170072027500) is the closet well with an open hole log shallow enough to see the base of the USDW, which is picked at 1,048 feet measured depth. The USDW will be updated for the lease once the stratigraphic and injection (Soleil No.1 and Ciel No.1) wells are drilled. The base of the USDW was picked from the open hole log of the Dugas and LeBlanc No.1 (API 170072027500) using the spontaneous potential and resistivity. The resistivity cutoff used was 1-ohm meter.

Non-Endangerment Demonstration Criteria

Prior to approval of the end of the post-injection phase, BKVerde will submit a demonstration of non-endangerment of USDWs to the UIC Program Director, per 40 CFR 146.93(b)(2) and (3).

The owner or operator will issue a report to the UIC Program Director. This report will demonstrate USDW non-endangerment by evaluating the site monitoring data in conjunction with the project's computational model. The report will detail how the non-endangerment demonstration evaluation uses site-specific conditions to confirm and demonstrate non-endangerment. The report will include all relevant monitoring data and interpretations upon which the non-endangerment demonstration is based, model documentation and all supporting data, and any other information necessary for the UIC Program Director to review the analysis. The report will include the following sections:

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Introduction and Overview

A summary of relevant background information will be provided, including the operational history of the injection project, the date of the non-endangerment demonstration relative to the post-injection period outlined in this PISC and Site Closure Plan, and a general overview of how monitoring and modeling results will be used together to support a demonstration of USDW non-endangerment.

Summary of Existing Monitoring Data

A summary of all previous monitoring data collected at the site, pursuant to the Testing and Monitoring Plan of this permit and this PISC and Site Closure Plan, including data collected during the injection and post-injection phases of the project, will be submitted to help demonstrate non-endangerment. Data submittals will be in a format acceptable to the UIC Program Director [40 CFR 146.91(e)]. They will include a narrative explanation of monitoring activities, including the dates of all monitoring events, changes to the monitoring program over time, and an explanation of all monitoring infrastructure at the site. Data will be compared with baseline data collected during site characterization [40 CFR 146.82(a)(6) and 146.87(d)(3)].

Summary of Computational Modeling History

The computational modeling results used for AoR delineation will be compared to monitoring data collected during the pre-injection, injection, and PISC phases. The data will include temperature, pressure, groundwater analysis, passive seismic, and geophysical surveys (i.e., logging, operation-phase VSP, and 3D surface seismic surveys as appropriate) used to inform and update the computational model and to monitor the site. Data generated during the PISC period will be used to demonstrate that the computational model accurately represents the storage site and can be used as a proxy to determine the plume's properties and size. BKVerde will demonstrate this degree of accuracy by comparing the monitoring data obtained during the PISC period against the model's predicted properties (i.e., plume location, rate of movement, and pressure decay). Statistical methods will correlate the data and confirm the model's ability to accurately represent the storage site. The validation of the computational model with the large volume of available data will be a significant element to support the non-endangerment demonstration. Additionally, utilizing directly collected data from the Soleil No.1 and Ciel No.1 will help to ensure confidence in the model. Any disagreement between monitoring and modeling results will be analyzed and resolved while any significant disagreement will be further investigated, analyzed, reported, and a solution will be provided.

A direct comparison between the observed injection interval pressure and the computational model predicted pressure will be informative to the reliability of the computational model. Direct observations will be utilized during each consecutive injection zones PISC period to verify that pressure observations at Soleil No.1 have declined in conformance with the model. Falloff pressure transient techniques will be used to estimate the post-injection pressure at the injection well, Ciel No.1, for all injection zones. Once the final injection zone has ceased injection operations, the Soleil No.1 will monitor the falloff pressure observations. Pressure decline within a predicted 115 days from cessation of injection indicates excellent lateral continuity within the regionally extensive Miocene reservoirs. The observed rapid decline of the injection interval pressure will help validate the computation model and show a substantial reduction in the potential of injection-pressure-induced brine or CO_2 migration.

Evaluation of Injection Interval Pressure

The operator will support a demonstration of non-endangerment to the USDW by showing that during the post-injection period, as well as in the PISC period, the injection interval pressure in the Miocene injection zones decreases to pre-injection pressure in 115 days. Since the injection pressure is the primary driving force for fluid movement that may endanger the USDW, the rapid decrease in injection interval pressure after injection will provide strong justification that the injectate does not pose a risk to the USDW.

The operator will monitor the downhole injection zone pressure at various locations and intervals using a combination of surface and downhole pressure gauges. The measured pressure at a specific depth will be compared against the pressure predicted by the computational model. Agreement between the actual and predicted pressures will help validate the model's accuracy and further demonstrate non-endangerment. Based on risk-based criteria in the PISC and Site Closure Plan, injection interval pressure decline toward pre-injection levels indicates USDW non-endangerment. The close alignment between the predicted and actual pressures will further validate the model's accuracy in representing the injection interval systems.

Evaluation of Carbon Dioxide Plume

The operator will use a combination of pulsed neutron logs (PNL), time-lapse VSP surveys, and other seismic methods to locate and track the extent of the CO_2 plume. Time-lapsed pulsed neutron logs will be compared against the computational model's predicted plume extent. Limited seismic surveying may be employed to determine the plume location at specific times. The data produced by these activities will be compared against the model using statistical methods to validate the model's ability to accurately represent the injection interval storage. Data from time-lapse 3D seismic surveys may be correlated against the computation model prediction.

Evaluation of Emergencies or Other Events

In addition to CO_2, mobilized fluids may pose a risk to USDWs. These include native fluids high in TDS, which may impair a USDW, and fluids containing mobilized drinking water contaminants (e.g., arsenic, mercury, and hydrogen sulfide). The geochemical data collected from monitoring wells will be used to demonstrate that no mobilized fluids have moved above the upper confining zone and, therefore, after the PISC period, would not pose a risk to USDW. To demonstrate non-endangerment, the operator will compare the operational and PISC period samples from layers above the permitted injection interval, including the lowermost USDW, against the pre-injection baseline samples. This comparison will support a demonstration that no significant changes in the fluid properties of the overlying formations have occurred and that no mobilized formation fluids have moved through the confining zone. The validation of confining zone integrity will help demonstrate that the injectate and or mobilized fluids would not represent an endangerment to any USDWs. PNLs and fluid sampling will be used to monitor the salinity of the injection interval fluids in the observation zone above the upper confining zone

(Upper Miocene shale). By comparing the time-lapse PNLs against the pre-injection baseline logs, the operator can monitor any changes in injection interval fluid salinity. PNLs indicating steady salinity levels within each zone would indicate no movement of fluids out of the storage unit, confirming the integrity of the well and seal formation.

One existing artificial penetration is located within the predicted AoR of the proposed Ciel No.1 injection well. This penetration, the C. Schexnayder etal. No. 1 (API 17005202650000) is located about 2,056 feet due north of the proposed Ciel No.1 proposed location. The C. Schexnayder etal. No. 1 (API 17005202650000) was drilled in 2006 as an exploration well which was a dry hole and was subsequently plugged and abandoned in 2007. The Schexnayder etal. No. 1 penetrates the entire proposed injection interval. The Schexnayder etal. No. 1 will be located within the CO_2 and pressure plumes created by injection activity into the Ciel No.1. Corrective action details are provided in this permit application as Attachment C: Area of Review and Corrective Action Plan. The information required to knowledgeably re-enter the C. Schexnayder etal. No. 1 (API 17005202650000) has been provided by public records located on Louisiana Department of Natural Resources (LDNR) (Office of Conservation) Oil & Gas Division SONRIS records and provided from the original operator's daily drilling reports. The C. Schexnayder etal. No. 1 (API 17005202650000) will be re-entered by the operator and completed such that the USDW will be protected by numerous physical barriers, including CO_2-resistant cement, a rigorous monitoring, reporting, and verification (MRV) protocol, and plug and abandonment operations performed while the Ciel No.1 is injecting into zones greater than 5,000 feet in depth below the USDW. Once the Ciel No.1 ceases injection into the 5,200 feet injection zone, the C. Schexnaydar No. 1 (API 17005202650000) will be plugged and abandoned as described in the AoR and Corrective Action Plan (Attachment C).

Site Closure Plan

BKVerde will conduct site closure activities to meet the requirements of 40 CFR 146.93(e) as described below. BKVerde will submit a final Site Closure Plan and notify the permitting agency at least 120 days prior to its intent to close the site. Once the permitting agency has approved the site closure, BKVerde will plug the monitoring wells and submit a site closure report to the EPA. As described below, the activities represent the planned activities based on information provided to EPA. The actual site closure plan may employ different methods and procedures. A final Site Closure Plan will be submitted to the UIC Program Director for approval with the notification of the intent to close the site.

Injection Well Ciel No.1 Plug and Abandonment (P&A) Details

Plug and abandonment plan details are presented in Attachment E on Injection Well Plugging Plan, 40 CFR 146.92(b) of this permit.

In-Zone Monitoring Well Soleil No.1 Plug and Abandonment Details

At the end of the post-injection-monitoring period, the IZM well Soleil No.1 will be plugged and abandoned. Figure 11 shows the IZM Well, Soliel No. 1, P&A schematic.

BKVerde will use the materials and methods noted in Table 7 to plug the in-zone monitoring well. The number and depth of the plug or plugs will depend on the final geology and downhole conditions of the well as assessed during construction. The number and depth of the plugs will depend on the well geometry and downhole conditions assessed during construction. The cement(s) formulated for plugging will be compatible with the CO_2 stream. The cement formulation and required certification documents will be submitted to the agency with the well-plugging plan. The owner or operator will report the wet density and retain duplicate samples of the cement used for each plug. All cement volumes will be calculated onsite.

The individual monitored injection zones will be plugged in pairs of four monitoring zones as the injection well is recompleted up hole. The formation pressure will be verified to have returned to the initial pressure using continuously monitored downhole pressure and temperature gauges. The well will then be recompleted in the next four monitoring zones in conjunction with the Ciel No.1, beginning CO_2 injection into the first of this sequence of four monitoring zones. The plugging of these zones will be a combination of injection fluid to swell the near-wellbore clays, followed by setting a CO_2-resistant cast iron bridge plug (CIBP) with 20 feet of CO_2-resistant cement on top of the CIBP.

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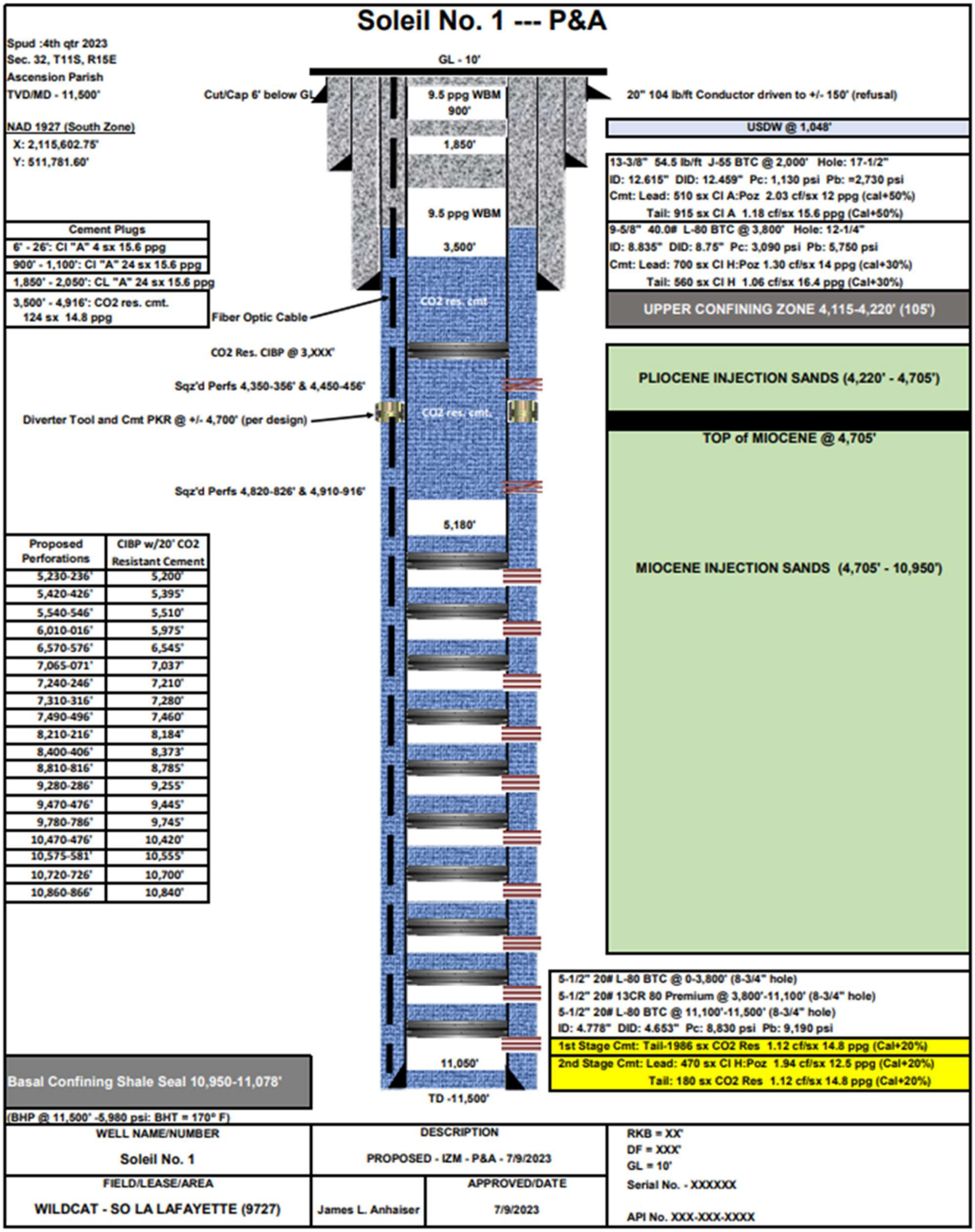

Figure 13. In-zone monitoring well Soleil No. 1 P&A schematic.

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Table 7. Soleil No.1 well plugging details.

Plug Information	**Plug 1 to Plug 20**	**Plug 21**	**Plug 22**	**Plug 23**	**Plug 24**	**Plug 25**
Diameter of boring in which plug will be placed (in)	4.778	4.778	4.778	4.778	4.778	4.778
Sacks of cement to be used for each plug (sk)	3 for each plug	37	23	21	21	5
Slurry volume to be pumped (ft^3)	3 for each plug	41.7	26.8	25	25	6.2
Slurry weight (lb/gal)	14.8	14.8	15.6	15.6	15.6	15.6
Calculated top of plug (ft)	20 ft on top of each CIBP	3915 (335 ft) on top of CIBP @ 4,250’	3700	1850	900	6
Bottom of plug (ft)	On top of each CIBP	On top of CIBP @ 4,250’	3915	2050	1100	56
Type of cement or other material	CO_2-resistant	Cor. Resistant CIBp @ 4,250’ with CO_2-resistant cement on top	Class A	Class A	Class A	Class A
Method of emplacement (e.g., balance method, retainer method, or two-plug method)	Balanced	Balanced	Balanced	Balanced	Balanced	Balanced

Soliel No.1 IZM well Plugging and Abandonment Procedure

During the serviceable life of the Soliel No. 1 well, the well will be plugged back and recompleted with numerous corrosion resistant cast iron bridge plugs (CIBP) with twenty feet of CO2 resistant cement placed on top of each cast iron bridge plug. These plugback recompletions will be accomplished utilizing an electric line unit and setting both the CIBP’s and CO2-resistant cement via electric line. The casing will then be pressure tested to 500 psig. However, at the end of the serviceable life of the Soliel No. 1, the well will be permanently plugged and abandoned. In summary, the plugging procedure will consist of removing all components of the completion system and placing cement plugs per design as approved and in accordance with state regulatory statutes. Prior to placing the cement plugs, casing inspection and temperature logs will be run to confirm external mechanical integrity. If a loss of integrity is discovered, a plan to repair it using the cement squeeze method will be prepared and submitted to the agency for review and approval. At the surface, the wellhead will be removed, and the casing will be cut off at least 6 feet below ground level. A detailed procedure follows:

1. **NOTE: Louisiana Administrative Code Title 43§XVII-137 (plugging and abandonment) & Louisiana Administrative Code Title 43§XVII-631 (specific to plugging and abandonment of Class VI wells) shall be followed. NOTIFY Regulatory Authority before commencing plug and abandonment operations.**
2. MIRU (Move-in-rig-up) Rig and plug and abandon equipment.
3. Check pressures. Bleed Off & Monitor. Determine kill weight brine fluid.
4. ND Tree. NU BOP's. Test BOPs to 250 psi/4,000 psi on chart and record.
5. Test tubing/casing annulus to 1,000 psig for 30 minutes on chart and record.
6. RU tubing encapsulated cable (TEC) spool.
7. PU on tubing to an overpull per design. Release retrievable hydraulic packer. Circulate clean.
8. POOH. LD (lay-down) packer while spooling up TEC. LD (lay-down) tubing.
9. Offload 2-7/8" 6.5 lb/ft work string (WS).
10. RIH w/bit, scraper and WS to 4,350'. Circulate clean. POOH. LD bit and scraper. Stand WS.
11. MIRU EL. Test lubricator 250 psi/2,500 psi. Make gauge ring trip to 4,400'. POOH.
12. PU External Mechanical Integrity Test (MIT) Tool. RIH to 4,400'. Log from 4,400' to 3,700'. POOH. LD MIT tool.
13. PU Pulsed Neutron Log (PNL) tool. RIH to 4,400'. Log from 4,400' to surface. LD PNL tool assembly.
14. PU segmented cement bond log tool. RIH to 4,400'. Log from 4,400' to surface. LD tool assembly.
15. RIH w/corrosion resistant cast iron bridge plug (CIBP). Set CIBP @ 4,250'. POOH.
16. Pressure test CIBP and casing to 500 psi on chart for 30 minutes and record.
17. RDMO EL.
18. RIH w/WS to top of CIBP @ 4,250'. Circulate clean.
19. Mix and pump 37 sx (42 cubic feet 14.8 ppg) CO_2 resistant balanced cement plug per design (3,915-4,250'). POOH. Stand 500' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
20. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 3,915'. Circulate clean.
21. Mix and pump 23 sx (27 cubic feet 15.6 ppg CL "A") balanced cement plug per design (3,700-3,915'). POOH. Stand 500' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
22. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 3,700'. Circulate clean.

23. Mix and pump 21 sx (25 cubic feet 15.6 ppg CL "A") balanced cement plug per design (1,850-2,050'). POOH. Stand 250' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
24. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 1,850'. Circulate clean.
25. Mix and pump 21 sx (25 cubic feet 15.6 ppg CL "A") balanced cement plug per design (900-1,100'). POOH. Stand 300' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
26. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 900'. Circulate clean.
27. Mix and pump 5 sx (6 cubic feet 15.6 ppg CL "A") balanced cement plug per design (6-56'). POOH. LD WS.
28. Clean cement equipment. Nipple Down BOP's.
29. Dig cellar 6' below ground level. Cut and remove wellhead and all strings of casing. Weld ½" plate with serial number and date to seal wellbore.
30. RDMO
31. Complete plugging forms and sent in with charts and all laboratory information to regulatory agency. Plugging report shall be certified as accurate by BKVerde and shall be submitted within 60 days after plugging is completed.

AZM Well Lune No.1 Plug and Abandonment Details

At the end of the post-injection-monitoring period, the AZM well Lune No.1 will be plugged and abandoned. Figure 14 shows the Lune No.1 well P&A schematic.

BKVerde will use the materials and methods noted in Table 8 to plug the above zone monitoring well, Lune No. 1. The number and depth of the plug or plugs will depend on the final geology and downhole conditions of the well as assessed during construction. The exact number and depth of plugs will depend on the well geometry and downhole conditions of the well as assessed during construction. During the construction of the Lune No.1 well, 25Cr casing and CO_2-resistant tail cement will cover the confining zone. Cement plugs above the confining zone will be Class A cement. The cement formulation and required certification documents will be submitted to the agency with the well-plugging plan. The owner or operator will report the wet

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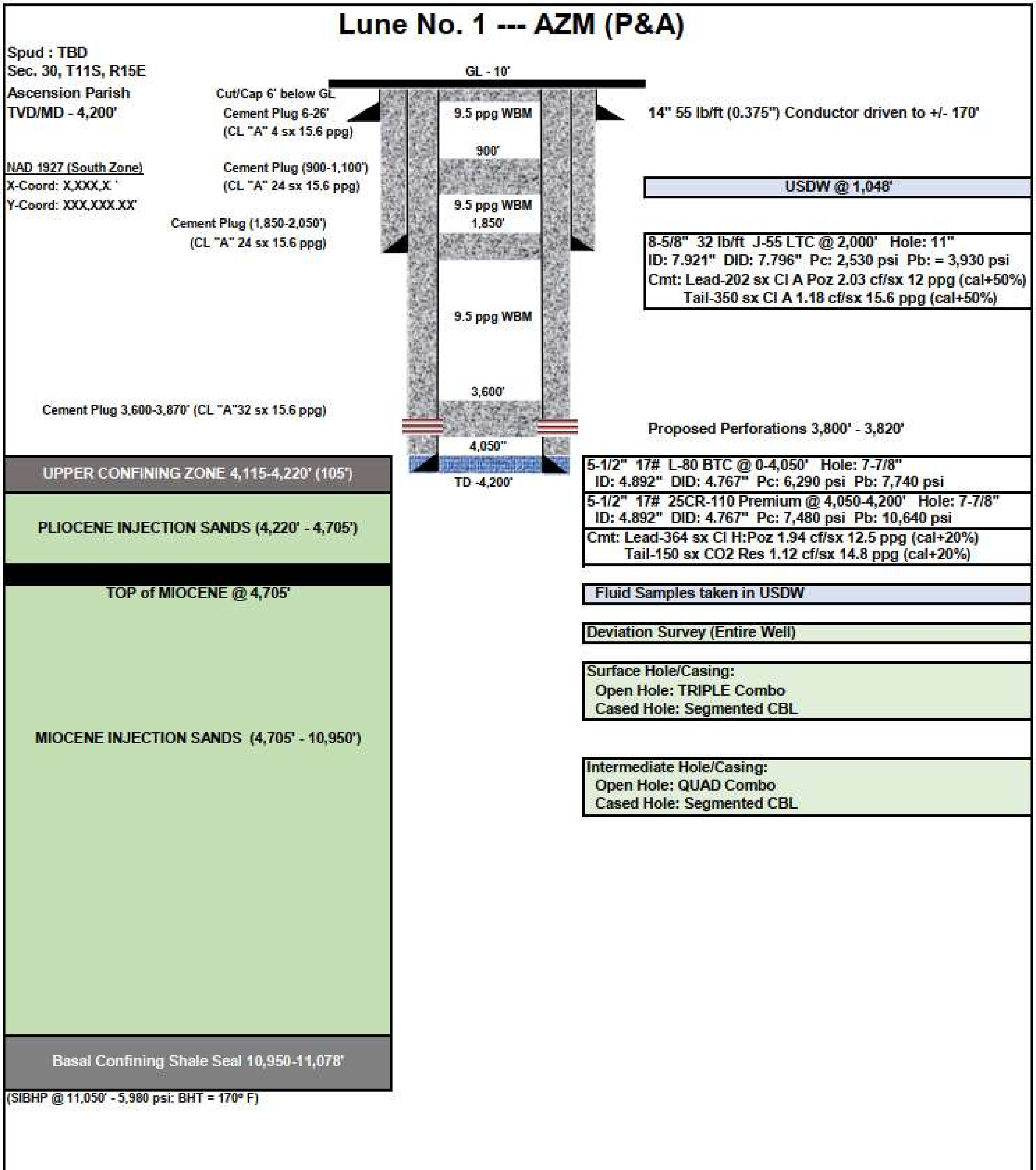
density and retain duplicate samples of the cement used for each plug. All cement volumes will be calculated onsite.



WELL NAME/NUMBER	DESCRIPTION		RKB = XX' DF = XXX' GL = 10' Serial No. - XXXXXX
Lune No. 1	PROPOSED - 7/09/2023		
FIELD/LEASE/AREA		APPROVED/DATE	
WILDCAT - SO LA LAFAYETTE (9727)	James L. Anhaiser	7/9/2023	API No. XXX-XXX-XXXX

Figure 14. Lune No. 1 well P&A schematic.

Table 8. Lune No.1 well plugging details.

Plug Information	Plug 1	Plug 2	Plug 3	Plug 4	Plug 5	Plug 6
Diameter of boring in which plug will be placed (in)	4.892	4.892	4.892	4.892	4.892	4.892
Sacks of cement to be used for each plug (sk)	18	16	24	22	22	6
Slurry volume to be pumped (ft^3)	20	18	29	26	26	7
Slurry weight (lb/gal)	14.8	14.8	15.6	15.6	15.6	15.6
Calculated top of plug (ft)	4,050	3,915	3,600	1,850	900	6
Bottom of plug (ft)	4,200	4,050	3,820	2,050	1,100	56
Type of cement or other material	CO_2-resistant	CO_2-resistant	Class A	Class A	Class A	Class A
Method of emplacement (e.g., balance method, retainer method, or two-plug method)	BalanceSet during initial completion	Balance	Balance	Balance	Balance	Balance

Lune No.1 Above-Zone Monitoring (AZM) Well Plugging and Abandonment Procedure

At the end of the serviceable life of the well, the well will be plugged and abandoned utilizing the following procedure:

1. **NOTE: Louisiana Administrative Code Title 43§XVII-137 (plugging and abandonment) & Louisiana Administrative Code Title 43§XVII-631 (specific to plugging and abandonment of Class VI wells) shall be followed. NOTIFY Regulatory Authority before commencing plug and abandonment operations. NOTE: all fluid volumes, sacks of cement, volume of cement slurry, tag depths are subject to change based on actual conditions during operations.**
2. MIRU (Move-in-rig-up) Rig and plug and abandon equipment.

3. Check pressures. Bleed Off & Monitor. Determine kill weight brine fluid.
4. ND (nipple-down) Tree. NU (nipple-up) BOP's (blowout preventors). Test BOPs to 250 psi/4,000 psi on chart and record.
5. Test tubing/casing annulus to 500 psi for 30 minutes on chart and record.
6. PU (pick-up) on tubing and release retrievable packer. Circulate clean.
7. POOH (pull-out-of-hole). LD (lay-down) packer. Stand tubing.
8. RIH (run-in-hole) w/bit, scraper and tubing to 4,050'. Circulate clean. POOH. LD bit and scraper. Stand tubing.
9. MIRU EL. Test lubricator 250 psi/2,500 psi. Make gauge ring trip to 4,050'. POOH.
10. PU External Mechanical Integrity Test (MIT) Tool. RIH to 4,050'. Log from 4,050' to 1,800'. POOH. LD MIT tool.
11. PU Pulsed Neutron Log (PNL) tool. RIH to 4,050'. Log from 4,400' to surface. LD PNL tool assembly.
12. PU segmented cement bond log tool. RIH to 4,050'. Log from 4,400' to surface. LD tool assembly.
13. RDMO EL.
14. RIH w/tubing to 4,050'. Circulate clean.
15. Mix and pump 16 sx (18 cubic feet 14.8 ppg) CO_2 resistant balanced cement plug per design (3,915-4,050'). POOH. Stand 250' of tubing. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
16. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with tubing. Tag top of cement plug at 3,915'. Circulate clean.
17. PU end of tubing to 3,820'. Mix and pump 24 sx (29 cubic feet 15.6 ppg CL "A") balanced cement plug per design (3,600-3,820'). POOH. Stand 400' of tubing. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
18. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with tubing. Tag top of cement plug at 3,600'. Circulate clean.
19. POOH. LD tubing until the end of tubing is at 2,050'. Circulate clean.
20. Mix and pump 22 sx (26 cubic feet 15.6 ppg CL "A") balanced cement plug per design (1,850-2,050'). POOH. Stand 250' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
21. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 1,850'. Circulate clean.
22. Mix and pump 22 sx (26 cubic feet 15.6 ppg CL "A") balanced cement plug per design (900-1,100'). POOH. Stand 300' of WS. Reverse circulate clean. Secure well and hold 500 psi on plug a minimum of 8 hours.
23. Pressure test casing to 500 psi for 30 minutes on chart and record. RIH with WS. Tag top of cement plug at 900'. Circulate clean.
24. Mix and pump 6 sx (7 cubic feet 15.6 ppg CL "A") balanced cement plug per design (6-56'). POOH. LD WS.
25. Clean cement equipment. Nipple Down BOP's.
26. Dig cellar 6' below ground level. Cut and remove wellhead and all strings of casing.
27. Weld ½" plate with serial number and date to seal wellbore.

28. RDMO Rig. Complete plugging forms and send in with charts and all laboratory information to regulatory agency. Plugging report shall be certified as accurate by BKVerde and shall be submitted within 60 days after plugging is completed.

Planned Remedial/Site Restoration Activities

To restore the site to its pre-injection condition following site closure, BKVerde will be guided by the state rules for plugging and abandonment of wells located on leased property under The Louisiana Administrative Code – Title 43 Natural Resources Part XIX. Office of Conservation --- General Operations Subpart 1. Statewide Order No. 29-B Chapter 1 €137 Louisiana.

The following steps will be taken:

1. The free liquid fraction of the plugging fluid waste, which may consist of produced water and/or crude oil, sand, drilling mud (oil-based mud or water-based mud), shall be removed from the tanks and disposed of in accordance with state and federal regulations (e.g., injection or in above ground tanks or containers pending offsite disposal) prior to restoration.

2. There will be no pits used in the construction of the wells included in this project.

3. All drilling and production equipment, machinery, and equipment debris shall be removed from the site.

4. Casing shall be cut off at least 6 feet below the plow depth, and a steel plate welded on the casing or a mushroomed cap of cement approximately 1 foot in thickness shall be placed over the casing so that the top of the cap is at least 6 feet below ground level.

5. Any drilling rat holes shall be filled with cement no higher than 6 feet below plow depth.

6. The wellsite and all excavations, holes, and pits shall be filled, and the surface leveled.

Site Closure Report

A site closure report will be prepared and submitted within 90 days following site closure, documenting the following:

- Plugging of the verification and geophysical wells (and the injection well if it has not previously been plugged).
- Location of sealed injection well on a plat of survey that has been submitted to the local zoning authority.
- Notifications to state and local authorities as required by 40 CFR 146.93(f)(2).
- Records regarding the nature, composition, and mass of the injected CO2, and post-injection monitoring records.

BKVerde will record a notation to the property's deed on which the injection well was located that will indicate the following:

- That the property was used for CO_2 sequestration.
- The name of the local agency to which a plat of survey with injection well location was submitted.
- The volume of fluid injected.
- The formation into which the fluid was injected.
- The period over which the injection occurred.

The site closure report will be submitted to the permitting agency and maintained by the operator for 10 years following site closure. Additionally, the operator will maintain the records collected during the PISC period for 10 years, after which these records will be delivered to the Director.