

TESTING AND MONITORING PLAN SUMMARY

40 CFR 146.92(c)

Sutter CCUS, LLC

1.0 Facility Information

Facility name: Sutter Energy Center
CCS 1 Well
CCS 2 Well
CCS 3 Well

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Well location: Robbins, Sutter County, CA



The Testing and Monitoring Plan describes how Sutter CCUS, LLC will monitor the Sutter Decarbonization Project Site pursuant to 40 CFR 146.90. In addition to demonstrating that the well is operating as planned, the carbon dioxide plume and pressure front are moving as predicted, and that there is no endangerment to USDWs, the monitoring data will be used to validate and adjust the geological models used to predict the distribution of the CO₂ within the storage zone to support AoR reevaluations and a non-endangerment demonstration.

Results of the testing and monitoring activities described below may trigger action according to the Emergency and Remedial Response Plan.

2.0 Overall Strategy and Approach for Testing and Monitoring

This project proposes development of three lateral CO₂ injection wells in Sutter County, California. Figure 1 provides a plan view of the Area of Review (AoR). The AoR and Corrective Action Plan discuss the technical basis for determination of the AoR and how monitoring data will be used to re-evaluate the AoR during the injection phases of the project [40 CFR 146.84 (e)]. Data from characterization of existing wells (more than 80) in the proximity of the proposed site were used to develop the static earth model (SEM) and perform multi-phase flow modeling (See Narrative). The results of the modeling and simulations are the basis for determining the AoR and these were used to develop the Testing and Monitoring Plan. An additional stratigraphic test well is planned to the south of the proposed injectors (CarbonSAFE Phase II). The AoR as well as the Testing and Monitoring Plan will be re-evaluated upon completion and testing of this well if new data obtained from the wells significantly change model predictions and the delineated AoR. This would also trigger development of a modified Testing and Monitoring Plan. Furthermore,

additional data from drilling and testing of the injection wells may further trigger AoR re-evaluation and modifications to the Testing and Monitoring Plan. All such modifications will be made in consultation with and approval of the UIC Program Director.

The monitoring program is designed to detect unforeseen CO₂ and/or brine leakage out of the injection zone that could endanger the USDW, migrate to a different stratum, or create a risk for people or the environment. The monitoring program is tailored to track the migration of the CO₂ plume and development of the pressure front to validate the simulation models used to effectively delineate the AoR. There are several components to the monitoring plan, which are integrated for optimal use of resources and greatest understanding. They are classified in the following categories:

- CO₂ stream analysis
- Continuous recording of operational parameters
- Corrosion monitoring and leak detection
- Above confining zone monitoring
- External mechanical integrity testing
- Pressure fall-off testing
- CO₂ plume and pressure front tracking

The tools and techniques proposed to monitor the surface and downhole operation conditions of the wells along with the quality of the CO₂ being injected are included in the project Testing and Monitoring Plan document of the permit submitted in Confidential Business Information form.