[redacted]

UIC CLASS VI GEOLOGIC STORAGE OF CO_2 PERMIT APPLICATION

Loving CCS Hub

[redacted]
Loving County, Texas

Section 9: Post-Injection Site Care and Site Closure Plan

[40 CFR §146.93]

Prepared for:

EPA Region 6

Underground Injection Control Section

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1 August 2024

Table of Contents

List of Tables

[redacted]

List of Figures

[redacted]

9.0 POST-INJECTION SITE CARE & SITE CLOSURE PLAN [40 CFR 146.82(a)(17),146.93(a)]

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

[redacted]

The maximum predicted well bottomhole injection pressure differential over the life of the project is [redacted] Additional information on the projected post-injection pressure declines and differentials is presented in the plume modeling and the Area of Review and Corrective Action Plan, **Section 2.**

9.2 CO_2 Plume and Associated Pressure Front at Site Closure [146.93 (a)(2)(ii)]

[redacted].

9.3 Post-Injection Monitoring Plan [40 CFR 146.93(a)(2)(iii)]

Performing groundwater quality monitoring and plume and pressure front tracking as described in the following sections during the post-injection phase will meet the requirements of 40 CFR 146.93(b)(1).

[redacted]

Groundwater monitoring will be conducted [redacted]

[redacted] A description of direct and indirect monitoring during the injection period is covered in permit **Section 6.**

A quality assurance and surveillance plan (QASP) for all testing and monitoring activities during the injection and post injection phases is provided in permit **Section 13 Appendix C** to the Testing and Monitoring Plan.

[redacted]

9.4 Monitoring Above Confining Zone [40 CFR 146.93(a)(2)(iii)]

9.4.1 Ground Water Testing Frequency

Tables 9-1 and **9-2** present the [redacted].

As noted in permit **Section 6,** [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

9.4.2 Ground Water Testing Matrix

[redacted]

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted]

9.4.3 Sampling and Analytical Methods

Fluid samples [redacted]

[redacted]

[redacted]

9.4.4 Laboratory Chain of Custody Procedures

Water samples [redacted]

9.4.5 Quality Assurance and Surveillance Measures [40 CFR 146.90(k)]

Water samples [redacted]

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

9.5.1 Direct and Indirect Monitoring of Plume and Pressure

Milestone will employ direct and indirect methods to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure. [redacted]

Direct methods that Milestone will employ [redacted]

[redacted]

[redacted]

9.5.2 Plume Predictions at Various Time Stamps

Predicted plume geometry relative to the [redacted]

[redacted]

[redacted]

9.5.3 Pressure and Phase Predictions

Predicted pressure profiles at the surface and bottomhole pressure [redacted]

[redacted]

[redacted]

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

Results of the latest monitoring data will be submitted annually within 60 days of the anniversary date of the cessation of injection. Any amendments to the post site injection care and monitoring plan will [redacted]

9.7 Post Injection Site Care Mechanical Integrity Testing

[redacted]

[redacted]

In conducting and evaluating the tests enumerated in this section or others to be allowed by the UIC Director, Milestone will apply methods and standards generally accepted in the industry. When Milestone reports the results of mechanical integrity tests to the Director, it will include a description of the test(s) and the method(s) used when making evaluations per 40 CFR 146.89(f).

9.8 Duration of Post Site Injection Care and Alternative Post-Injection Site Care Timeframe [40 CFR 146.93(a)(2)(v)]

[redacted]

9.9 Non-Endangerment Demonstration Criteria [40 CFR 146.93(b)]

[redacted]

9.9.1 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.

9.9.2 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), and 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 that has existed 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).

9.9.3 Computational Modeling Calibration and Validation

A series of data sources detailed in **Section 6** will be used to update the computational model [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

9.9.4 Evaluation of Reservoir Pressure

The extent of the pressure front will be evaluated [redacted]

9.9.5 Evaluation of Carbon Dioxide Plume

Remote sensing techniques detailed in **Section 6** will be used to monitor [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

9.9.6 Evaluation of Emergencies or Other Events

Water testing noted will be used to demonstrate that USDWs [redacted]

[redacted]

9.10 Site Closure Plan [146.93 (d) – (h)]

Milestone will conduct site closure activities to meet the requirements of 40 CFR 146.93(e) as described herein. Milestone will submit a final Site Closure Plan and notify the permitting agency at

[redacted]

9.10.1 Plugging Monitoring Well(s)

Plugging of the injection well will be completed in accordance with procedures in **Section 8**. [redacted]

[redacted]

9.10.2 Plugging the In Zone Monitoring Well

Notification, regulatory and plugging procedures will include:

9.10.2.1 Pre-Plugging Activities

[redacted]

9.10.2.2 Plugging Activities

[redacted]

[redacted]

[redacted]

9.10.3 Plugging the In Underground Source of Drinking Water (USDW) Monitoring Wells

Notification, regulatory and plugging procedures will include:

9.10.3.1 Pre-Plugging Activities

1) In compliance with 40 CFR 146.92(c), notify the regulatory agency at least 60 days before plugging the well and provide updated plugging plan, if applicable.
2) External mechanical integrity will be demonstrated with temperature, noise or oxygen activation logging.
3) Casing inspection and cement bond logs will be performed prior to plugging. Log evaluation will determine if revision to the plugging procedure is necessary.

9.10.3.2 Plugging Activities

[redacted]

9.10.3.3 Plug Information

[redacted]

[redacted]

9.10.4 Plugging the Near Surface Seismometer-Water (NSSW) Wells

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

9.10.5 Planned Remedial/Site Restoration Activities [146.93 (a)]

To restore the site to its pre-injection condition following site closure, Milestone will be guided by the State rules for plug and abandonment of wells located on leased property under TCEQ Regulatory Guidance, Texas Groundwater Protection Committee, RG-347, Rev. April 2021, "Landowner's Guide to Plugging and Abandoned Wells."

The following steps will be taken:

1) [redacted]

9.10.6 Site Closure Report [146.93(a)(2)(iii)]

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

- [redacted]

Milestone will record a notation to the property's deed [redacted]

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

9.11 Quality Assurance and Surveillance Plan (QASP)

The primary goal of the testing and monitoring plan (**Section 6**) of this storage facility permit application is to ensure that the geologic storage project is operating as permitted and is not endangering USDWs. In compliance with applicable Texas statewide rules regarding Testing and Monitoring Requirements, this quality assurance and surveillance plan (QASP) – **Section 13 Appendix C** was developed and is provided as part of the testing and monitoring plan.

Permit **Section 13 Appendix C** reflects Milestone's Quality Assurance Surveillance Plan (QASP) for testing and monitoring activities is pursuant to the requirements listed in 40 CFR §146.90(k), 146.93(c)(2)(i) and §146.93(c)(2)(vii) addressed in detail in Milestone permit application **Sections 6** and **9.** This performance-based plan sets forth the procedures and guidelines the Environmental Protection Agency (EPA) will use in evaluating the technical performance of Milestone. The operating plans for the proposed Well will include a robust testing and monitoring program. Milestone will report the results of all testing and monitoring activities to EPA in compliance with the requirements under 40 CFR 146.91.