PRE-OPERATIONS TESTING PLAN, APPENDIX B: BASELINE REPORT

Brown Pelican CO_2 Sequestration Project

1.0 Facility Information

Facility name: Brown Pelican CO_2 Sequestration Project
BRP CCS1, CCS2, and CCS3 Wells

Facility contact: [redacted]

Well location: Penwell, Texas

BRP CCS1	31.76481926	-102.72891895
BRP CCS2	31.76994887	-102.73320589
BRP CCS3	31.76024766	-102.71013484

2.0 Overview of Pre-Injection Baseline Activities

This report describes the pre-injection activities conducted by Oxy Low Carbon Ventures, LLC (OLCV) in support of the Brown Pelican CO_2 Sequestration Project (BRP Project or Project) and includes the following key results and conclusions: drilling, logging, and testing Project wells; baseline data collection; updated site characterization; and corrective actions performed. The activities described in this report were conducted between January 2024 – March 2025. Supplemental updates may be provided, if needed, prior to the commencement of CO_2 injection. Future updates to baseline data will be provided in the first bi-annual report following the commencement of CO_2 injection.

2.1 Wells Drilled

OLCV drilled 11 wells to conduct dedicated BRP Project operations.

- In 2023, OLCV drilled two stratigraphic test wells, Shoe Bar 1 and Shoe Bar 1AZ, to provide site-specific characterization data. In early 2025, these two wells were converted to monitoring wells for the purpose of confirming integrity of the Upper Confining Zone during the Injection Period.
- During December 2023 – January 2024, OLCV drilled the USDW1 monitoring well to collect data on the Santa Rosa member of the Dockum group, which is the lowermost Underground Source of Drinking Water (USDW) and the first permeable zone above the Confining Zone at the Project site. The data from the UDSW1 well is used to establish baseline geochemistry of fluids and dissolved gases and will be used for monitoring throughout the Injection Period and into the Post-Injection Site Care Period (PISC).

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- During March – May 2024, OLCV drilled four withdrawal wells to produce brine from the Injection Zone. The primary purpose is to de-pressurize the Injection Zone and support lateral confinement of the Area of Review (AoR). As a secondary purpose, the withdrawal wells will be used to monitor pressure, temperature and geochemistry of fluids and dissolved gases in the Injection Zone. The withdrawal wells are anticipated to be operational throughout the Injection Period.

- OLCV commenced drilling the BRP CCS3 in September 2024, followed by the BRP CCS2 in October 2024, BRP CCS1 in November 2024, and SLR2 in December 2024. The BRP CCS1, BRP CCS2, and BRP CCS3 wells were drilled pursuant to authorization from the Railroad Commission of Texas (RRC) and constructed to UIC Class VI standards. Once permitted, these three wells will serve as UIC Class VI injection wells. The SLR2 well was constructed for the purpose of monitoring pressure, temperature, and geochemistry of fluids and dissolved gases in the Injection Zone. The SLR2 is expected to be used for data collection during the Injection Period and into the PISC.

One additional well, the SLR3 monitoring well, is planned to be constructed for the Project approximately five years after the commencement of CO_2 injection. The drilling timing and location of this well will be refined based on data collected in the early part of the Injection Period.

Table 1. Wells drilled for the BRP Project.

API or State well number	Project Well Name	Regulatory Well Name	Purpose	Drill Date	Anticipated Plug Date	Latitude (NAD 27)	Longitude (NAD 27)
4213544040	BRP CCS1	Shoe Bar Ranch 1CS	CO_2 injector	2024	End of Injection Period	31.76481926	-102.72891895
4213544041	BRP CCS2	Shoe Bar Ranch 2CS	CO_2 injector	2024	End of Injection Period	31.76994887	-102.73320589
4213544062	BRP CCS3	Shoe Bar Ranch 3CS	CO_2 injector	2024	End of Injection Period	31.76024766	-102.71013484
4213544065	SLR2	Shoe Bar Ranch 2SL	Injection Zone monitor	2025	~20 years post Injection Period	31.74657954	-102.72586378
4213543920	SLR1 or Shoe Bar 1	Shoe Bar Ranch 1	Stratigraphic test, Confining Zone monitor	2023	2024[1] and ~10 years post Injection Period	31.76343592	-102.70349808
4213543977	ACZ1 or Shoe Bar 1AZ	Shoe Bar Ranch 1AZ	Stratigraphic test, Confining Zone monitor	2023	2024[1] and ~10 years post Injection Period	31.76448867	-102.73053251
657173	USDW1	Shoe Bar Monitor Well #1	USDW monitor	2024	~20 years post Injection Period	31.76411900	-102.7316750
4213544035	WW1	Shoe Bar Ranch 1WW	Brine withdrawal, Injection Zone monitor	2024	End of Injection Period	31.76289537	-102.69592320

API or State well number	Project Well Name	Regulatory Well Name	Purpose	Drill Date	Anticipated Plug Date	Latitude (NAD 27)	Longitude (NAD 27)
4213544036	WW2	Shoe Bar Ranch 2WW	Brine withdrawal, Injection Zone monitor	2024	After ~seven years of injection[2] End of Injection Period	31.78419970	-102.72758691
4213544037	WW3	Shoe Bar Ranch 3WW	Brine withdrawal, Injection Zone monitor	2024	End of Injection Period	31.75008559	-102.71022070
4213544034	WW4	Shoe Bar Ranch 4WW	Brine withdrawal, Injection Zone monitor	2024	End of Injection Period	31.76384466	-102.75395043
NA	SLR3	Shoe Bar Ranch 3SL	Injection Zone monitor	~2030; ~5 years after commenceme nt of CO_2 injection	~10 years post Injection Period	31.78023685	-102.7418093

[1]conversion from stratigraphic test well to monitor well

[2]plugging of Holt

2.2 Pre-Injection Activities Conducted

In addition to drilling, logging, and testing wells, OLCV conducted activities to characterize the near-surface and subsurface of the BRP Project site. These activities provide a pre-injection baseline and form the basis for future monitoring during the Injection and PISC periods.

- OLCV characterized the geochemistry of fluids and dissolved gases in the lowermost USDW and in the Injection Zone. Sampling was conducted during construction of 11 wells. OLCV obtained repeat samples in five of the wells (USDW1, WW1, WW2, WW3, and WW4) to characterize variations during the pre-injection period. Repeat samples will be collected in the SLR2 prior to commencement of CO_2 injection operations.

- In July – August 2024, OLCV installed 20 stations in and around the Project AoR to collect baseline and monitoring information on chemistry of the soil and soil gases. Stations are sampled on approximately a quarterly basis.

- In July 2024, OLCV installed five passive seismometers to measure and monitor for seismicity in and around the Project AoR. These seismometers are continuously monitoring the Project site.

- In July 2024, OLCV installed 11 corner reflectors to serve as fixed markers for calibrating Differential Interferometric Synthetic Aperture Radar (DInSAR) data. Global Positioning System (GPS) data collected from the corner reflectors help to further calibrate the DInSAR data.

2.3 Summary of Plan Updates [40 CFR 146.82(c)(9)]

OLCV constructed and evaluated the BRP CCS1, BRP CCS2, and BRP CCS3 according to the Construction Plan and the Pre-Operations Plan submitted as part of the UIC Class VI application for this Project. OLCV evaluated log, core, and testing data from the recently constructed wells and compared the results to other Project wells. OLCV concluded that the data were in agreement with data collected in the Shoe Bar 1 and Shoe Bar 1AZ and that no updates to the geocellular model were required. OLCV integrated injectivity test data and fracture pressure data into the dynamic simulation model to update operational parameters. The updated dynamic simulation model did not result in a re-delineation of the Area of Review (AoR). After finalizing operational plans and the facilities design, minor updates were made to the Testing and Monitoring Plan and Quality Assurance and Surveillance Plan (QASP). The table below summarizes the significant plan updates.

Table 2. Plan updates.

Plan	Description of Updates
Narrative	Updated to reflect as-constructed drilling procedure and schematics
Operations Plan	Operational limits were updated based on logging and testing in BRP CCS1, BRP CCS2, and BRP CCS
Area of Review and Corrective Action Plan	No updates
Testing and Monitoring Plan	Minor updates, including duration of baseline testing in the SLR2, installation of a U-tube in the SLR2, change in completion for SLR1 and ACZ1, and placement of on-line gas analyzers / chromatograph for the CO_2 injectate stream
Quality Assurance and Surveillance Plan	Selection of laboratories for fluid analyses resulted in minor changes to analytical methods
Plugging Plan	Updated to reflect as-drilled and as-completed well configurations
Post-Injection Site Care and Site Closure Plan	No updates
Emergency and Remedial Response Plan	No updates
Construction Plan	Updated to reflect the as-constructed wells
Financial Assurance Plan	No updates
Stimulation Plan	No updates
Environmental Justice and Community Benefits	No updates
Pre-Operations Plan	Updates including results and data integration of BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 is provided in this document.

3.0 Final Injection Well Construction Procedures [40 CFR 146.82(c)(5)]

3.1 UIC Class VI Injector: BRP CCS1 (API 4213544040)

3.1.1 Casing and Cement

The BRP CCS1 well was constructed in accordance with the Construction Plan that was submitted as part of the UIC Class VI application with no changes. The well includes three main casing sections: 1) surface casing to cover the USDW and provide integrity while drilling to the Injection Zone, 2) intermediate section, and 3) a long string section to acquire formation data and isolate the target formation while running the upper completion equipment.

The wellbore diagram is shown below.

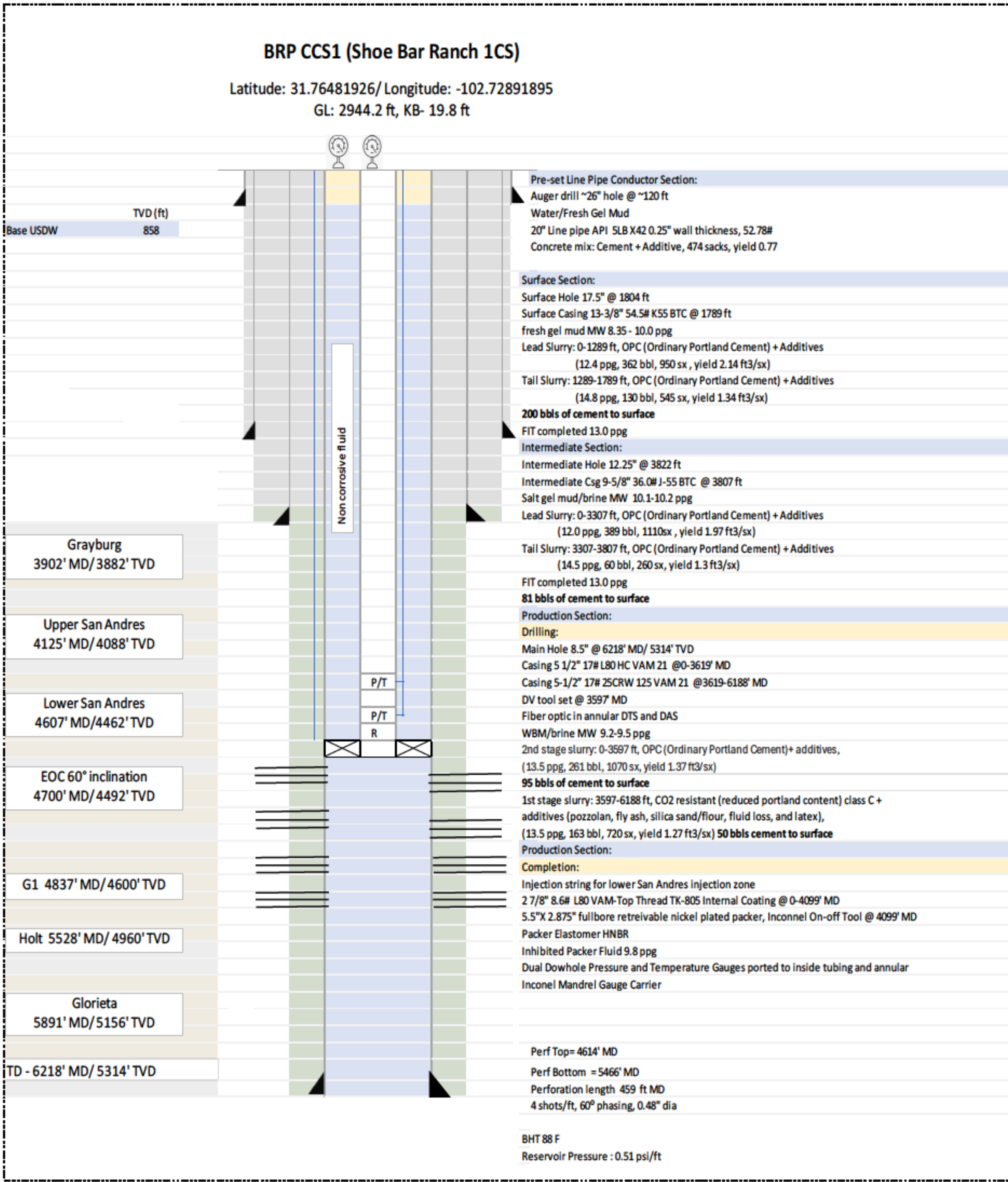

Figure 1. As-built wellbore diagram for BRP CCS1.

The tables below list the casing and cementing details.

Table 3. BRP CCS1 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0 to 120	26	20	19.5	19.25	52.78	5LB X42	weld
Surface string	0 to 1,789	17-1/2	13-3/8	12.615	12.459	54.5	J-55	BTC
Intermediate string	0 to 3,807	12-1/4	9-5/8	8.921	8.765	36	J-55	BTC
Long string	0 to 3,619	8-1/2	5-1/2	4.892	4.767	17	L80	Vam 21
Long string	3,619 to 6,188	8-1/2	5-1/2	4.892	4.767	17	SM25CRW -125	Vam 21

Notes:

- A stage tool was placed at 3,597 ft in the 5-1/2-in. casing to perform the two-stage cement job.
- The centralization program aimed at 70-90% standoff and will be adjusted using the field data for deviation, caliper, and hole conditions.
- DTS/DAS fiber optic cable was installed alongside the casing. Special clamps, bands, and centralizers were installed to protect the fiber and provide a marker for wireline operations.

Table 4. BRP CCS1 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete blend	0 to 120	-	474	100%
17-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,289	12.4	950	125%
	OPC (Ordinary Portland Cement) with additives	1,289 to 1,789	14.8	545	100%
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 3,307	12.0	1,110	225%
	OPC (Ordinary Portland Cement) with additives	3,307 to 3,807	14.5	260	100%
8-1/2 -in.	OPC (Ordinary Portland Cement) with additives	0 to 3,597	13.5	1,070	50%
	CO_2-resistant (reduced Portland content) Class C, with additives (pozzolan, fly ash, silica sand/flour, fluid loss, and latex)	3,597 to 6,188	13.5	720	50%

3.1.2 Tubing and Packer

The as-built tubing and packer details are listed below. The tubing and packers were installed as planned and in accordance with the Construction Plan that was submitted as part of the BRP Project UIC Class VI application.

Table 5. BRP CCS1 tubing and packer details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-805) tubing	0 to 4,099	2-7/8	2.441	2.347	8.6	L80	VAM-TOP	15,000	15,310	95
Nickel Plated Packer with HBNR (RGD) Elastomers)	4,099 to 4,106	4-5/8	2.38	2.347	-	P-110 (Nickel plated)	VAM-TOP	8,000	-	-

Notes:

- Pressure and temperature gauges are external tubing-deployed and ported to the tubing and casing. Cable material is Inconel®, and gauge carriers are made by CO_2-resistant material.
- The internal diameter of the tubing will be slightly reduced due to the TK-805 internal coating.
- The annular space between the 2 7/8-in. tubing and 5 1/2-in. casing is filled with packer fluid.

3.2 UIC Class VI Injector: BRP CCS2 (API 4213544041)

The BRP CCS2 well was constructed in accordance with the Construction Plan that was submitted as part of the BRP Project UIC Class VI application with no changes. The well includes three main casing sections: 1) surface casing to cover the USDW and provide integrity while drilling to the Injection Zone, 2) intermediate section, and 3) a long string section to acquire formation data and isolate the target formation while running the upper completion equipment.

The wellbore diagram is shown below.

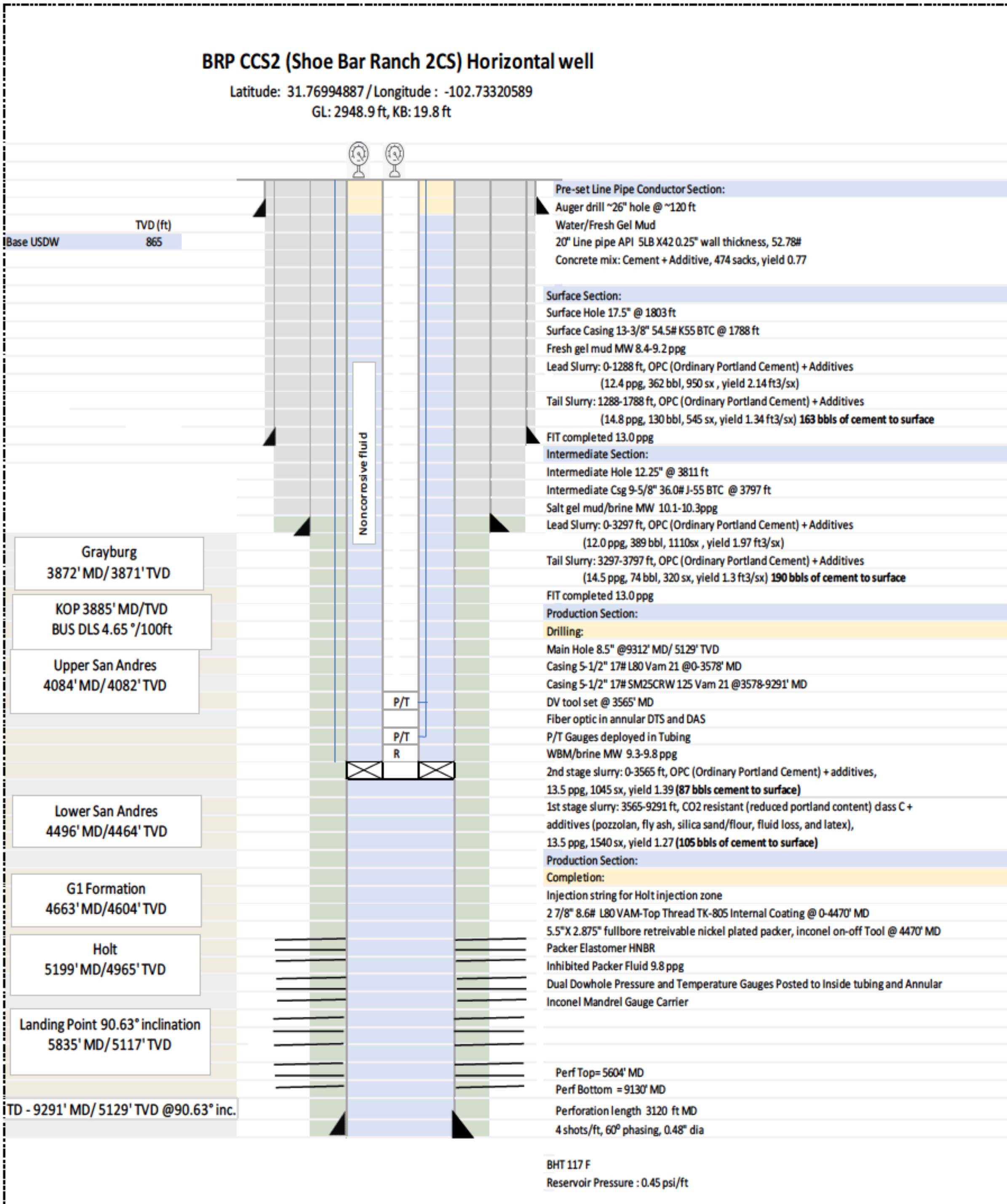

Figure 2. As-built wellbore diagram for BRP CCS2.

3.2.1 Casing and Cement

Table 6. BRP CCS2 casing details.

Name	Depth Interval (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling
Pre-set conductor	0 to 120	26	20	19.5	19.25	52.78	5LB X42	weld
Surface string	0 to 1,788	17-1/2	13-3/8	12.615	12.459	54.5	J-55	BTC
Intermediate string	0 to 3,797	12-1/4	9-5/8	8.921	8.765	36	J-55	BTC
Long string	0 to 3,578	8-1/2	5-1/2	4.892	4.767	17	L80	Vam 21
Long string	3,578 to 9,291	8-1/2	5-1/2	4.892	4.767	17	SM25CRW-125	Vam 21

Notes:

- A stage tool was placed at 3,565 ft in the 5-1/2-in. casing to perform the two-stage cement job.
- The centralization program will aim at 70- 90% standoff and will be adjusted using the field data for deviation, caliper, and hole conditions.
- DTS/DAS fiber optic cable was installed alongside the casing. Special clamps, bands, and centralizers were installed to protect the fiber and provide a marker for wireline operations.

Table 7. BRP CCS2 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete blend	0 to 120	-	474	100%
17-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,288	12.4	950	125%
	OPC (Ordinary Portland Cement) with additives	1,288 to 1,788	14.8	545	100%
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 3,297	12.0	1,110	225%
	OPC (Ordinary Portland Cement) with additives	3,297 to 3,797	14.5	320	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 3,565	13.5	1,045	50%
	CO_2-resistant (reduced Portland content) class C, with additives (pozzolan, fly ash, silica sand/flour, fluid loss, and latex)	3,565 to 9,260	13.5	1,540	50%

3.2.2 Tubing and Packer

The as-built tubing and packer details are listed below. The tubing and packers were installed as planned and in accordance with the Construction Plan that was submitted as part of the BRP Project UIC Class VI application.

Table 8. BRP CCS2 tubing and packer details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-805) tubing	0 to 4,470	2-7/8	2.441	2.347	8.6	L80	VAM-TOP	15,000	15,310	95
Nickel Plated Packer with HBNR (RGD) Elastomers)	4,470 to 4,478	4-5/8	2.38	2.347	-	P-110 (Nickel plated)	VAM-TOP	8,000	-	-

Notes:

- Pressure and temperature gauges are external tubing-deployed and ported to the tubing and casing. Cable material is Inconel®, and gauge carriers are made by CO_2-resistant material.
- The internal diameter of the tubing will be slightly reduced due to the TK-805 internal coating.
- The annular space between the 2 7/8-in. tubing and 5 1/2-in. casing is filled with packer fluid.

3.3 UIC Class VI Injector: BRP CCS3 (API 4213544062)

The BRP CCS3 well was constructed in accordance with the Construction Plan that was submitted as part of the BRP Project UIC Class VI application, and there were no changes. The well includes three main casing sections: 1) surface casing to cover the USDW and provide integrity while drilling to the Injection Zone, 2) intermediate section, and 3) a long string section to acquire formation data and isolate the target formation while running the upper completion equipment.

The wellbore diagram is shown below.

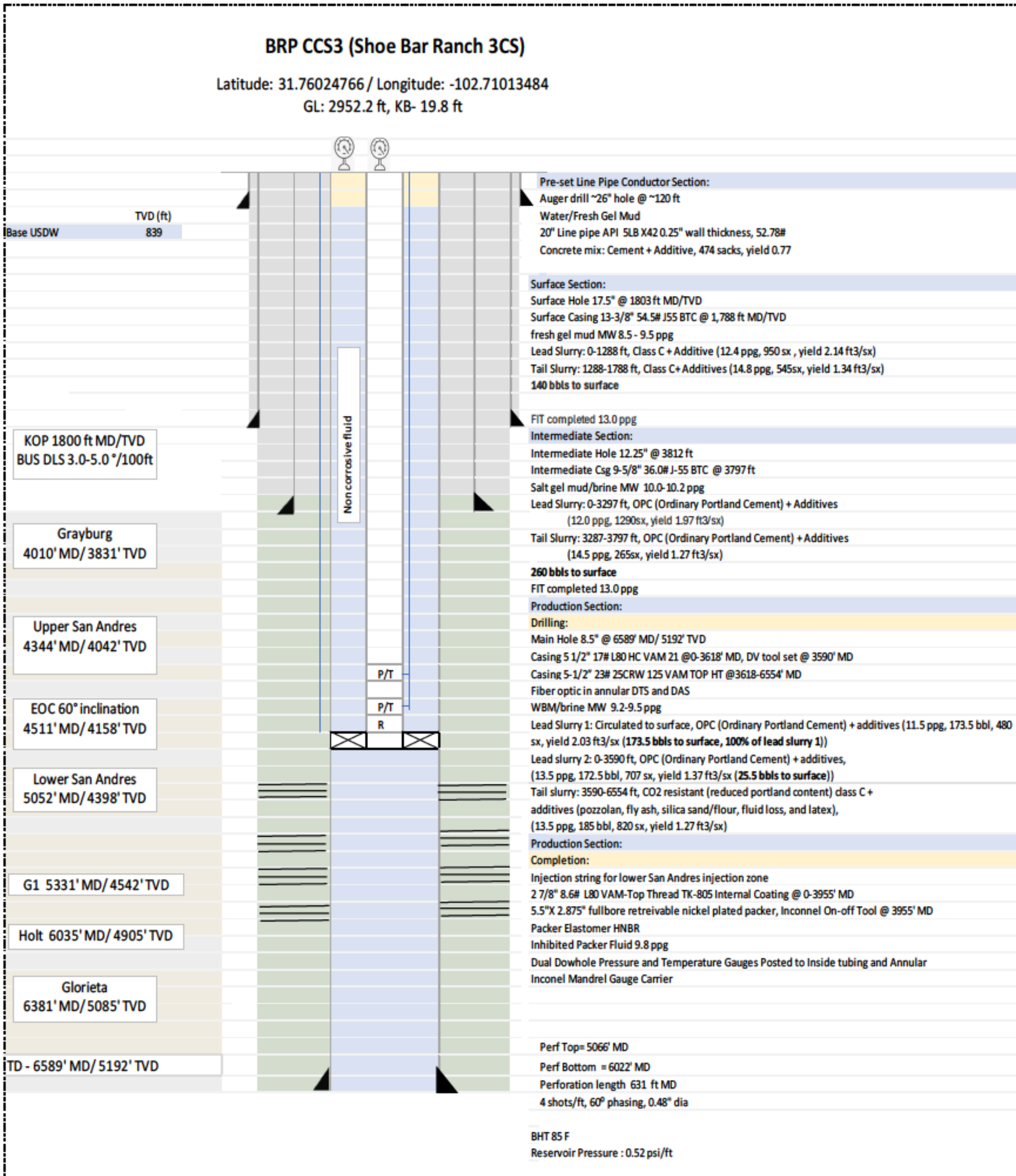

Figure 3. As-built wellbore diagram for BRP CCS3.

3.3.1 Casing and Cement

Table 9. BRP CCS3 casing details.

Name	Depth Interval (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling
Pre-set conductor	0 to 120	26	20	19.5	19.25	52.78	5LB X42	weld
Surface string	0 to 1,788	17-1/2	13-3/8	12.615	12.459	54.5	J-55	BTC
Intermediate string	0 to 3,797	12-1/4	9-5/8	8.921	8.765	36	J-55	BTC
Long string	0 to 3,618	8-1/2	5-1/2	4.892	4.767	17	L80	Vam 21 HT
Long string	3,618 to 6,554	8-1/2	5-1/2	4.67	4.545	23	SM25CRW-125	Vam TOP HT

Notes:

- A stage tool was placed at 3,590 ft in the 5-1/2-in. casing to perform the two-stage cement job.
- The centralization program will aim at 70- 90% standoff and will be adjusted using the field data for deviation, caliper, and hole conditions.
- DTS/DAS fiber optic cable was installed alongside the casing. Special clamps, bands, and centralizers were installed to protect the fiber and provide a marker for wireline operations.

Table 10. BRP CCS3 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete blend	0 to 120	-	474	100 %
17-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,288	12.4	950	125%
	OPC (Ordinary Portland Cement) with additives	1,288 to 1,788	14.8	545	100%
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 3,297	12.0	1290	225%
	OPC (Ordinary Portland Cement) with additives	3,297 to 3,797	14.5	265	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0	11.5	480	0%
	OPC (Ordinary Portland Cement) with additives	0 to 3,590	13.5	707	0%
	CO_2-resistant (reduced Portland content) class C, with additives (pozzolan, fly ash, silica sand/flour, fluid loss, and latex)	3,590 to 6,554	13.5	820	50%

3.3.1 Tubing and Packer

The as-built tubing and packer details are listed below. The tubing and packers were installed as planned and in accordance with the Construction Plan that was submitted as part of the BRP Project UIC Class VI application.

Table 11. BRP CCS3 tubing and packer details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-805) tubing	0 to 3,955	2-7/8	2.441	2.347	8.6	L80	VAM-TOP	15,000	15,310	95
Nickel Plated Packer with HBNR (RGD) Elastomers)	3,955-3,963	4-5/8	2.38	2.347	-	P-110 (Nickel plated)	VAM-TOP	8,000	-	-

Notes:

- Pressure and temperature gauges are external tubing-deployed and ported to the tubing and casing. Cable material is Inconel®, and gauge carriers are made by CO_2-resistant material.
- The internal diameter of the tubing will be slightly reduced due to the TK-805 internal coating.
- The annular space between the 2 7/8-in. tubing and 5 1/2-in. casing is filled with packer fluid.

3.4 Monitoring and Service Wells

3.4.1 Injection Zone Monitoring Well: SLR2 (API 4213544065)

The wellbore diagram for SLR 2 is shown below.

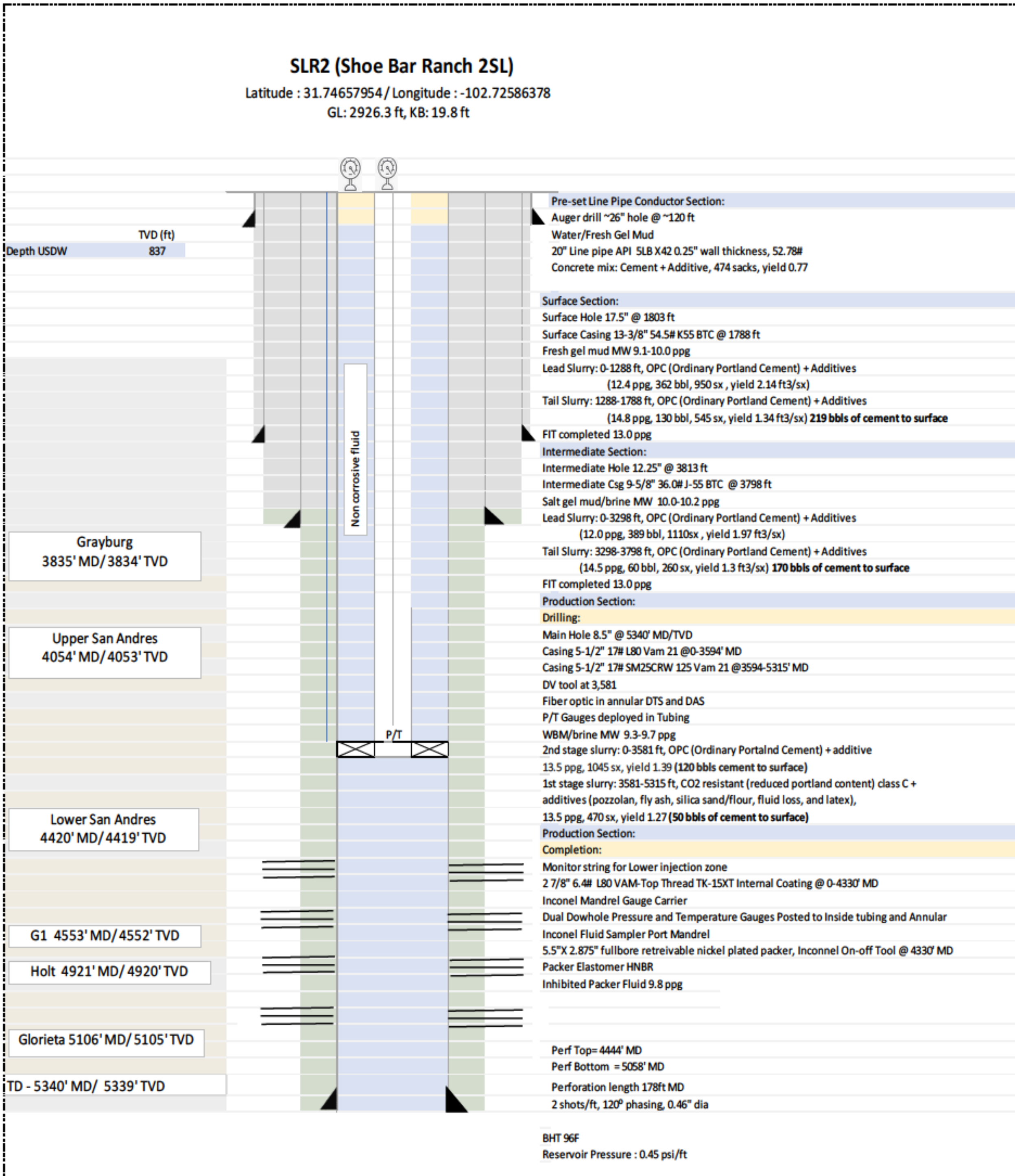

Figure 4. As-built wellbore diagram for SLR2.

3.4.1.1 Casing and Cementing

Table 12. SLR2 casing details.

Name	Depth Interval (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling
Pre-set conductor	0 to 120	26	20	19.5	19.25	52.78	5LB X42	weld
Surface string	0 to 1,788	17-1/2	13-3/8	12.615	12.459	54.5	J-55	BTC
Intermediate string	0 to 3,798	12-1/4	9-5/8	8.921	8.765	36	J-55	BTC
Long string	0 to 3,594	8-1/2	5-1/2	4.892	4.767	17	L80	Vam 21
Long string	3,594 to 5,315	8-1/2	5-1/2	4.892	4.767	17	SM25CRW-125	Vam 21

Notes:

- A stage tool was placed at 3,581 ft in the 5-1/2-in. casing to perform the two-stage cement job.
- The centralization program will aim at 70-90% standoff and will be adjusted using the field data for deviation, caliper, and hole conditions.
- DTS/DAS fiber optic cable was installed alongside the casing. Special clamps, bands, and centralizers were installed to protect the fiber and provide a marker for wireline operations.

Table 13. SLR2 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	concrete blend	0 to 120	-	474	100 %
17-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,288	12.4	950	125%
	OPC (Ordinary Portland Cement) with additives	1,288 to 1,788	14.8	545	100%
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 3,298	112.0	1,110	225%
	OPC (Ordinary Portland Cement) with additives	3,298 to 3,798	14.5	260	100%
8-1/2in.	OPC (Ordinary Portland Cement) with additives	0 to 3,581	13.5	1,045	50%
	CO_2-resistant (reduced Portland content) class C, with additives (pozzolan, fly ash, silica sand/flour, fluid loss, and latex)	3,581 to 5,315	13.5	470	50%

3.4.1.1 Tubing and Packer

Table 14. SLR2 tubing and packer details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-15XT) tubing	0 to 4,330	2-7/8	2.441	2.347	6.4	L80	VAM-TOP	10,570	11,160	80
Packer (Nickel-plated / HNBR (RGD) elastomers)	4,330-4,337	4-5/8	2.38	2.347	-	P-110 (Nickel plated)	VAM-TOP	8,000	-	-

Notes:

- Pressure and temperature gauges are external tubing-deployed and ported to the tubing and casing. Cable material is Inconel®, and gauge carriers are made by CO_2-resistant material.
- The internal diameter of the tubing will be slightly reduced due to the TK-15XT internal coating.
- The annular space between the 2 7/8-in. tubing and 5 1/2-in. casing is filled with packer fluid.

3.4.2 USDW Monitoring Well: USDW1 (State tracking number 657173)

The wellbore diagram for USDW1 is shown below.

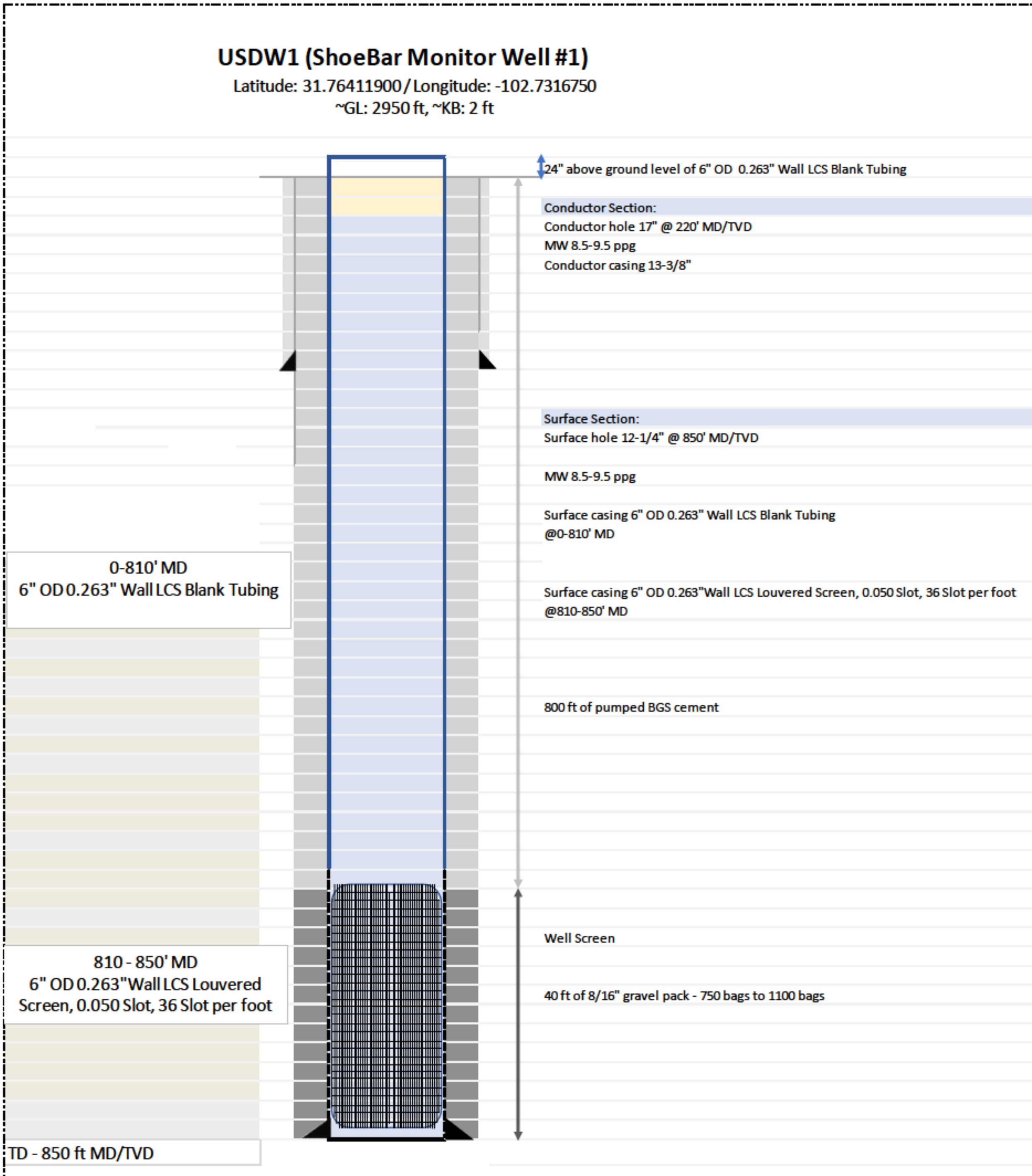

Figure 5. As-built wellbore diagram for USDW1.

3.4.2.1 Borehole diameter and cementing

The well was constructed with a rotary drilling method using water-based mud.

Table 15. USDW1 borehole diameter.

Diameter (in.)	Top Depth (ft)	Bottom Depth (ft)
17-1/2	0	220
12-1/4	220	850

Cement was pressure pumped to the following depths.

Table 16. USDW1 cementing details.

Top Depth (ft)	Bottom Depth (ft)	Description
0	220	Surface, 264 bags/sacks
0	750	Long string, 380 bags/sacks
0	18	Quikrete, 17 bags/sacks

3.4.2.2 Completion

The USDW1 borehole is gravel packed from 850 ft to 750 ft with 8/16 gravel. A bladder pump was installed downhole to allow for repeat sampling of fluids and dissolved gases.

3.4.3 Brine Withdrawal Wells: WW1 (API 4213544035)

The wellbore diagram for WW1 is shown below.

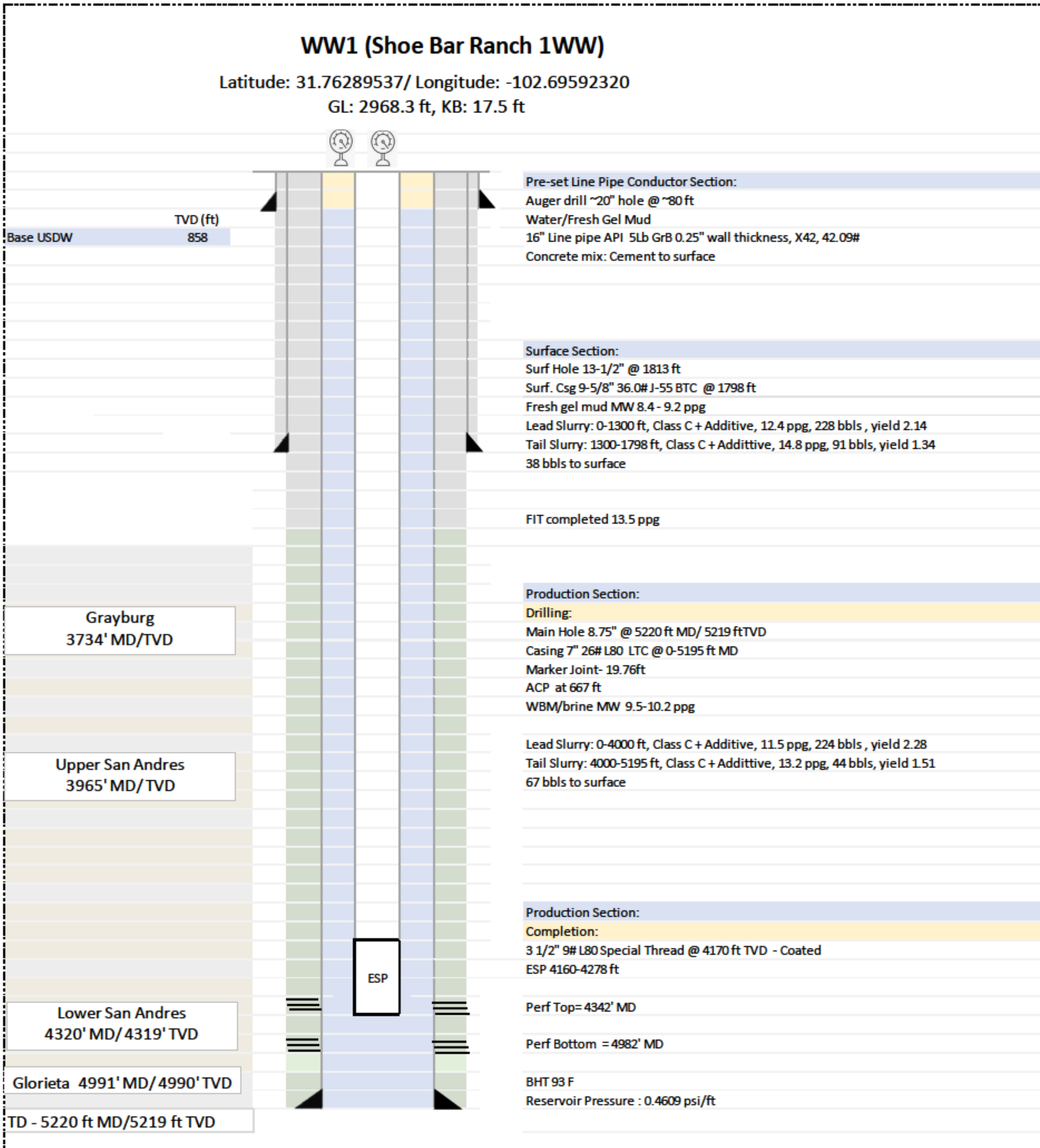

Figure 6. As-built wellbore diagram for WW1.

3.4.2.1 Casing and Cement

Table 17. WW1 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-80	20	16	15.50	15.499	42.09	LP	Weld
Surface string	0-1,798	13-1/2	9.625	8.921	8.765	36	J-55	BTC
Long string	0-5,195	8-3/4	7	6.276	6.151	26	L-80	LTC

Table 18. WW1 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete Blend	0 to 80			
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,298	12.4	600	100%
	OPC (Ordinary Portland Cement) with additives	1,298 to 1,798	14.8	380	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 4,000	11.5	550	100%
	OPC (Ordinary Portland Cement) with additives	4,000 to 5,195	13.2	165	25%

3.4.2.2 Tubing and Packer

Table 19. WW1 tubing details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-70XT) tubing	0-4170	3.5	2.992	2.867	9.3	L-80	EUE-8rd	10,160	10,540	163.8

3.4.4 Brine Withdrawal Well: WW2 (API 4213544036)

The wellbore diagram for WW2 is shown below.

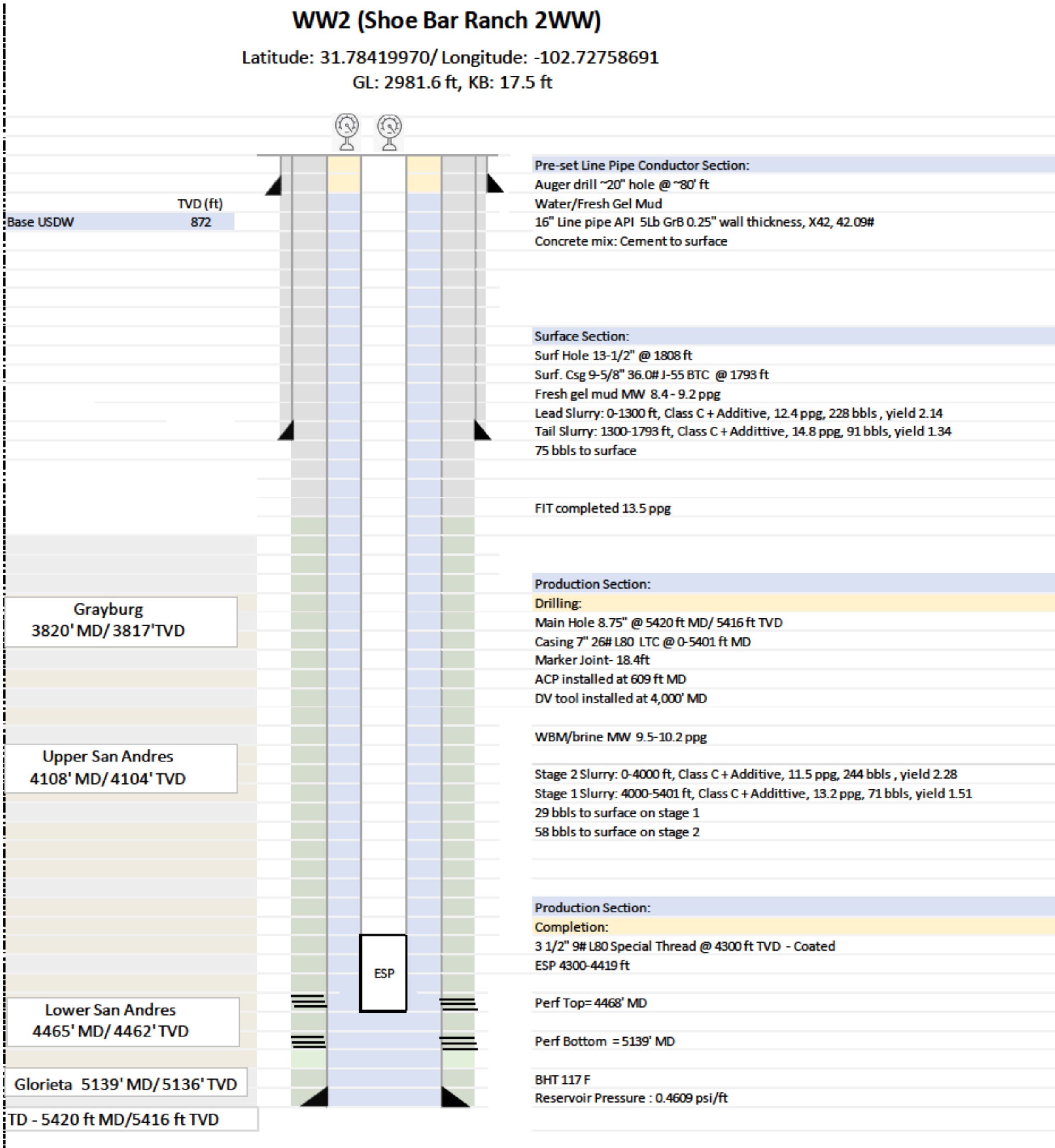

Figure 7. As-built wellbore diagram for WW2.

3.4.2.1 Casing and Cement

Table 20. WW2 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-80	20	16	15.50	15.499	42.09	LP	Weld
Surface string	0-1793	13-1/2	9.625	8.921	8.765	36	J-55	BTC
Long string	0-5401	8-3/4	7	6.276	6.151	26	L-80	LTC

Table 21. WW2 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete Blend	0 to 80			
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 1293	12.4	600	100%
	OPC (Ordinary Portland Cement) with additives	1,293 to 1,793	14.8	380	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 4,000	11.5	550	100%
	OPC (Ordinary Portland Cement) with additives	4,000 to 5,401	13.2	165	25%

3.4.2.2 Tubing and Packer

Table 22. WW2 tubing details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-70XT) tubing	0-4,300	3.5	2.992	2.867	9.3	L-80	EUE-8rd	10,160	10,540	163.8

3.4.5 Brine Withdrawal Well: WW3 (API 4213544037)

The wellbore diagram for WW3 is shown below.

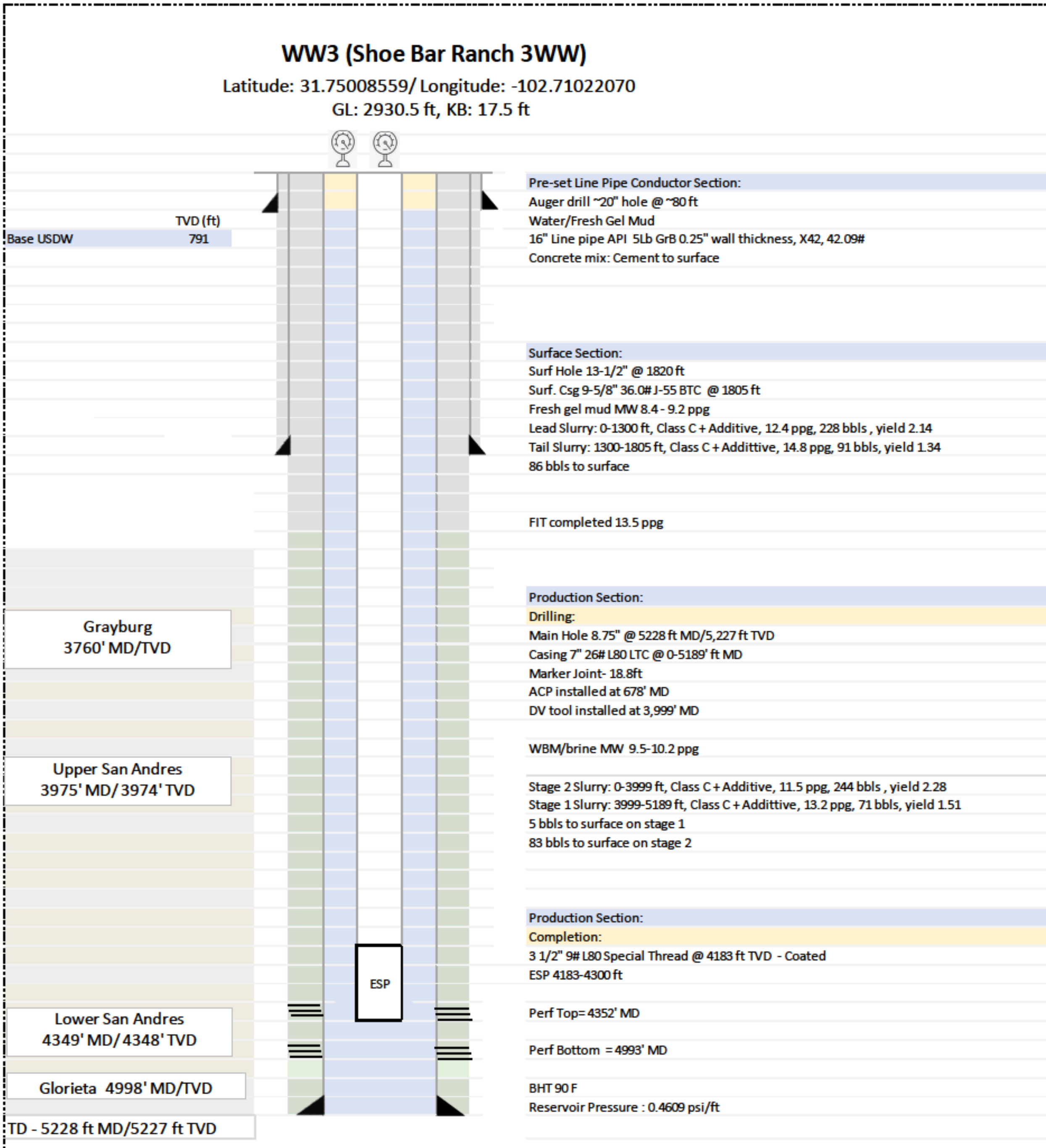

Figure 8. As-built wellbore diagram for WW3.

3.4.2.1 Casing and Cement

Table 23. WW3 tubing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-80	20	16	15.50	15.499	42.09	LP	Weld
Surface string	0-1,805	13.5	9.625	8.921	8.765	36	J-55	BTC
Long string	0-5,189	8.75	7	6.276	6.151	26	L-80	LTC

Table 24. WW3 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete Blend	0 to 80			
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,305	12.4	600	100%
	OPC (Ordinary Portland Cement) with additives	1,305 to 1,805	14.8	380	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 4,000	11.5	600	220%
	OPC (Ordinary Portland Cement) with additives	4,000 to 5,189	13.2	280	25%

3.4.2.2 Tubing and Packer

Table 25. WW3 tubing details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-70XT) tubing	0-4,183	3.5	2.992	2.867	9.3	L-80	EUE-8rd	10,160	10,540	163.8

3.4.6 Brine Withdrawal Well: WW4 (API 4213544034)

The wellbore diagram for WW4 is shown below.

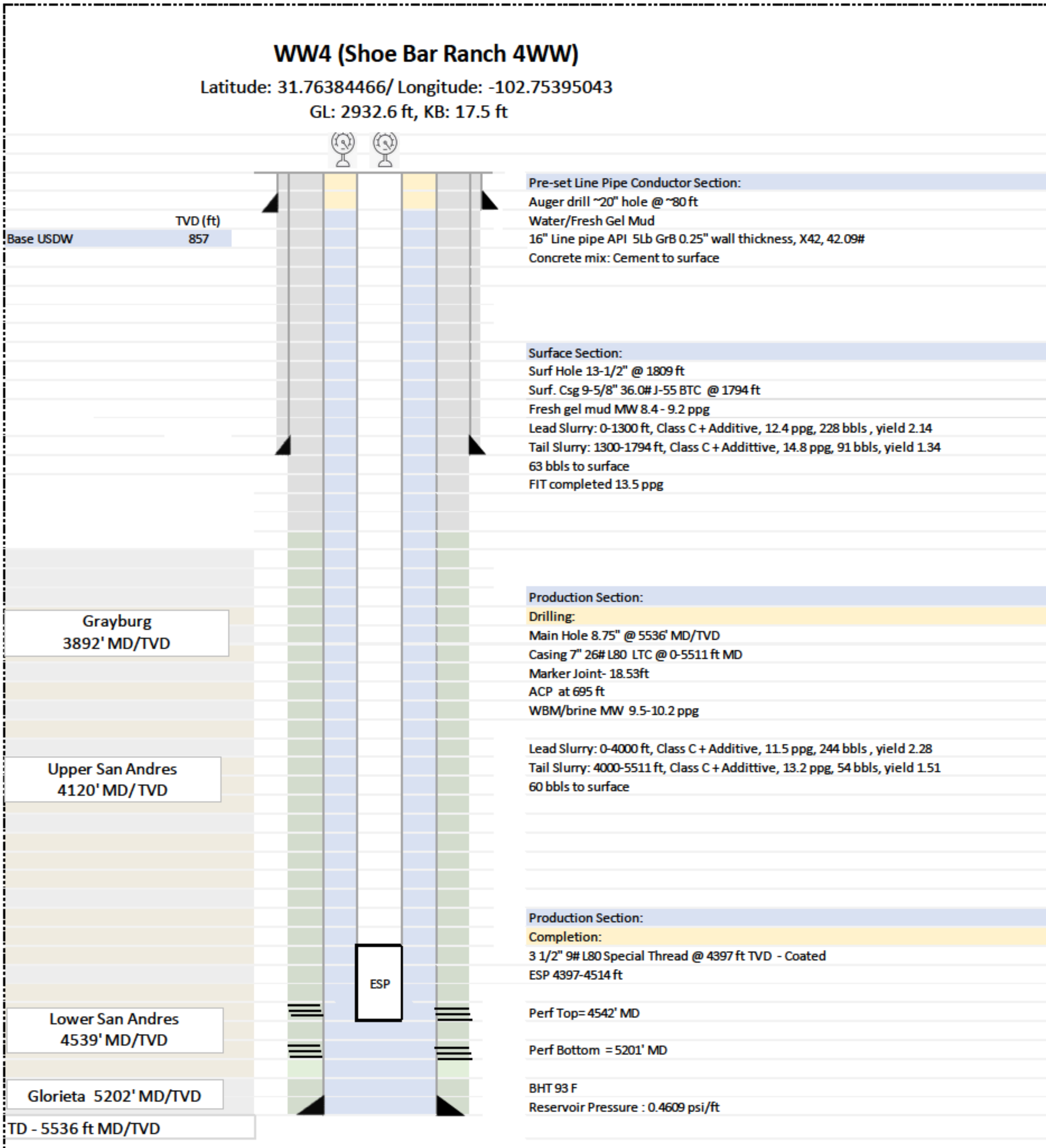

Figure 9. As-built wellbore diagram for WW4.

3.4.2.1 Casing and Cement

Table 26. WW4 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-80	20	16	15.50	15.499	42.09	LP	Weld
Surface string	0-1,794	13.5	9.625	8.921	8.765	36	J-55	BTC
Long string	0-5,511	8.75	7	6.276	6.151	26	L-80	LTC

Table 27. WW4 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete Blend	0 to 80			
12-1/4-in.	OPC (Ordinary Portland Cement) with additives	0 to 1,294	12.4	600	100%
	OPC (Ordinary Portland Cement) with additives	1,294 to 1,794	14.8	380	100%
8-1/2-in.	OPC (Ordinary Portland Cement) with additives	0 to 4,000	11.5	550	100%
	OPC (Ordinary Portland Cement) with additives	4,000 to 5,511	13.2	200	25%

3.4.2.2 Tubing and Packer

Table 28. WW4 tubing and packer details.

Material	Depth Interval (ft)	OD (in.)	ID (in.)	Drift (in.)	Weight (lbm/ft)	Grade (API)	Coupling	Burst (psi)	Collapse (psi)	Body Yield (Ksi)
Injection (Coated TK-70XT) tubing	0-4397	3.5	2.992	2.867	9.3	L-80	EUE-8rd	10,160	10,540	163.8

3.4.7 Confining Zone Monitoring Well: SLR1 (Shoe Bar 1, API 4213543920)

The wellbore diagram for the SLR1 following conversion to a Confining Zone monitoring wells is shown below.

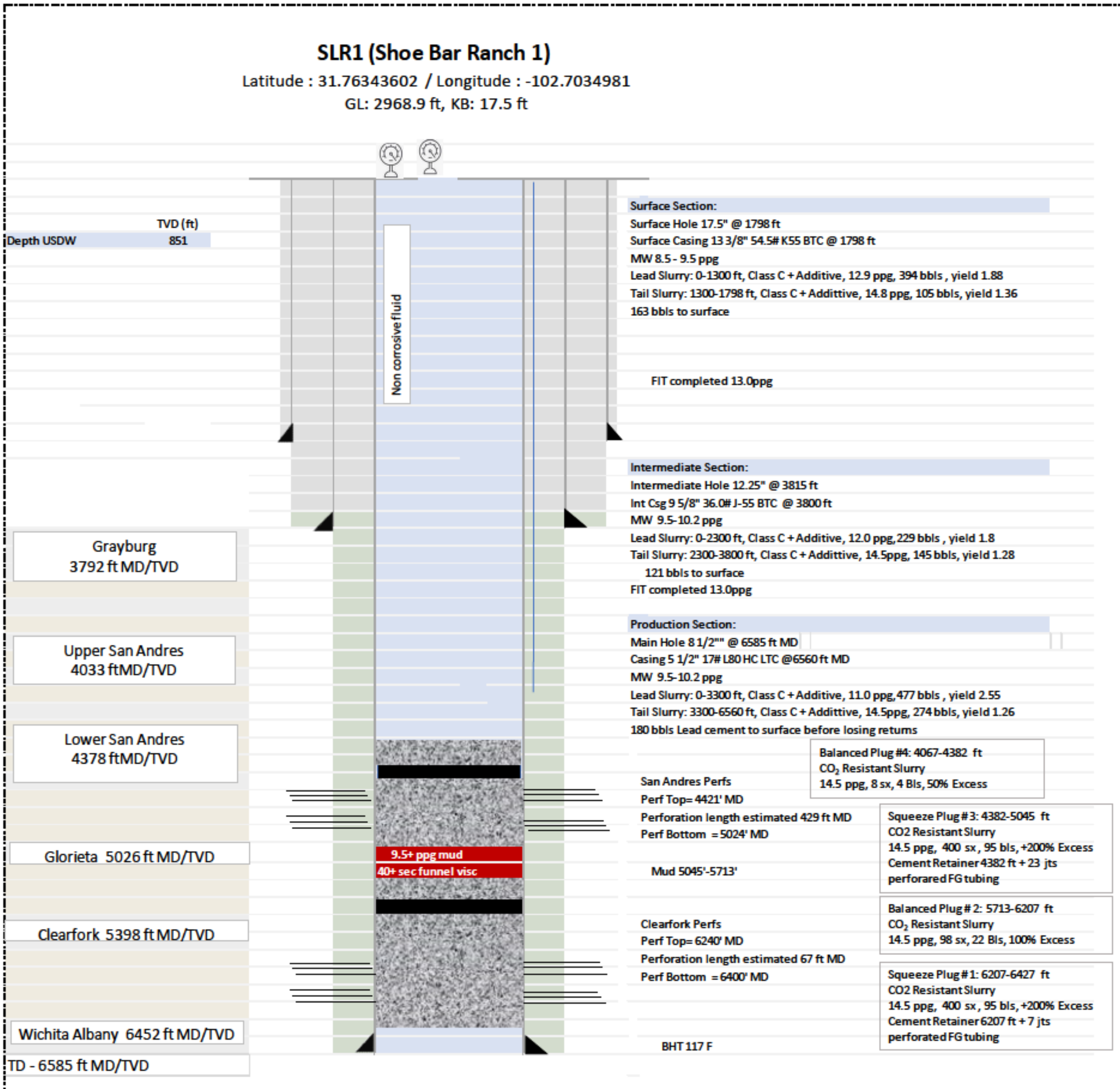

Figure 10. As-built wellbore diagram for SLR1.

3.4.2.1 Casing and Cement

Table 29. SLR1 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-57	26	20	19.5	19.25	52.78	5LB X42	Weld

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Surface string	0-1798	17.5	13.375	12.615	12.459	54.5	K-55	BTC
Intermediate string	0-3800	12.25	9.625	8.921	8.765	36	J-55	BTC
Long string	0-6560	8.5	5.5	4.892	4.767	17	L-80 HC	LTC

Table 30. SLR1 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	concrete blend	0 to 120	-	474	100 %
17-1/2-in.	Class C cement with additives	0 to 1,798	12.9	1165	150%
	Class C cement with additives	1,298 to 1,798	14.8	310	100%
12-1/4-in.	Class C cement with additives	0 to 3,300	12.0	715	150%
	Class C cement with additives	3,3300 to 3,800	14.5	636	100%
8-1/2-in.	Class C cement with additives	0 to 3,300	11.0	1050	200%
	Class C cement with additives	3,300 to 6,560	14.5	1250	100%

3.4.2.2 Tubing and Packer

No tubing and packer will be required on this well. Surveillance logging requirements will be executed through wellhead and cased hole logging.

3.4.8 Confining Zone Monitoring Well: ACZ1 (Shoe Bar 1AZ, API 4213543977)

The wellbore diagram for the ACZ1 following conversion to a Confining Zone Monitor is shown below.

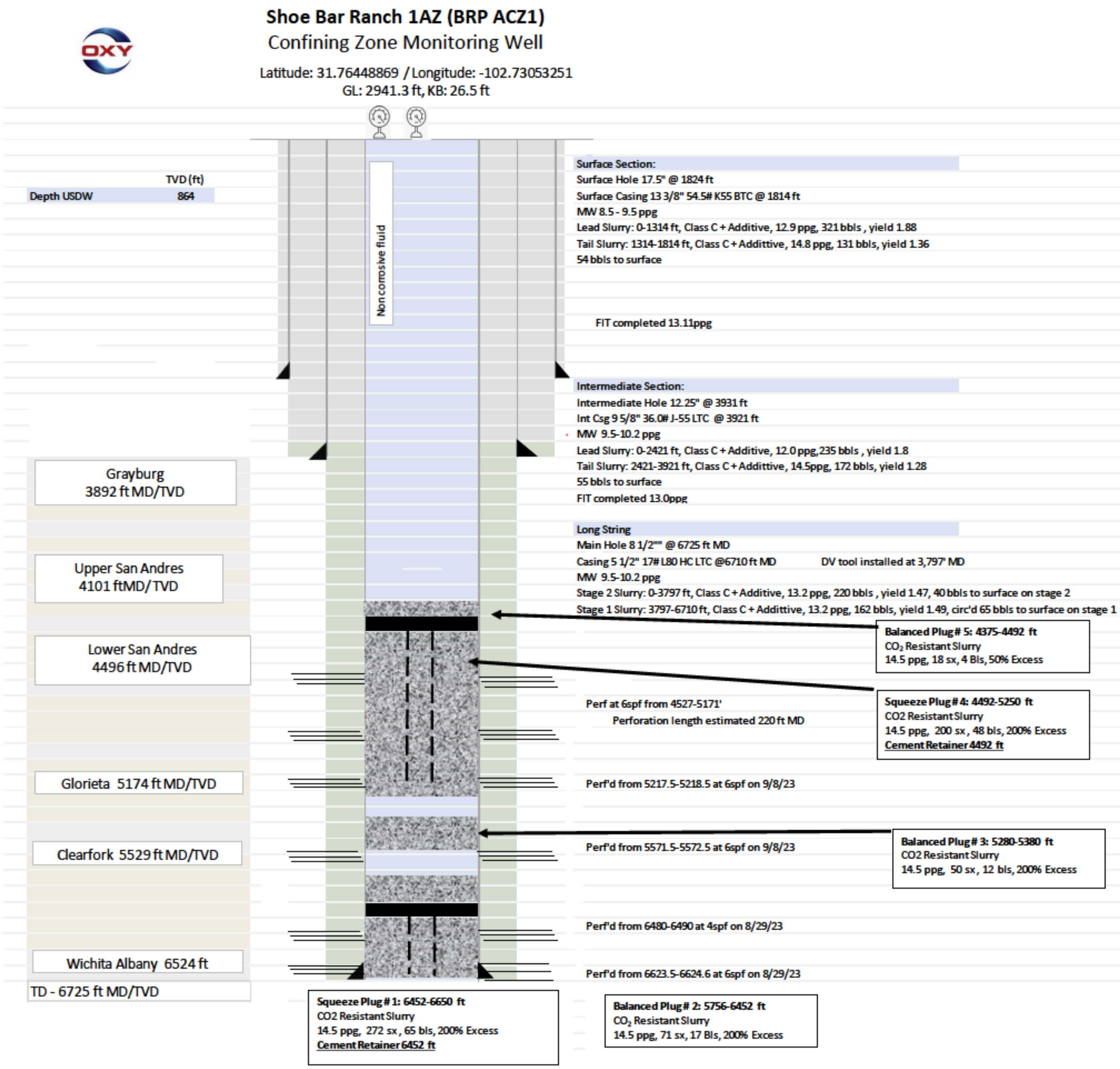

Figure 11. As-built wellbore diagram for ACZ1.

3.4.2.1 Casing and Cement

Table 31. ACZ1 casing details.

Name	Depth Range (ft)	Borehole Diameter (in.)	OD (in.)	ID (in.)	Drift (in.)	Casing Weight (lbm/ft)	Casing Grade (API)	Coupling
Pre-set conductor	0-120	26	20	19.5	19.25	52.78	5LB X42	Weld
Surface string	0-1,814	17.5	13.375	12.615	12.459	54.5	K-55	BTC
Intermediate string	0-3,921	12.25	9.625	8.921	8.765	36	J-55	BTC
Long string	0-6,710	8.5	5.5	4.892	4.767	17	L-80 HC	LTC

Table 32. ACZ1 cementing details.

Section	Type	Depths (ft)	Density (ppg)	Sacks	Excess
20-in.	Concrete blend	0 to 120	-	474	100 %
17-1/2-in.	Class C cement with additives	0 to 1,314	12.9	950	100%
	Class C cement with additives	1,314 to 1,814	14.8	550	100%
12-1/4-in.	Class C cement with additives	0 to 3,421	12.0	785	100%
	Class C cement with additives	3,421 to 3,921	14.5	765	100%
8-1/2-in.	Class C cement with additives	0 to 3,792	13.2	840	20%
	Class C cement with additives	3,792 to 6,710	13.2	610	34%

3.4.2.2 Tubing and Packer

No tubing or packer will be installed in this well. Surveillance logging requirements will be executed through wellhead and cased hole logging.

4.0 Pre-Operational Logging and Testing [40 CFR 146.82(c)(4),(7) and 146.87]

4.1 UIC Class VI Injector: BRP CCS1 (API 4213544040)

4.1.1 Well Construction and Completion Summary

The well was constructed in accordance with the Well Construction Plan for the Project. The as-built wellbore diagram is presented in Section 3.1.

4.1.2 Logging Results [40 CFR 146.87(a)(2) and (3)]

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan.

4.1.2.1 Open Hole Logging

OLCV conducted logging to determine and verify the depth, thickness, porosity and lithology of the Injection Zone, Confining Zone, Confining System and USDW [40 CFR 146.87(a), (a)(2)(i) and (a)(3)(i))]. The table below shows the logs that were acquired during well construction in October and November 2024.

Table 33. Open hole logs acquired during the construction phase of BRP CCS1.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Surface, Intermediate, Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Surface, Intermediate, Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Surface, Intermediate, Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Intermediate, Production	Define stratigraphy, correlation log, shale indicator
Wireline – Magnetic resonance image	Production	Estimate porosity, pore size distribution, permeability index
Wireline – Sonic Scanner	Intermediate, Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Surface, Intermediate, Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Surface, Intermediate, Production	Estimate porosity, mineralogical characterization
Wireline – High-definition image	Production	Identify fracture, structural information, minimum stress orientation
Wireline – Litho-scanner or equivalent	Production	Identify mineralogy
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling, mini-frac testing
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

4.1.2.2 Cased Hole Logging

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan. The table below shows the logs that were acquired after casing was installed in January 2025.

Table 34. Cased hole logs acquired during the drilling and completion phases of BRP CCS1.

Method	Interval Section(s)	Purpose
Cased Hole Logs and surveys Before Injection		
Wireline – CBL-VDL-CCL	Surface, Intermediate	Cement bond, Validate external mechanical integrity
Wireline – CBL-VDL-USIT (Casing inspection log)-CCL	Production	Cement bond, casing inspection log (USIT); Validate external mechanical integrity
Annulus Pressure Test – Long string casing	Annular between tubing and long string	Validate internal mechanical integrity between the tubing, long-string, and packer
Wireline – Activate pulsed neutron (Oxygen Activation Log) – Long string casing	Surface, Intermediate, Production	CO_2 saturation, baseline for monitoring
Wireline – Temperature Log	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation
Fiber Optic – DAS, DTS survey	Surface, Intermediate, Production.	Measure baseline temperature profile on the well from surface to top of perforation Acquire baseline 3D VSP survey for monitoring plume migration over time

4.1.2.3 Logging Results

OLCV's petrophysical interpretation of the open hole logs obtained in BRP CCS1 is qualitatively consistent with the results from Shoe Bar 1 and Shoe Bar 1AZ. Because BRP CCS1 is a slanted well, whereas the Shoe Bar 1 and Shoe Bar 1AZ are vertical wells, it is not appropriate to perform a direct statistical comparison. A summary of petrophysical properties for the BRP CCS1, Shoe Bar 1 and Shoe Bar 1AZ is presented in Table 35 below.

[redacted]

[redacted]

[redacted]

4.1.3 Cement Verification [40 CFR 146.87(a)(2)(ii) and (a)(3)(ii)]

Pursuant to 40 CFR 146.87(a)(2)(ii), a cement bond log (CBL) and variable density log (VDL) were run upon installation of the surface casing to evaluate cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to confirm that cementing of the surface casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 1,800 ft MD.

Pursuant to 40 CFR 146.87(a)(3)(ii), a CBL and VDL were run upon installation of the long string casing to verify cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the long string casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 6,188 ft MD.

OLCV conducted a similar evaluation in the intermediate casing using CBL and VDL after casing was set. OLCV interprets the evaluation to confirm that the cementing of the intermediate casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 3,807 ft MD.

A summary of the logs used to verify cement is presented in Table 36 below.

Table 36. Cased hole logs acquired for cement verification of BRP CCS1.

Wellbore Section	Cementing Date	Log Date	Log Type
Surface Casing	10/31/2024	11/3/2024	CBL-VDL-GR-CCL
Intermediate Casing	11/4/2024	11/14/2024	CBL-VDL-GR-CCL
Long String Casing	11/18/2024	1/2/2025	CBL-VDL-GR-CCL

4.1.4 Casing Verification [40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii)]

Pursuant to 40 CFR 146.87(a)(2)(ii), a temperature log was conducted upon installation of the surface casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

Pursuant to 40 CFR 146.87(a)(3)(ii), a temperature log was run upon installation of the long string casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

OLCV conducted a similar evaluation in the intermediate casing after casing was set. OLCV interprets that the temperature logging shows the casing installation meets well integrity and regulatory objectives.

A summary of the logs used to verify casing is presented in Table 37 below.

Table 37. Cased hole logs acquired for casing verification of BRP CCS1.

Wellbore Section	Cementing Date	Log Date	Log Type
Surface Casing	10/31/2024	11/3/2024	CBL-VDL-GR-CCL

Wellbore Section	Cementing Date	Log Date	Log Type
Intermediate Casing	11/4/2024	11/14/2024	CBL-VDL-GR-CCL
Long String Casing	11/18/2024	1/2/2025	USIT

4.1.5 Plume and Pressure Front Tracking [40 CFR 146.90(g)(1) and (2)

Pursuant to 40 CFR 146.90(g)(1) and (2), OLCV will conduct direct and indirect tracking of the CO_2 plume and pressure front. To establish a baseline reservoir saturation, a pulsed neutron log (PNL) was run after the long string casing was installed and cemented. The petrophysical interpretation of the data establishes the baseline saturation profile over the zones of interest.

In addition to PNL, OLCV will use other methods to determine the plume and pressure front, including geochemical testing in the Injection Zone (see Section 5.1), DInSAR with GPS data (see Section 5.5), 2D Vertical Seismic Profile (VSP) and 2D surface seismic (see Section 5.6), and pressure and temperature monitoring (see Section 5.8).

A summary of the PNL logging is presented in Table 38 below.

Table 38. PNL baseline for BRP CCS1.

Type	Log Date	Log Type
Long string casing	1/3/2025	PNX

Logging results are presented in Figure 13 below.

[redacted]

4.1.6 Continuous Recording Devices, Alarms, and Shut-off Systems [40 CFR 146.88(e)(1) and (2)

Pursuant to 40 CFR 146.88(e)(1), OLCV installed Distributed Temperature Sensing (DTS) fiber during construction of the wellbore. DTS will be used for continuous recording of temperature to monitor injection operations and verify mechanical integrity of the wellbore. In addition, OLCV installed Pressure Indicating Transmitters (PIT) in the wellhead to continuously record tubing, casing, and injection flowline surface pressures. OLCV installed Temperature Indicating Transmitters (TIT) in the flowline to record surface injection pressures. This well is equipped with a downhole pressure gauge installed in the tubing to continuously record downhole pressure and temperature in the reservoir and to record pressure and temperature in the annulus space above the packer. All these devices will be connected to a Programmable Logic Controller (PLC).

Pursuant to 40 CFR 146.88(e)(2), OLVC installed an electric Emergency Shutdown Valve (ESDV) mounted on the well tree. This is a fail-close valve that is monitored and controlled by a PLC. The PLC continuously monitors multiple surface and downhole gauges. If the set points are reached, an alarm is triggered and the ESDV is automatically deployed. The PLC is automated and is also remotely monitored.

4.1.7 Directional Survey [40 CFR 146.87(a)(1)]

OLCV conducted a directional survey in accordance with 40 CFR 146.87(a)(1). The directional survey checks were conducted at approximately 100 ft intervals to verify the location of the borehole and confirm that no vertical avenues for fluid movement in the form of diverging holes were created. The results of the deviation survey indicate no diverging holes were created.

The directional survey for BRP CCS1 was reported on November 13, 2024.

4.1.8 Coring Program [40 CFR 146.87(b)]

OLCV did not acquire whole core or rotary sidewall core in the BRP CCS1 well, consistent with approval from the UIC Director. Comprehensive coring programs were conducted in nearby wells.

- OLCV drilled the Shoe Bar 1 well in January 2023. During well construction, OLCV collected 714 feet of whole core and 78 rotary sidewall core plugs.
- OLCV drilled the Shoe Bar 1AZ approximately 1.5 miles west of the Shoe Bar 1 well in August 2023 and collected 725 feet of whole core and 51 rotary sidewall core plugs.
- OLCV drilled BRP CCS3 in September 2024 and collected 75 sidewall cores.

The results of core analysis were used to quantify porosity, permeability, and lithology pursuant to 40 CFR 146.87(a) and to determine other rock properties.

4.1.9 Injection Zone Fluid Sampling [40 CFR 146.87(a), (b), (c), and (d)(3)]

In accordance with 40 CFR 146.87(b), OLCV obtained formation fluid samples from the Injection Zone. In accordance with 40 CFR 146.87(a), OLCV determined the salinity of formation fluids, and, in accordance with 40 CFR 146.87(c) and 40 CFR 146.87(d)(2), OLCV recorded the fluid temperature, pH, conductivity, and reservoir pressure of the Injection Zone.

Fluid samples were collected using a Modular Formation Dynamics Tester (MDT) tool during the open hole wireline logging runs. At each sample location, a flowline resistivity measurement was taken by the sensor on the MDT tool to discriminate between formation fluids and filtrate from muds. Then the pump-out module on the MDT tool sampled the fluid while monitoring the flowline resistivity to exclude filtrate-contaminated fluid from the sample chamber. Reservoir fluid samples were transported under pressure to a third-party laboratory for analyses. OLCV is confident that the samples obtained are representative of the formation fluid.

[redacted]

[redacted]

OLCV considers the fluid samples obtained in the BRP CCS1 to be representative of Injection Zone fluids. The results of the fluid analyses obtained in the BRP CCS1 are similar to fluid analyses obtained in other Project wells. These results can be used to determine a baseline characterization of the Injection Zone fluid (see Section 5.1) and to demonstrate compatibility of the Injection Zone fluids with the CO_2 injectate stream and wellbore materials (Section 6.8).

4.1.10 Mechanical Integrity Testing Results [40 CFR 146.82(c)(8) and 146.89]

OLCV conducted logging and testing to demonstrate mechanical integrity to meet the requirements of 40 CFR 146.89. OLCV interprets these results as indicating that the well has mechanical integrity and that there is no evidence of leaks or fluid movement in the wellbore. OLCV considers this to indicate that no changes need to be made to the mechanical integrity evaluation in the Testing and Monitoring Plan that was submitted as part of the UIC Class VI application.

Table 41. Logs and tests acquired to demonstrate mechanical integrity of BRP CCS1.

Wellbore Section	Name	Log Date	Log or test
Long String Casing	Annulus test	3/26/2025	MIT
Long String Casing	Temperature and Pressure Log	1/3/2025	PBMS-PNX
Long String Casing	Ultrasonic Inspection Tool Log	1/2/2025	USIT
Long String Casing	Casing Pressure Test	1/4/2025	MIT
Long String Casing	Pulsed Neutron Log	1/3/2025	PBMS-PNX
Long String Casing	Temperature Log	1/3/2025	PBMS-PNX

To demonstrate there are no significant leaks in the casing, tubing, or packer (40 CFR, 146.89(a)(1)), OLCV performed the following test.

- During the installation of the injection string and after the packer was installed, the casing and tubing annulus was tested at 545 psi, following guidelines described in the Pre-operations Testing Plan that was submitted as part of this UIC Class VI application. The test results were successful, indicating a loss of zero psi after a 30-minute test.

To demonstrate that there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore (40 CFR, 146.89(a)(2)), OLCV performed the following logs.

- A temperature log was executed after installing the long string casing. Temperature readings from surface to 6,108 ft MD (14 ft above TD) are within the expected range based on reservoir conditions and demonstrate the absence of vertical crossflow. OLCV considers this to indicate that casing integrity is achieved. The maximum temperature observed was 95.08ºF at the bottom of the wellbore.

- OLCV used an Ultrasonic Imaging Tool (USIT) after the well was constructed to verify mechanical integrity of the long string casing. The results of logging indicate minor variations in the minimum thickness of the casing wall and minor variations in internal radius of the casing. OLCV interprets the USIT data as indicating that mechanical integrity of the long-string casing was achieved.

- Before perforations were conducted, OLCV performed pressure tests at 2500 psi and 1500 psi to validate mechanical integrity of the wellbore. These tests were successful, and recorded charts are submitted as attachments to this report.

- A Pulse Neutron Log (PNL) was acquired for baseline reservoir saturation and for future evaluations. If temperature data shows anomalies that required additional analysis, Pulse neutron log can be run for additional evaluation.

4.1.11 Fracture Pressure Results [40 CFR 146.87(d)(1)]

OLCV determined the fracture pressure of the Injection and Confining Zones pursuant to 40 CFR 146.87(d)(1). OLCV determined fracture pressure by using a MDT tool to create and sustain a fracture for a small amount of time and determine the resulting fracture initiation, fracture breakdown, and fracture propagation pressure. The MDT tool was set up in a dual packer configuration to isolate borehole intervals approximately two to three feet thick. The tested intervals for the Injection Zone were selected based on log criteria for porosity of Phi>10%, and interval thickness of >5ft. The fracture propagation pressure was interpreted by qualified OLCV reservoir and completions engineers. Table 42 shows the test data and results. Mini-frac tests in the BRP CCS1 were conducted on 13th and 14th of November 2024.

[redacted]

4.1.11.1 BRP CCS1: Upper Confining Zone

[redacted]

[redacted]

4.1.11.2 BRP CCS1: Injection Zone

[redacted]

[redacted]

[redacted]

4.1.11.3 BRP CCS1: Lower Confining Zone

[redacted]

[redacted]

4.1.11.4 Results obtained in the BRP CCS1 compared to other Project wells

OLCV obtained mini-frac results in the BRP CCS1 that are consistent to other Project wells and confirm the mechanical strength of the Upper and Lower Confining Zone and the Injection Zone across the AoR. See Section 6.5 for a summary of all mini-frac test results.

<u>Lower Confining Zone</u>

OLCV interpreted a consistent fracture gradient in all tests of the Glorieta Formation of the Lower Confining Zone. [redacted]

<u>Upper Confining Zone</u>

The mini-frac test result obtained in the BRP CCS1 in the Grayburg Formation of the Upper Confining Zone is consistent with the results obtained in BRP CCS2. [redacted] Together, these tests confirm integrity of the Upper Confining Zone.

<u>Injection Zone</u>

The fracture gradient interpreted in the Holt sub-zone of the Injection Zone at BRP CCS1 is 0[redacted], which is consistent with other Project wells including [redacted]. The G1 sub-zone of the Injection Zone exhibits is moderately more variability, ranging from [redacted]. OLCV attributes this variability in fracture gradient to naturally occurring, localized variability in the rock. The G1 sub-zone is characterized as a dolo-packstone with stacked mud-dominated and grain-dominated layers. [redacted] See Section 6.1.2.5 for additional details on Injection Zone facies.

4.1.11.5 Adjustments to maximum injection pressure resulting from test data

The maximum bottomhole injection pressure for BRP CCS1 is calculated using the fracture propagation gradient of [redacted] psi/ft from the G1 sub-zone in the Lower San Andres Formation. Considering a reference depth of 4,466 ft TVD (approximate depth of shallowest perforation) and a 90% fracture gradient limit, the maximum injection pressure is [redacted] psig. The post-drill maximum injection pressure is greater than what was estimated in the pre-drill Summary of Operating Conditions document that was submitted as part of the UIC Class VI application, because the previous injection pressure estimate was based on a fracture gradient measured by a step-rate test in the Shoe Bar 1AZ well of [redacted].

4.1.12 BRP CCS1 Injectivity Test Results and Fall-off Analysis [40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3)]

Pursuant to 40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3), OLCV performed an injectivity test in the BRP CCS1 to simulate conditions expected during operation and to obtain data used to estimate reservoir properties. Prior to conducting the test, OLCV performed a well stimulation to remove wellbore fill and positive skin created during well construction.

[redacted]

[redacted]

4.1.13 Reservoir Pressure [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.1.9.

[redacted]

The table below shows the formation pressures obtained in the well.

[redacted]

4.1.14 Fluid Level Testing Results [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.1.9. Reservoir pressure is reported in Section 4.1.13.

OLCV determined the static fluid level in the Injection Zone by measuring the bottomhole pressure immediately after the tubing and packer were installed. OLCV measured a bottomhole pressure of [redacted] gradient of 10 PPG completion fluid.

4.2 UIC Class VI Injector: BRP CCS2 (API 421354404100)

4.2.1 Well Construction and Completion Summary

The well was constructed in accordance with the Well Construction Plan for the Project. The as-built wellbore diagram is presented in Section 3.2.

4.2.2 Logging Results [40 CFR 146.87(a)(2) and (3)]

4.2.2.1 Open Hole Logging

OLCV conducted logging to determine and verify the depth, thickness, porosity, and lithology of the Injection Zone, Confining Zone, Confining System, and USDW [40 CFR 146.87(a), (a)(2)(i) and (a)(3)(i))]. The table below shows the logs that were acquired during construction in November-December 2024.

BRP CCS2 was drilled as a lateral targeting the Holt sub-zone of the Lower San Andres Formation. Data acquisition in the production section was accomplished using a combination of Thrubit deployment and Tough Logging Conditions (TLC) equipment to acquire open hole logs and perform mini-fracs.

Table 45. Open hole logs acquired during the construction phase of BRP CCS2.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Surface, Intermediate	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Surface, Intermediate, Production	Fluid identification, estimate salinity, correlation log
Thrubit – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Surface, Intermediate	Identify borehole enlargement and calculate cement volume
Thrubit – Caliper	Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Surface, Intermediate	Define stratigraphy, correlation log, shale indicator
Thrubit – Gamma ray	Production	Define stratigraphy, correlation log, shale indicator
Wireline – Sonic Scanner	Intermediate	Estimate mechanical properties, validation of velocity model, well tie to seismic
Thrubit – Dipole Sonic	Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Surface, Intermediate	Define uranium-rich formation, clay indicator
Thrubit – Spectral gamma ray	Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Surface, Intermediate	Estimate porosity, mineralogical characterization
Thrubit – Density / neutron	Production	Estimate porosity, mineralogical characterization
Thrubit – High-definition image	Production	Identify fracture, structural information, minimum stress orientation
Thrubit – Litho-scanner or equivalent (Pulsar)	Production	Identify mineralogy
Wireline and TLC – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling, mini-frac testing
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

4.2.2.2 Cased Hole Logging

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan. The table below shows the logs that were acquired after casing was installed in February 2025.

Table 46. Cased hole logs acquired during the drilling and completion phases of BRP CCS2.

Method	Interval Section(s)	Purpose
Cased Hole Logs and surveys Before Injection		
Wireline – CBL-VDL- CCL	Surface, Intermediate	Cement bond, Validate external mechanical integrity
Wireline – CBL-VDL-USIT (Casing inspection log)-CCL	Production	Cement bond, casing inspection log (USIT); Validate external mechanical integrity
Annulus Pressure Test – Long string casing	Annular between tubing and long string	Validate internal mechanical integrity between the tubing, long-string, and packer
Wireline – Activate pulsed neutron (Oxygen Activation Log) – Long string casing	Surface, Intermediate, Production	CO_2 saturation, baseline for monitoring
Wireline – Temperature Log	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation
Fiber Optic – DAS, DTS survey	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation Acquire baseline 3D VSP survey for monitoring plume migration over time

4.2.2.3 Logging Results

The petrophysical interpretation of the open hole logs obtained in BRP CCS2 is consistent with the results from the Shoe Bar 1 and Shoe Bar 1AZ. Because BRP CCS2 is a lateral well, whereas the Shoe Bar 1 and Shoe Bar 1AZ are vertical wells, it is not appropriate to perform a direct statistical comparison.

A summary of petrophysical properties for the BRP CCS2 is presented in Table 47.

[redacted]

[redacted]

The petrophysical interpretation of the well logs acquired in BRP CCS2 is consistent with interpretation of the Shoe Bar 1 and Shoe Bar 1AZ. OLCV resolved key petrophysical properties such as mineralogy and porosity using a probabilistic simultaneous inversion of input logs. The result of the processing is shown in Figure 23. The lateral section of the BRP CCS2 targets the Holt sub-zone of the Lower San Andres Formation. [redacted]

[redacted]

[redacted]

4.2.3 Cement Verification [40 CFR 146.87(a)(2)(ii) and (a)(3)(ii)]

Pursuant to 40 CFR 146.87(a)(2)(ii), a cement bond log and variable density log were run upon installation of the surface casing to evaluate cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the surface casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 1,788 ft MD.

Pursuant to 40 CFR 146.87(a)(3)(ii), a cement bond log and variable density log were run upon installation of the long string casing to verify cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the long string casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 5,700 ft MD. Because the BRP CCS2 is a horizontal well, CBL and VDL were run from surface to the bottom of the vertical section (heel of the horizontal section).

OLCV conducted a similar evaluation in the intermediate casing using CBL and VDL after casing was set. OLCV interprets these results to indicate that cementing of the intermediate casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 3,797 ft MD.

Table 48. Cased hole logs acquired for cement verification of BRP CCS2.

Section	Cementing Date	Log Date	Log Type
Surface Casing	11/24/2024	11/26/2024	CBL-VDL-GR-CCL
Intermediate Casing	11/28/2024	12/16/2024	CBL-VDL-GR-CCL
Long String Casing	12/21/2024	2/18/2025	CBL-VDL-GR-CCL

4.2.4 Casing Verification [40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii)]

Pursuant to 40 CFR 146.87(a)(2)(ii), a temperature log was conducted upon installation of the surface casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

Pursuant to 40 CFR 146.87(a)(3)(ii), a temperature log was run upon installation of the long string casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

OLCV conducted a similar evaluation in the intermediate casing using after casing was set. OLCV interprets the temperature logging as showing that the casing installation meets well integrity and regulatory objectives.

A summary of the logs used to verify casing is presented in Table 49 below.

Table 49. Cased hole logs acquired for casing verification of BRP CCS2.

Section	Cementing Date	Log Date	Log Type
Surface Casing	11/24/2024	11/26/2024	CBL-VDL-GR-CCL
Intermediate Casing	11/28/2024	12/16/2024	CBL-VDL-GR-CCL
Long String Casing	12/21/2024	2/18/2025	USIT

4.2.5 Plume and Pressure Front Tracking [40 CFR 146.90(g)(1) and (2)

Pursuant to 40 CFR 146.90(g)(1) and (2), OLCV will conduct direct and indirect tracking of the CO_2 plume and pressure front. To establish a baseline reservoir saturation, a pulsed neutron log (PNL) was run after the long string casing was installed and cemented. The petrophysical interpretation of the data establishes the baseline saturation profile over the zones of interest.

In addition to PNL, OLCV will use other methods to determine the plume and pressure front including geochemical testing in the Injection Zone (see Section 5.1), DInSAR with GPS data (see Section 5.5), 2D VSP and 2D surface seismic (see Section 5.6), and pressure and temperature monitoring (see Section 5.8).

A summary of the PNL logging is presented in Table 50 below.

Table 50. PNL baseline for BRP CCS2.

Type	Log Date	Log Type
Surface, Intermediate, Long string	3/17/2025	PNX

Logging results are presented in Figure 24 below.

[redacted]

4.2.6 Continuous Recording Devices, Alarms, and Shut-off Systems [40 CFR 146.88(e)(1) and (2)

Pursuant to 40 CFR 146.88(e)(1), OLCV installed DTS fiber during construction of the wellbore. DTS will be used for continuous recording of pressure and temperature to monitor injection operations and verify mechanical integrity of the wellbore. In addition, OLCV installed PIT in the wellhead to continuously record tubing, casing, and injection flowline surface pressures. OLCV installed TIT in the flowline to record surface injection pressures. This well is equipped with a downhole pressure gauge installed in the tubing to continuously record downhole pressure and temperature in the reservoir and to record pressure and temperature in the annulus space above the packer. All these devices will be connected to a PLC.

Pursuant to 40 CFR 146.88(e)(2), OLVC installed an electric ESDV mounted on the well tree. This is a fail-close valve that is monitored and controlled by a PLC. The PLC continuously monitors multiple surface and downhole gauges. If the set points are reached, an alarm is triggered and the ESDV is automatically deployed. The PLC is automated and is also remotely monitored.

4.2.7 Directional Survey [40 CFR 146.87(a)(1)]

OLCV conducted a directional survey in accordance with 40 CFR 146.87(a)(1). The directional survey checks were conducted at approximately 100 ft intervals to verify the location of the borehole and confirm that no vertical avenues for fluid movement in the form of diverging holes were created. The results of the deviation survey indicate no diverging holes were created.

The directional survey for BRP CCS2 was reported on December 9, 2024.

4.2.8 Coring Program [40 CFR 146.87(b)]

OLCV did not acquire whole core or rotary sidewall core in the BRP CCS2 well, consistent with approval from the UIC Director. Comprehensive coring programs were conducted in nearby wells.

- OLCV drilled the Shoe Bar 1 well in January 2023. During well construction, OLCV collected 714 feet of whole core and 78 rotary sidewall core plugs.
- OLCV drilled the Shoe Bar 1AZ approximately 1.5 miles west of the Shoe Bar 1 well in August 2023 and collected 725 feet of whole core and 51 rotary sidewall core plugs.
- OLCV drilled BRP CCS3 in September 2024 and collected 75 sidewall cores.

The results of core analysis were used to quantify porosity, permeability, and lithology pursuant to 40 CFR 146.87(a) and to determine other rock properties.

4.2.9 Injection Zone Fluid Sampling [40 CFR 146.87(a), (b), (c), and (d)(3)]

In accordance with 40 CFR 146.87(b), OLCV obtained formation fluid samples from the Injection Zone. In accordance with 40 CFR 146.87(a), OLCV determined the salinity of formation fluids based on data from nearby wells, and, in accordance with 40 CFR 146.87(c) and 40 CFR 146.87(d)(2), OLCV determined the fluid temperature, pH, conductivity, and reservoir pressure of the Injection Zone based on data from nearby wells.

[redacted]

[redacted]

[redacted]

4.2.10 Mechanical Integrity Testing Results [40 CFR 146.82(c)(8) and 146.89]

OLCV conducted logging and testing to demonstrate mechanical integrity to meet the requirements of 40 CFR 146.89. Logging and testing results verify that the well has mechanical integrity and that there is no evidence of leaks or fluid movement in the wellbore. OLCV interprets that no changes need to be made to the mechanical integrity evaluation in the Testing and Monitoring Plan that was submitted as part of the UIC Class VI application.

Table 53. Logs and tests acquired to demonstrate mechanical integrity of BRP CCS2.

Wellbore Section	Name	Log Date	Log or test
Long String Casing	Annulus test	4/4/2025	MIT
Long String Casing	Temperature and Pressure Log	2/17/2025	PBMS-PNX
Long String Casing	Ultrasonic Inspection Tool Log	2/18/2025	USIT

Long String Casing	Casing Pressure Test	2/18/2025	MIT
Long String Casing	Pulsed Neutron Log	2/17/2025	PBMS-PNX
Long String Casing	Temperature Log	2/17/2025	PBMS-PNX

To demonstrate there are no significant leaks in the casing, tubing, or packer (40 CFR, 146.89(a)(1)), OLCV performed the following test.

- During the installation of the injection string and after the packer was installed, the casing and tubing annulus was tested at 530 psi, following guidelines described in the Pre-operations Testing Plan that was submitted as part of this UIC Class VI application. The test results were successful, indicating a loss of 0 psi after a 30-minute test.

To demonstrate that there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore (40 CFR, 146.89(a)(2)), OLCV performed the following logs and tests.

- A temperature log was executed after installing the long string casing. Temperature readings from surface to 9,160 ft MD (21 ft above TD) are within the expected range based on reservoir conditions and demonstrate the absence of vertical crossflow. OLCV interprets the results as indicating that casing integrity is achieved. The maximum temperature observed was 94.42ºF at the bottom of the wellbore.

- OLCV used an Ultrasonic Imaging Tool (USIT) after the well was constructed to verify mechanical integrity of the long string casing. The results of logging indicate minor variations in the minimum thickness of the casing wall and minor variations in internal radius of the casing. OLCV interprets the USIT data as indicating that mechanical integrity of the long-string casing was achieved.

- Before perforations were conducted, OLCV performed pressure tests at 2,500 psi and 1,500 psi to validate mechanical integrity of the wellbore. These tests were successful, and recorded charts are submitted as attachments to this report.

- A Pulse Neutron Log (PNL) was acquired for baseline reservoir saturation and for future evaluations. If temperature data shows anomalies that required additional analysis, Pulse neutron log can be run for additional evaluation.

4.2.11 Fracture Pressure Results [40 CFR 146.87(d)(1)]

OLCV determined the fracture pressure of the Injection and Confining Zones pursuant to 40 CFR 146.87(d)(1). OLCV determined fracture pressure by using a MDT tool to create and sustain a fracture for a small amount of time and determine the resulting fracture initiation, fracture breakdown, and fracture propagation pressure. The MDT tool was set up in a dual packer configuration to isolate borehole intervals approximately two to three feet thick. [redacted]

[redacted]

4.2.11.1 BRP CCS2: Upper Confining Zone

[redacted]

[redacted]

4.2.11.2 BRP CCS2: Injection Zone

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

4.2.11.3 Results obtained in the BRP CCS2 compared to other Project wells

OLCV obtained mini-frac results in the BRP CCS2 that are consistent to other Project wells and confirm the mechanical strength of the Upper and Lower Confining Zone and the Injection Zone across the AoR. See Section 6.5 for a summary of all mini-frac test results.

Lower Confining Zone

[redacted]

Upper Confining Zone

[redacted]

Injection Zone

[redacted]

4.2.11.4 Adjustments to maximum injection pressure resulting from test data

[redacted]

[redacted]

4.2.12 BRP CCS2 Injectivity Test Results and Fall-off Analysis [40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3)]

Pursuant to 40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3), OLCV performed an injectivity test in the BRP CCS2 to simulate conditions expected during operation and to obtain data used to estimate reservoir properties. Prior to conducting the test, OLCV performed a well stimulation to remove wellbore fill and positive skin created during well construction.

[redacted]

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[redacted]

4.2.13 Reservoir Pressure [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.2.9.

[redacted]

[redacted]

4.2.14 Fluid Level Testing Results [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.2.9. Reservoir pressure is reported in Section 4.1.13.

[redacted]

4.3 UIC Class VI Injector: BRP CCS3 (API 421354406200)

4.3.1 Well Construction and Completion Summary

The well was constructed in accordance with the Well Construction Plan for the Project. The as-built wellbore diagram is presented in Section 3.3.

4.3.2 Logging Results [40 CFR 146.87(a)(2) and (3)]

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan.

4.3.2.1 Open Hole Logging

OLCV conducted logging to determine and verify the depth, thickness, porosity and lithology of the Injection Zone, Confining Zone, Confining System and USDW [40 CFR 146.87(a), (a)(2)(i) and (a)(3)(i))]. The table below shows the logs that were acquired during construction in October 2024. Logs were run in multiple wells (BRP CCS1, BRP CCS2, and BRP CCS3) to evaluate and correlate lateral continuity.

Table 57. Open hole logs acquired during the construction phase of BRP CCS3.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Surface, Intermediate, Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Surface, Intermediate, Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Surface, Intermediate, Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Surface, Intermediate, Production	Define stratigraphy, correlation log, shale indicator
Wireline – Magnetic resonance image	Production	Estimate porosity, pore size distribution, permeability index
Wireline – Sonic Scanner	Intermediate, Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Surface, Intermediate, Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Surface, Intermediate, Production	Estimate porosity, mineralogical characterization
Wireline – High-definition image	Production	Identify fracture, structural information, minimum stress orientation
Wireline – Litho-scanner or equivalent	Production	Identify mineralogy

Method	Interval Section(s)	Purpose
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling, mini-frac testing
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

4.3.2.2 Cased Hole Logging

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan. The table below shows the logs that were acquired after casing was installed in December 2024.

Table 58. Cased hole logs acquired during the drilling and completion phases of BRP CCS3.

Method	Interval Section(s)	Purpose
Cased Hole Logs and surveys Before Injection		
Wireline – CBL-VDL- CCL	Surface, Intermediate	Cement bond, Validate external mechanical integrity
Wireline – CBL-VDL-USIT (Casing inspection log)-CCL	Production	Cement bond, casing inspection log (USIT); Validate external mechanical integrity
Annulus Pressure Test – Long string casing	Annular between tubing and long string	Validate internal mechanical integrity between the tubing, long-string, and packer
Wireline – Activate pulsed neutron (Oxygen Activation Log) – Long string casing	Surface, Intermediate, Production	CO_2 saturation, baseline for monitoring
Wireline – Temperature Log	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation
Fiber Optic – DAS, DTS survey	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation Acquire baseline 3D VSP survey for monitoring plume migration over time

4.3.2.3 Logging Results

OLCV's petrophysical interpretation of the open hole logs obtained in BRP CCS3 is qualitatively consistent with the results from the Shoe Bar 1 and Shoe Bar 1AZ. Because BRP CCS3 is a slanted well, whereas the Shoe Bar 1 and Shoe Bar 1AZ are vertical wells, it is not appropriate to perform a direct statistical comparison. A summary of petrophysical properties for the BRP CCS3 is presented in Table 59 below.

[redacted]

OLCV's petrophysical interpretation of the well logs acquired in BRP CCS3 is consistent with the interpretations in the Shoe Bar 1 and Shoe Bar 1AZ. OLCV determined mineralogy and porosity using a probabilistic simultaneous inversion of input logs. The result of the processing is shown in Figure 36. OLCV identified that dolomite is the most abundant lithology in the Injection Zone. Negligible amounts of clay minerals are present and minor amounts of anhydrite and gypsum are present. The G4 sub-zone contains relatively more gypsum than the G1 sub-zone. OLCV interprets this data as confirming that the Confining Zone and Upper Confining System have low porosity and permeability resulting from the presence of anhydrite and clay. Advanced logging measurements from Elemental Capture Spectroscopy (ECS; Track 10 in Figure 36 and Nuclear Magnetic Resonance (NMR; Tracks 15-16 in Figure 36) tools support the lithology interpretation used in the petrophysical model.

Additionally, comparison of the core-measured petrophysical properties, such as porosity, grain density, and permeability, against log-derived properties reinforce the robustness of the petrophysical model. Track 12 in Figure 36 shows the comparison of core porosity measured on end-trims of the sidewall cores during Mercury Injection Capillary Pressure (MICP) testing against the log-derived total porosity. Track 13 in Figure 36 shows the comparison of sidewall core porosity measured with Routine Core Analysis (RCA) to log-derived total porosity. Track 14 in Figure 36 shows the match between grain density measured on the sidewall cores and grain density estimated from the log-derived mineralogy.

[redacted]

4.3.3 Cement Verification [40 CFR 146.87(a)(2)(ii) and (a)(3)(ii)]

Pursuant to 40 CFR 146.87(a)(3)(ii), a cement bond log and variable density log were run upon installation of the surface casing to evaluate cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the surface casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 1,788 ft MD.

Pursuant to 40 CFR 146.87(a)(3)(ii), a cement bond log and variable density log were run upon installation of the long string casing to verify cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The

CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the long string casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 6,554 ft MD.

OLCV conducted a similar evaluation in the intermediate casing using CBL and VDL after casing was set. OLCV interprets these results to indicate that cementing of the intermediate casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 3,797 ft MD.

Table 60. Cased hole logs acquired for cement verification of BRP CCS3.

Section	Cementing Date	Log Date	Log Type
Surface Casing	10/2/2024	10/7/2024	CBL-VDL-GR-CCL
Intermediate Casing	10/8/2024	10/19/2024	CBL-VDL-GR-CCL
Long String Casing	10/24/2024	12/10/2024	CBL-VDL-GR-CCL

4.3.4 Casing Verification [40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii)]

Pursuant to 40 CFR 146.87(a)(2)(ii), a temperature log was conducted upon installation of the surface casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

Pursuant to 40 CFR 146.87(a)(3)(ii), a temperature log was run upon installation of the long string casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

OLCV conducted a similar evaluation in the intermediate casing using after casing was set. OLCV interprets the temperature logging as showing that the casing installation meets well integrity and regulatory objectives.

A summary of the logs used to verify casing is presented in Table 61 below.

Table 61. Cased hole logs acquired for casing verification of BRP CCS3.

Section	Cementing Date	Log Date	Log Type
Surface Casing	10/2/2024	10/7/2024	CBL-VDL-GR-CCL
Intermediate Casing	10/8/2024	10/19/2024	CBL-VDL-GR-CCL
Long String Casing	10/24/2024	12/10/2024	USIT

4.3.5 Plume and Pressure Front Tracking [40 CFR 146.90(g)(1) and (2)

Pursuant to 40 CFR 146.90(g)(1) and (2), OLCV will conduct direct and indirect tracking of the CO_2 plume and pressure front. To establish a baseline reservoir saturation, a pulsed neutron log (PNL) was run after the long string casing was installed and cemented. The petrophysical interpretation of the data establishes the baseline saturation profile over the zones of interest.

In addition to PNL, OLCV will use other methods to determine the plume and pressure front including geochemical testing in the Injection Zone (see Section 5.1), DInSAR with GPS data (see Section 5.5), 2D VSP and 2D surface seismic (see Section 5.6), and pressure and temperature monitoring (see Section 5.8).

A summary of the PNL logging is presented in Table 62 below.

Table 62. PNL baseline for BRP CCS3.

Type	Log Date	Log Type
Surface, Intermediate, Long string	12/11/2024	PNX

Logging results are presented in Figure 37 below.

[redacted]

4.3.6 Continuous Recording Devices, Alarms, and Shut-off Systems [40 CFR 146.88(e)(1) and (2)

Pursuant to 40 CFR 146.88(e)(1), OLCV installed DTS fiber during construction of the wellbore. DTS will be used for continuous recording of pressure and temperature to monitor injection operations and verify mechanical integrity of the wellbore. In addition, OLCV installed PIT in the wellhead to continuously record tubing, casing, and injection flowline surface pressures. OLCV installed TIT in the flowline to record surface injection pressures. This well is equipped with a downhole pressure gauge installed in the tubing to continuously record downhole pressure and temperature in the reservoir, and to record pressure and temperature in the annulus space above the packer. All these devices will be connected to a PLC.

Pursuant to 40 CFR 146.88(e)(2), OLVC installed an electric ESDV mounted on the well tree. This a is fail-close valve that is monitored and controlled by a PLC. The PLC continuously monitors multiple surface and downhole gauges. If the set points are reached, an alarm is triggered and the ESDV is automatically deployed. The PLC is automated and is also remotely monitored.

4.3.7 Directional Survey [40 CFR 146.87(a)(1)]

OLCV conducted a directional survey in accordance with 40 CFR 146.87(a)(1). The directional survey checks were conducted at approximately 100 ft intervals to verify the location of the borehole and confirm that no vertical avenues for fluid movement in the form of diverging holes were created. The results of the deviation survey indicate no diverging holes were created.

The directional survey for BRP CCS3 was reported on October 20, 2024.

4.3.8 Core Acquisition and Analysis Program [40 CFR 146.87(b)]

OLCV acquired the core in the Shoe Bar 1, Shoe Bar 1AZ, and BRP CCS3 to quantify porosity, permeability, and lithology pursuant to 40 CFR 146.87(a) and to determine other rock properties. The list below contains the core data that were acquired.

- OLCV drilled the Shoe Bar 1 well in January 2023. During well construction, OLCV collected 714 feet of whole core and 78 rotary sidewall core plugs.
- OLCV drilled the Shoe Bar 1AZ approximately 1.5 miles west of the Shoe Bar 1 well in August 2023 and collected 725 feet of whole core and 51 rotary sidewall core plugs.
- OLCV drilled BRP CCS3 in September 2024 and collected 75 sidewall cores.

See Appendix A to the Area of Review and Corrective Action Plan that was submitted as part of this UIC Class VI application for a description of core in the Shoe Bar 1 and Shoe Bar 1AZ. Details of the core acquired in the BRP CCS3 are described below in Table 63 and Table 64. Core data in Shoe Bar 1, Shoe Bar 1AZ, and BRP CCS3 were integrated with log data from 11 Project-specific wells and 20 mi^2 of 3D seismic data to comprehensively characterize the stratigraphic setting, including interpretation of depositional environments.

Based on the BRP CCS3 core data, OLCV recommends no changes to the AoR determined from the geocellular model or dynamic simulation model.

[redacted]

4.3.8.1 Core Analysis Program

The analysis program for rotary sidewall cores (RSWC) collected in the BRP CCS3 is listed in the table below.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

4.3.8.3 Porosity and Permeability

Table 67 summarizes the routine core analysis measurements for porosity, permeability, and grain density of samples obtained in the BRP CCS3. These data are within expected ranges, in agreement with log data, and are in agreement with core data obtained in the Shoe Bar 1 and Shoe Bar 1AZ. Figure 38 shows a correlation plot of BRP CCS3 against the stratigraphic wells, Shoe Bar 1 and Shoe Bar 1AZ.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

4.3.8.4 Hydrocarbon Saturation and Quality

OLCV performed Dean-Stark fluid saturation measurements on selected RSWC plugs from BRP CCS3 to evaluate whether hydrocarbons were present. A total of 12 samples were selected from the Injection Zone. Table 68 below lists the hydrocarbon saturation measurements.

[redacted]

[redacted]

4.3.8.5 Confining Zone Capacity: Mercury Injection Capillary Pressure Results

OLCV performed MICP measurements on samples from the Upper and Lower Confining Zones in the BRP CCS3. MICP results indicate high displacement pressure, i.e., the pressure at which mercury first enters the sample, which is consistent with low permeabilities. Table 70 summarizes MICP measurements from the Upper and Lower Confining Zone Formations: Grayburg, Upper San Andres, and Glorieta.

[redacted]

The table below lists the comparison of the BRP CCS3 to the Shoe Bar 1 and Shoe Bar 1AZ, showing agreement in MICP results among the wells.

[redacted]

4.3.8.6 Confining Zone Capacity: Threshold Entry Pressure

The BRP Project performed CO_2 threshold entry pressure (TEP) measurements on three vertical plugs acquired from the sidewall core in BRP CCS3 from the Upper Confining Zone to determine breakthrough characteristics and the ability of the Upper Confining Zone to contain a CO_2 column. OLCV analyzed two plugs from the Grayburg Formation and one plug from the Upper San Andres Formation.

[redacted]

[redacted]

[redacted]

4.3.8.7 Geomechanical Results

[redacted]

4.3.9 Injection Zone Fluid Sampling [40 CFR 146.87(a), (b), (c), and (d)(3)]

In accordance with 40 CFR 146.87(b), OLCV obtained formation fluid samples from the Injection Zone. In accordance with 40 CFR 146.87(a), OLCV determined the salinity of formation fluids, and, in accordance with 40 CFR 146.87(c) and 40 CFR 146.87(d)(2), OLCV recorded the fluid temperature, pH, conductivity, and reservoir pressure of the Injection Zone.

Fluid samples were collected using a MDT tool during the open hole wireline logging runs. At each sample location, a flowline resistivity measurement was taken by the sensor on the MDT tool to discriminate between formation fluids and filtrate from muds. Then the pump-out module on the MDT tool sampled the fluid while monitoring the flowline resistivity to exclude filtrate-contaminated fluid from the sample chamber. Reservoir fluid samples were transported under pressure to a third-party laboratory for analyses. OLCV is confident that the samples obtained are representative of the formation fluid.

[redacted]

[redacted]

OLCV considers the fluid samples obtained in the BRP CCS3 to be representative of Injection Zone fluids. The results of the fluid analyses obtained in the BRP CCS3 are similar to fluid analyses obtained in other Project wells. These results can be used to determine a baseline characterization of the Injection Zone fluid (see Section 5.1) and to demonstrate compatibility of the Injection Zone fluids with the CO_2 injectate stream and wellbore materials (Section 6.8).

4.3.10 Mechanical Integrity Testing Results [40 CFR 146.82(c)(8) and 146.89]

OLCV conducted logging and testing to demonstrate mechanical integrity to meet the requirements of 40 CFR 146.89. Logging and testing confirm that the well has mechanical integrity and that there is no evidence of leaks or fluid movement in the wellbore. OLCV interprets that no changes need to be made to the mechanical integrity evaluation in the Testing and Monitoring Plan that was submitted as part of the UIC Class VI application.

Table 77. Logs and tests acquired to demonstrate mechanical integrity of BRP CCS3.

Wellbore Section	Name	Log Date	Log or test
Long String Casing	Annulus test	3/26/2025	MIT
Long String Casing	Temperature and Pressure Log	12/11/2025	PBMS-PNX
Long String Casing	Ultrasonic Inspection Tool Log	12/10/2025	USIT

Wellbore Section	Name	Log Date	Log or test
Long String Casing	Casing Pressure Test	12/12/2025	MIT
Long String Casing	Pulsed Neutron Log	12/11/2025	PBMS-PNX
Long String Casing	Temperature Log	12/11/2025	PBMS-PNX

To demonstrate there are no significant leaks in the casing, tubing, or packer (40 CFR, 146.89(a)(1)), OLCV performed the following test.

- During the installation of the injection string and after the packer was installed, the casing and tubing annulus was tested at 540 psi, following guidelines described in the Pre-operations Testing Plan that was submitted as part of this UIC Class VI application. The test results were successful, indicating a loss of zero psi after a 30-minute test.

To demonstrate that there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore (40 CFR, 146.89(a)(2)), OLCV performed the following logs and tests.

- A temperature log was executed after installing the long string casing. Temperature readings from surface to 6,484 ft MD (24 ft above TD) are within the expected range based on reservoir conditions and demonstrate the absence of vertical crossflow. OLCV interprets the results as indicating that casing integrity is achieved. The maximum temperature observed was 94.78ºF at the bottom of the wellbore.

- OLCV used an Ultrasonic Imaging Tool (USIT) after the well was constructed to verify mechanical integrity of the long string casing. The results of logging indicate minor variations in the minimum thickness of the casing wall and minor variations in internal radius of the casing. OLCV interprets the USIT data as indicating that mechanical integrity of the long-string casing was achieved.

- Before perforations were conducted, OLCV performed pressure tests at 2500 psi and 1500 psi to validate mechanical integrity of the wellbore. These tests were successful, and recorded charts are submitted as attachments to this report.

- A Pulse Neutron Log (PNL) was acquired for baseline reservoir saturation and for future evaluations. If temperature data shows anomalies that required additional analysis, Pulse neutron log can be run for additional evaluation.

4.3.11 Fracture Pressure Results [40 CFR 146.87(d)(1)]

OLCV determined the fracture pressure of the Injection and Confining Zones pursuant to 40 CFR 146.87(d)(1) by using a MDT tool to create and sustain a fracture for a small amount of time and determine the resulting fracture initiation, fracture breakdown, and fracture propagation pressure.

[redacted]

4.3.11.1 BRP CCS3: Upper Confining Zone

[redacted]

[redacted]

4.3.11.2 BRP CCS3: Injection Zone

[redacted]

[redacted]

4.3.11.3 BRP CCS3: Lower Confining Zone

[redacted]

4.3.11.4 Results obtained in the BRP CCS3 compared to other Project wells

OLCV obtained mini-frac results in the BRP CCS3 that are consistent to other Project wells and confirm the mechanical strength of the Upper and Lower Confining Zone and the Injection Zone across the AoR. See Section 6.5 for a summary of all mini-frac test results.

Geomechanical testing demonstrates that elastic properties, poroelastic properties, and compressive strength are consistent among tested wells (Shoe Bar 1, Shoe Bar 1AZ, and BRP CCS3) within the Injection Zone, and Upper and Lower Confining Zones. The resulting stress models, calibrated to measured fracture pressure in the wellbores, is consistent across the area and is interpreted as showing a low risk of failure under modeled injection scenarios.

Lower Confining Zone

[redacted]

Upper Confining Zone

[redacted]

Injection Zone

[redacted]

[redacted]

[redacted]

4.3.11.5 Adjustments to maximum injection pressure resulting from test data

[redacted]

4.3.12 BRP CCS3 Injectivity Test Results and Fall-off Analysis [40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3)]

[redacted]

[redacted]

[redacted]

4.3.13 Reservoir Pressure [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.3.9.

[redacted]

[redacted]

4.3.14 Fluid Level Testing Results [40 CFR 146.87(c)]

In accordance with 40 CFR 146.87(c), OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.3.9. Reservoir pressure is reported in Section 4.3.13.

[redacted]

4.4 Injection Zone Monitoring Well: SLR2

4.4.1 Well Construction and Completion Summary

The well was constructed in accordance with the Well Construction Plan for the Project. The as-built wellbore diagram is presented in Section 3.4.

4.4.2 Logging Results [40 CFR 146.87(a)(2) and (3)]

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan.

4.4.2.1 Open Hole Logging

OLCV conducted logging to determine and verify the depth, thickness, porosity and lithology of the Injection Zone and Confining Zones. The table below shows the logs that were acquired during well construction in January 2025.

Table 81. Open hole logs acquired during the construction phase of SLR2.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Production	Identify borehole enlargement and calculate cement volume

Method	Interval Section(s)	Purpose
Wireline – Gamma ray	Production	Define stratigraphy, correlation log, shale indicator
Wireline – Magnetic resonance image	Production	Estimate porosity, pore size distribution, permeability index
Wireline – Sonic Scanner	Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Production	Estimate porosity, mineralogical characterization
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

4.4.2.2 Cased Hole Logging

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan. The table below shows the logs that were acquired after casing was installed in February 2025.

Table 82. Cased hole logs acquired during the drilling and completion phases of SLR2.

Method	Interval Section(s)	Purpose
Cased Hole Logs and surveys Before Injection		
Wireline – CBL-VDL-CCL	Surface, Intermediate	Cement bond, Validate external mechanical integrity
Wireline – CBL-VDL-USIT (Casing inspection log)-CCL	Production	Cement bond, casing inspection log (USIT); Validate external mechanical integrity
Annulus Pressure Test – Long string casing	Annular between tubing and long string	Validate internal mechanical integrity between the tubing, long-string, and packer
Wireline – Activate pulsed neutron (Oxygen Activation Log) – Long string casing	Surface, Intermediate, Production	CO_2 saturation, baseline for monitoring
Wireline – Temperature Log	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation
Fiber Optic – DAS, DTS survey	Surface, Intermediate, Production	Measure baseline temperature profile on the well from surface to top of perforation Acquire baseline 3D VSP survey for monitoring plume migration over time

4.4.2.3 Logging Results

[redacted]

[redacted]

4.4.3 Cement Verification [40 CFR 146.87(a)(2)(ii) and (a)(3)(ii)]

40 CFR 146.87(a)(2)(ii) and 146.87(a)(3)(ii) are not applicable to the SLR2, because the well is used for monitoring and regulated by the RRC.

A cement bond log (CBL) and variable density log (VDL) were run upon installation of the surface casing to evaluate cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the surface casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 1,788 ft MD.

CBL and VDL were run upon installation of the long string casing to verify cement quality radially. The CBL/VDL logging results confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs submitted as attachments to this report demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these results to indicate that cementing of the long string casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 5,315 ft MD.

OLCV conducted a similar evaluation in the intermediate casing using CBL and VDL after casing was set. OLCV interprets that the cementing of the intermediate casing meets well integrity and regulatory objectives, and cementing operations achieved hydraulic and mechanical isolation of near wellbore formations from surface to 3,798 ft MD.

A summary of the logs used to verify cement is presented in Table 84 below.

Table 84. Cased hole logs acquired for cement verification of Injection Zone Monitoring Well SLR2.

Section	Cementing Date	Log Date	Log Type
Surface Casing	12/30/2024	01/01/2025	CBL-VDL-GR-CCL
Intermediate Casing	01/02/2025	01/08/2025	CBL-VDL-GR-CCL
Long String Casing	01/10/2025	02/14/2025	CBL-VDL-GR-CCL

4.4.4 Casing Verification [40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii)]

40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii) do not apply to SLR2, as this well is utilized for monitoring and regulated by the RRC.

OLCV conducted a temperature log upon installation of the surface casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

OLCV conducted a temperature log upon installation of the long string casing to verify that the casing was set and cemented. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The temperature log is consistent CBL and VDL results.

OLCV conducted a similar evaluation in the intermediate casing using after casing was set. OLCV interprets the temperature logging as showing that the casing installation meets well integrity and regulatory objectives.

A summary of the logs used to verify casing is presented in Table 85 below.

Table 85. Cased hole logs acquired for casing verification of Injection Zone Monitoring Well SLR2.

Section	Cementing Date	Log Date	Log Type
Surface Casing	12/30/2024	01/01/2025	CBL-VDL-GR-CCL
Intermediate Casing	01/02/2025	01/08/2025	CBL-VDL-GR-CCL
Long String Casing	01/10/2025	02/14/2025	USIT

4.4.5 Plume and Pressure Front Tracking [40 CFR 146.90(g)(1) and (2)

40 CFR 146.90(g)(1) and 146.90(2) are not applicable to the SLR2, because the well is used for monitoring and regulated by the RRC.

OLCV will conduct direct and indirect tracking of the CO_2 plume and pressure front. To establish a baseline reservoir saturation, a PNL log was run after the long string casing was installed and cemented. The petrophysical interpretation of the data establishes the baseline saturation profile over the zones of interest.

In addition to PNL, OLCV will use other methods to determine the plume and pressure front including geochemical testing in the Injection Zone (see Section 5.1), DInSAR with GPS data (see Section 5.5), 2D VSP and 2D surface seismic (see Section 5.6), and pressure and temperature monitoring (see Section 5.8).

A summary of the PNL logging is presented in Table 86 below.

Table 86. PNL baseline for BRP SLR2.

Type	Log Date	Log Type
Long string casing	2/15/2025	PNX

[redacted]

OLCV also installed Distributed Acoustic Sensing (DAS) fiber during well construction. The DAS fiber will be used for recording data during VSP and surface seismic acquisition for the purpose of indirectly tracking the CO_2 plume and pressure front pursuant to 40 CFR 146.90(g)(1) and (2).

4.4.6 Continuous Recording Devices, Alarms, and Shut-off Systems [40 CFR 146.88(e)(1) and (2)

40 CFR 146.88(e)(1) and (2) is not applicable to the SLR2, because the well is used for monitoring and regulated by the RRC.

OLCV installed DTS fiber during construction of the wellbore. DTS will be used for continuous recording of temperature to monitor injection operations and verify mechanical integrity of the wellbore. In addition, OLCV installed PIT in the wellhead to continuously record tubing and casing pressures. This well is equipped with a downhole pressure gauge installed in the tubing to continuously record downhole pressure and temperature in the reservoir and to record pressure and temperature in the annulus space above the packer. All these devices will be connected to a Programmable Logic Controller (PLC).

The valves on the SLR2 reside in a closed position and there is no flowline connection.

4.4.7 Directional Survey [40 CFR 146.87(a)(1)]

40 CFR 146.87(a)(1) is not applicable to the SLR2, because the well is used for monitoring and is regulated by the RRC.

OLCV conducted a directional survey in SLR2. The directional survey checks were conducted at approximately 100 ft intervals to verify the location of the borehole and confirm that no vertical avenues for fluid movement in the form of diverging holes were created. The results of the deviation survey indicate no diverging holes were created.

The directional survey for SLR2 was reported on January 9, 2025.

4.4.8 Coring Program [40 CFR 146.87(b)]

40 CFR 146.87(b) does not apply to SLR2, as this well is used for monitoring and regulated by the RRC. OLCV did not acquire whole core or rotary sidewall core in the SLR2 well.

4.4.9 Injection Zone Fluid Sampling [40 CFR 146.87(a), (b), (c), and (d)(3)]

40 CFR 146.87(a), (b), (c), and (d)(3) is not applicable to SLR2 because this well is used for monitoring and regulated by the RRC.

Fluid samples were collected using an MDT tool during the open hole wireline logging runs. At each sample location, a flowline resistivity measurement was taken by the sensor on the MDT tool to discriminate between formation fluids and filtrate from muds. Then the pump-out module on the MDT tool sampled the fluid while monitoring the flowline resistivity to exclude filtrate-contaminated fluid from the sample chamber. Reservoir fluid samples were transported under pressure to a third-party laboratory for analyses. OLCV is confident that the samples obtained are representative of the formation fluid.

[redacted]

[redacted]

4.4.10 Mechanical Integrity Testing Results [40 CFR 146.82(c)(8) and 146.89]

40 CFR 146.87(a)(4)(iii) does not apply to the SLR2, as this well is used for monitoring and regulated by the RRC.

■

OLCV conducted logging and testing to demonstrate mechanical integrity. Logging and testing results confirm that the well has mechanical integrity and that there is no evidence of leaks or fluid movement in the wellbore. OLCV interprets that no changes need to be made to the mechanical integrity evaluation in the Testing and Monitoring Plan that was submitted as part of the UIC Class VI application.

Table 89. Logs and tests acquired to demonstrate mechanical integrity of SLR2.

Wellbore Section	Name	Log Date	Log or test
Long String Casing	Annulus test	4/4/2025	MIT
Long String Casing	Temperature and Pressure Log	2/15/2025	PBMS-PNX
Long String Casing	Ultrasonic Inspection Tool Log	2/14/2025	USIT
Long String Casing	Casing Pressure Test	2/15/2025	MIT
Long String Casing	Pulsed Neutron Log	2/15/2025	PBMS-PNX
Long String Casing	Temperature Log	2/15/2025	PBMS-PNX

To demonstrate there are no significant leaks in the casing, tubing, or packer, OLCV performed the following test:

- During the installation of the injection string and after the packer was installed, the casing and tubing annulus was tested at 545 psi, following guidelines described in the Pre-operations Testing Plan that was submitted as part of this UIC Class VI application. The test results were successful, indicating a loss of 0 psi after a 30-minute test.

To demonstrate that there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore, OLCV performed the following logs:

- A temperature log was executed after installing the long string casing. Temperature readings from surface to 5,212 ft MD (26 ft above TD) are within the expected range based on reservoir conditions and demonstrate the absence of vertical crossflow. OLCV interprets these results as indicating the casing integrity is achieved. The maximum temperature observed was 93.56ºF at the bottom of the wellbore.

- OLCV used an Ultrasonic Imaging Tool (USIT) after the well was constructed to verify mechanical integrity of the long string casing. The results of logging indicate minor variations in the minimum thickness of the casing wall and minor variations in internal radius of the casing. OLCV interprets the USIT data as indicating that mechanical integrity of the long-string casing was achieved.

- Before perforations were conducted, OLCV performed pressure tests at 2,350 psi and 1,500 psi to validate mechanical integrity of the wellbore. These tests were successful, and recorded charts are submitted as attachments to this report.
- A Pulse Neutron Log (PNL) was acquired for baseline reservoir saturation and for future evaluations. If temperature data shows anomalies that required additional analysis, a PNL can be run for additional evaluation.

4.4.11 Fracture Pressure Results [40 CFR 146.87(d)(1)]

40 CFR 146.87(d)(1) does not apply to SLR2, as this well is used for monitoring and regulated by the RRC. Fracture pressure testing was not conducted in this well.

4.4.12 Injectivity Testing and Pressure Fall-off Analysis [40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3)]

40 CFR 146.87(e)(1) does not apply to SLR2 as this well is used for monitoring and regulated by the RRC. Injectivity testing and pressure fall-off analysis was not conducted in this well.

4.4.13 Reservoir Pressure [40 CFR 146.87(c)]

40 CFR 146.87(c) does not apply to SLR2 as this well is used for monitoring and regulated by the RRC.

OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.4.9.

[redacted]

[redacted]

4.4.14 Fluid Level Testing Results [40 CFR 146.87(c)]

40 CFR 146.87(c) does not apply to SLR2 as this well is used for monitoring and regulated by the RRC. Fluid level testing was not conducted in this well.

4.5 Water Withdrawal Wells: WW1, WW2, WW3, and WW4

4.5.1 Well Construction and Completion Summary

The WW1, WW2, WW3, and WW4 wells were constructed in accordance with the Construction Plan that was submitted as part of the UIC Class VI application. The as-built wellbore diagrams are presented in Section 3.4.

4.5.2 Logging Results [40 CFR 146.87(a)(2) and (3)]

The logging program for the WW1, WW2, WW3, and WW4 wells was conducted in accordance with the Pre-Operational Testing Plan that was submitted as part of the UIC Class VI application.

4.5.1.1 Open Hole Logging

OLCV conducted logging to determine and verify the depth, thickness, porosity and lithology of the Injection Zone, Confining Zone, Confining System and USDW. The table below shows the logs that were acquired during well construction.

Table 91. Open hole logs acquired during the construction phase of WW1.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, and tortuo:
Wireline – Spontaneous Potential	Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Surface, Production	Define stratigraphy, correlation log, shale indicator
Wireline – Sonic Scanner	Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Surface, Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Production	Estimate porosity, mineralogical characterization
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling, vertical interference testing
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

Table 92. Open hole logs acquired during the construction phase of WW2.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Production	Define stratigraphy, correlation log, shale indicator
Wireline – Magnetic resonance image	Production	Estimate porosity, pore size distribution, permeability index
Wireline – Sonic Scanner	Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Production	Define uranium-rich formation, clay indicator

Method	Interval Section(s)	Purpose
Wireline – Density / neutron	Production	Estimate porosity, mineralogical characterization
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling, vertical interference testing
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

Table 93. Open hole logs acquired during the construction phase of WW3.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Production	Identify borehole enlargement and calculate cement volume
Wireline – Gamma ray	Production	Define stratigraphy, correlation log, shale indicator
Wireline – Magnetic resonance image	Production	Estimate porosity, pore size distribution, permeability index
Wireline – Spectral gamma ray	Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Production	Estimate porosity, mineralogical characterization
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

Table 94. Open hole logs acquired during the construction phase of WW4.

Method	Interval Section(s)	Purpose
Deviation survey	Every 100 ft while drilling as minimum, from surface to TD	Define well trajectory, displacement, tortuosity
Wireline – Spontaneous Potential	Production	Correlation log, volume of shale indicator, estimate salinity
Wireline – Resistivity	Production	Fluid identification, estimate salinity, correlation log
Wireline – Caliper	Production	Identify borehole enlargement and calculate cement volume

Method	Interval Section(s)	Purpose
Wireline – Gamma ray	Production	Define stratigraphy, correlation log, shale indicator
Wireline – Sonic Scanner	Production	Estimate mechanical properties, validation of velocity model, well tie to seismic
Wireline – Spectral gamma ray	Production	Define uranium-rich formation, clay indicator
Wireline – Density / neutron	Production	Estimate porosity, mineralogical characterization
Wireline – Formation Dynamics Testing	Production	Measure formation pressures, fluid sampling
Mud Logging	Surface to TD (every 30 ft)	Identify lithology, hydrocarbon shows, gases composition

4.5.1.2 Cased Hole Logging

The logging program was conducted in accordance with the BRP Project Pre-Operational Testing Plan. The table below shows the logs that were acquired after casing was installed.

Table 95. Cased hole logs acquired during the drilling and completion phases of WW1, WW2, WW3, and WW4.

Method	Interval Section(s)	Purpose
Cased Hole Logs and surveys Before Injection		
Wireline – CBL-VDL-USIT (Casing inspection log)-CCL	Production	Cement bond, casing inspection log (USIT); Validate external mechanical integrity
Wireline – Activate pulsed neutron (Oxygen Activation Log) – Long string casing	Production	CO_2 saturation, baseline for monitoring
Wireline – Temperature Log	Production	Measure baseline temperature profile on the well from surface to top of perforation

4.5.1.3 Logging Results

The following figures show logs acquired in the WW1, WW2, WW3, and WW4 wells.

[redacted]

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[redacted]

4.5.3 Cement Verification [40 CFR 146.87(a)(2)(ii) and (a)(3)(ii)]

40 CFR 146.87(a)(2)(ii) and 40 CFR 146.87(a)(3)(ii) do not apply to WW1, WW2, WW3, and WW4, as these wells are utilized for brine production and regulated by the RRC.

OLCV conducted a cement bond log and variable density log upon installation of the surface and long string casing for each brine production well to evaluate cement quality. The CBL/VDL logging results in each well confirm that cement was circulated through the casing to the surface, as planned. The CBL/VDL logs demonstrate correlation of amplitude suppression (CBL) to casing and formation arrivals (VDL). OLCV interprets these logs as confirming that cementing operations in each of the wells achieved hydraulic and mechanical isolation of near wellbore formations from TD to surface.

A summary of the logs used to verify cement is presented in Table 96 below.

Table 96. Cased hole logs acquired for cement verification of WW1, WW2, WW3, and WW4.

Well	Wellbore Section	Log Date	Log Type
WW1	Long String Casing	4/24/2024	CBL-VDL-GR-CCL
WW2	Long String Casing	6/5/2024	CBL-VDL-GR-CCL
WW3	Long String Casing	6/4/2024	CBL-VDL-GR-CCL
WW4	Long String Casing	4/24/2024	CBL-VDL-GR-CCL

4.5.4 Casing Verification [40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii)]

40 CFR 146.87(a)(2)(ii), (a)(3)(ii), and (a)(4)(iii) do not apply to WW1, WW2, WW3, and WW4, as these wells are utilized for brine production and regulated by the RRC.

An USIT log was conducted after installation of the long string casing. Temperature log results support the interpretation that the casing was set and cemented as planned, and there is an absence of near-wellbore vertical crossflow. The results of logging indicate a casing walls thickness indicating good mechanical integrity.

Table 97. Cased hole logs acquired for casing verification of BRP CCS1.

Well	Wellbore Section	Log Date	Log Type
WW1	Long String Casing	4/24/2024	USIT
WW2	Long String Casing	6/5/2024	USIT
WW3	Long String Casing	6/4/2024	USIT
WW4	Long String Casing	4/23/2024	USIT

4.5.5 Plume and Pressure Front Tracking [40 CFR 146.90(g)(1) and (2)

40 CFR 146.90(g)(1) and 146.90(2) are not applicable to the WW1, WW2, WW3, and WW4 wells because these wells are used for brine withdrawal and regulated by the RRC.

To establish a baseline reservoir saturation, a PNL was run after the long string casing was installed and cemented. The petrophysical interpretation of the data establishes the baseline saturation profile over the zones of interest.

In addition to PNL, OLCV will use other methods to determine the plume and pressure front including geochemical testing in the Injection Zone (see Section 5.1), DInSAR with GPS data (see Section 5.5), 2D VSP and 2D surface seismic (see Section 5.6), and pressure and temperature monitoring (see Section 5.8).

A summary of the PNL logging is presented in Table 98 below.

Table 98. PNL baseline for WW1, WW2, WW3, and WW4.

Well	Type	Log Date	Log Type
WW1	Long string casing	4/24/2024	PNX
WW2	Long string casing	6/5/2024	PNX
WW3	Long string casing	6/4/2024	PNX
WW4	Long string casing	4/23/2024	PNX

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4.5.6 Continuous Recording Devices, Alarms, and Shut-Off Systems [40 CFR 146.88(e)(1) and (2)

40 CFR 146.88(e)(1) and (2) is not applicable to WW1, WW2, WW3, and WW4, as these wells are used for brine production and regulated by the RRC.

OLCV installed a PLC that continuously monitors surface pressure and temperature in the brine pipeline, flowlines to wellheads, and pressure at the wellheads using PIT and TIT devices. OLCV installed ESDVs in the pipeline and flowlines that are set to automatically shut-in if pressure reaches a designated set point.

4.5.7 Directional Survey [40 CFR 146.87(a)(1)]

40 CFR 146.87(a)(1) is not applicable to the WW1, WW2, WW3, or WW4, because the wells are used for brine production and regulated by the RRC.

The directional survey checks were conducted at approximately 100 ft intervals to verify the location of the borehole and confirm that no vertical avenues for fluid movement in the form of diverging holes were created. The results of the deviation indicate no diverging holes were created.

The directional survey for the WW1 was reported on April 11, 2024; WW2 was reported on April 17, 2024; WW3 was reported on June 5, 2024, WW4 was reported on April 3, 2024.

4.5.8 Coring Program [40 CFR 146.87(b)]

40 CFR 146.87(b) does not apply to WW1, WW2, WW3, or WW4, as these wells are used for brine production and regulated by the RRC. OLCV did not acquire whole core or rotary sidewall core in the WW1, WW2, WW3, or WW4 wells.

4.5.9 Injection Zone Fluid Sampling [40 CFR 146.87(a), (b), (c), and (d)(3)]

40 CFR 146.87(a), (b), (c), and (d)(3) is not applicable to WW1, WW2, WW3, or WW4 because these wells are used for brine production and regulated by the RRC.

Fluid samples were collected using an MDT tool during the open hole wireline logging runs. At each sample location, a flowline resistivity measurement was taken by the sensor on the MDT tool to discriminate between formation fluids and filtrate from muds. Then the pump-out module on the MDT tool sampled the fluid while monitoring the flowline resistivity to exclude filtrate-contaminated fluid from the sample chamber. Reservoir fluid samples were transported under pressure to a third-party laboratory for analyses. OLCV is confident that the samples obtained are representative of the formation fluid.

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[redacted]

4.5.10 Mechanical Integrity Testing Results [40 CFR 146.82(c)(8) and 146.89]

40 CFR 146.87(a)(4)(iii) does not apply to the WW1, WW2, WW3, and WW4, as these wells are used for brine production and regulated by the RRC. A temperature log, an oxygen activation log, and a casing inspection log were run during the completion phase to verify mechanical integrity.

OLCV interprets the results as confirming that the well has mechanical integrity and that there is no evidence of leaks or fluid movement in the wellbore. OLCV interprets that no changes need to be made to the mechanical integrity evaluation in the Testing and Monitoring Plan that was submitted as part of the UIC Class VI application. Note that Annulus MIT tests were not performed in the WW1 and WW4, because those wells were not constructed with DV tools. Logging data supports the interpretation of mechanical integrity in the WW1 and WW4.

Table 101. Logs and tests acquired to demonstrate mechanical integrity of WW1, WW2, WW3, and WW4.

Well	Wellbore Section	Name	Log Date	Log or test
	Long String Casing	Ultrasonic Inspection Tool Log	4/24/2024	USIT
	Long String Casing	Pulsed Neutron Log	4/24/2024	PBMS-PNX
WW2	Long String Casing	Annulus test	6/9/2024	MIT
	Long String Casing	Ultrasonic Inspection Tool Log	6/5/2024	USIT
	Long String Casing	Pulsed Neutron Log	6/5/2024	PBMS-PNX
WW3	Long String Casing	Annulus test	6/4/2024	MIT
	Long String Casing	Ultrasonic Inspection Tool Log	6/4/2024	USIT
	Long String Casing	Pulsed Neutron Log	6/4/2024	PBMS-PNX
	Long String Casing	Ultrasonic Inspection Tool Log	4/23/2024	USIT
	Long String Casing	Pulsed Neutron Log	4/23/2024	PBMS-PNX

To demonstrate that there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore, OLCV performed the following logs:

- OLCV used an Ultrasonic Imaging Tool (USIT) after the well was constructed to verify mechanical integrity of the long string casing. The results of logging indicate minor variations in the minimum thickness of the casing wall and minor variations in internal radius of the casing. OLCV interprets the USIT data as indicating that mechanical integrity of the long-string casing was achieved.
- A Pulse Neutron Log (PNL) was acquired for baseline reservoir saturation and for future evaluations. If temperature data shows anomalies that required additional analysis, Pulse neutron log can be run for additional evaluation.

4.5.11 Fracture Pressure Results [40 CFR 146.87(d)(1)]

40 CFR 146.87(d)(1) does not apply to WW1, WW2, WW3, and WW4, as these wells are used for brine withdrawal and regulated by the RRC. Fracture pressure testing was not conducted in these wells.

4.5.12 Injectivity Test Results and Fall-off Analysis [40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3)]

40 CFR 146.87(e)(1) and 40 CFR 146.87(e)(3) do not apply to WW1, WW2, WW3, and WW4 as these wells are used for brine production and regulated by the RRC. Injectivity testing and fall-off analyses were not conducted on these wells.

4.5.13 Reservoir Pressure [40 CFR 146.87(c)]

40 CFR 146.87(c) does not apply to WW1, WW2, WW3, and WW4 as these wells are used for monitoring and regulated by the RRC. OLCV recorded the fluid temperature, pH, conductivity, reservoir pressure and static fluid level of the Injection Zone. Fluid temperature, pH, and conductivity are reported in Section 4.5.9.

The BRP Project obtained reservoir pressure measurements using a wireline deployed MDT logging tool in the water withdrawal wells.

[redacted]

[redacted]

4.5.14 Fluid Level Testing Results [40 CFR 146.87(c)]

40 CFR 146.87(c) does not apply to WW1, WW2, WW3, and WW4 as these wells are used for brine production and regulated by the RRC. Fluid level testing was not conducted in these wells.

4.6 Monitoring Well: USDW-1

4.6.1 Well Construction Results

The well was constructed in accordance with the Well Construction Plan for the Project. The as-built wellbore diagram is presented in Section 3.4.

4.6.2 Open Hole Logging Results

The logs in Table 103 below were acquired during well construction after the surface casing was set at 220 ft MD. Note that a deviation survey was not conducted in the USDW1 well because this survey is not typically acquired in shallow, USDW-level wells.

Table 103. Logs collected in the USDW1 well during well construction.

Method	Interval (ft)	Purpose
Open Hole Logs, Surveys and Sampling During Construction		
Wireline – Spectral gamma ray	Surface to TD	Define uranium-rich formation, clay indicator
Wireline- Spontaneous Potential	Surface to TD	Correlation log, volume of shale indicator, estimate salinity
Wireline –Resistivity (Dual Induction)	Surface to TD	Fluid identification, estimate salinity, correlation log
Wireline – Density / Neutron	Surface to TD	Estimate porosity, mineralogical characterization
Wireline – Caliper	Surface to TD	Identify borehole enlargement and calculate cement volume

Method	Interval (ft)	Purpose
Open Hole Logs, Surveys and Sampling During Construction		
Lithology	Surface to TD	Identify lithology

[redacted]

4.6.3 Geochemical testing [40 CFR 146.82(a)(6)

Following appropriate well development, fluids and dissolved gases from the USDW1 well were sampled and analyzed. The results of this testing and analyses is presented in Section 5.1.

4.7 Monitoring Well: SLR 1 (Shoe Bar 1)

OLCV constructed the Shoe Bar 1 stratigraphic test well in 2023. The results of drilling and testing were presented in Appendix A of the Area of Review and Corrective Action Plan and the Pre-Operational Testing Plan that were submitted as part of the UIC Class VI application for this Project. In 2025, OLCV performed a workover on the well to convert it to monitor the Upper Confining Zone. The as-built wellbore diagram is presented in Section 3.4. Following conversion to a monitoring well, the Shoe Bar 1 well is referred to as SLR1.

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- [redacted]
- [redacted]

[redacted]

OLCV determined that the job had achieved satisfactory isolation/abandonment of the previously open zones.

4.7.2 MIT results

OLCV conducted an MIT in accordance with the Pre-Operations Plan submitted as part of the UIC Class VI application for the Project and in accordance with RRC guidelines. The MIT was witnessed by RRC personnel. Test results demonstrate wellbore integrity after completion of the workover. The recorded test pressure is provided as an attachment to this report.

4.8 Monitoring Well: SLR 1AZ (Shoe Bar 1AZ)

The Shoe Bar 1AZ stratigraphic test well was drilled in 2023. The results of drilling and testing were presented in Appendix A of the Area of Review and Corrective Action Plan and the Pre-Operational Testing Plan that were submitted as part of the UIC Class VI application for this Project. In 2025, OLCV performed a workover on the well to convert it to monitor the Upper Confining Zone. The as-built wellbore diagram is presented in Section 3.4. Following conversion to a monitoring well, the Shoe Bar 1AZ well is referred to as AZC1.

4.8.1 Well Workover Results

[redacted]

[redacted]

4.8.2 MIT results

OLCV conducted an MIT in accordance with the Pre-Operations Plan submitted as part of the UIC Class VI application for the Project and in accordance with RRC guidelines. The MIT was witnessed by RRC personnel. Test results demonstrate wellbore integrity after completion of the workover. The recorded test pressure is provided as an attachment to this report.

5.0 Baseline Data Collection

OLCV has collected site-specific data from 11 wells constructed for the BRP Project. The data from these wells provide a baseline for geochemistry of fluids and dissolved gases, pressure, temperature, and/or other properties of the Injection and Confining Zones and the USDW (which is coincident with the first permeable zone above the Confining Zone). In addition, OLCV installed 20 permanent soil gas probes, 11 permanent corner reflectors/GPS stations, and five seismometers. OLCV has collected DInSAR data over the AoR and surrounding area and acquired 2D VSPs and 2D surface seismic at four wells. In addition, OLCV acquired 3D seismic data in an area of ~20m^2 that were used for initial site characterization.

A summary of the baseline monitoring activities and locations is provided below in Table 105.

Table 105. Summary of baseline data activities.

Baseline data	Baseline Data Locations	Description of Data Collection
Geochemical and isotopic properties of fluids and dissolved gases in the Injection Zone	10 wells in the AoR that penetrate the Injection Zone	Samples collected during construction of 10 wells; repeat samples collected from fluids produced to the surface at four brine withdrawal wells and SLR2
Geochemical and isotopic properties of fluids and dissolved gases in the USDW, which is coincident with the first permeable zone above the Confining Zone for this Project	One USDW well	Sampling and analysis quarterly for at least one year prior to CO_2 injection, contingent upon length of time between well construction and CO_2 injection start-up
Geochemical and physical properties of soils in the near-surface	20 stations spread throughout the AoR and adjacent to the AoR	Soil sampling and analyses during soil gas probe station construction
Geochemical and isotopic properties of soil gases in the near-surface	20 stations spread throughout the AoR and adjacent to the AoR	Soil gas sampling and analyses following station construction, and quarterly for approximately one year prior to start of CO_2 injection
Rock and fluid properties of the Confining Zones	10 wells in the AoR that penetrate the Confining Zones	Logging of 10 wells that penetrate the Upper Confining Zone; logging of 5 wells that penetrate the Lower Confining Zone; geomechanical properties based on core analyses from 3 wells, MDT pressure testing in 6 wells
Site-specific seismicity	5 site-specific seismometers, plus regional seismometer network data subscriptions	Seismometers installed and continuously monitored for approximately one year prior to start of CO_2 injection
Geometry of the Earth's surface at the Project site	DInSAR data acquired, and 11 corner stations installed for calibration	Data delivered quarterly for approximately one year prior to start of CO_2 injection
Geophysical properties and subsurface imaging from near the Earth's surface to the geologic basement	Project site	20 mi^2 3D survey and two 2D lines acquired over the Project area in 2022, 2D VSPs and 2D seismic acquired at 4 selected wells prior to the start of CO_2 injection
Saturation of Injection and Upper Confining Zone	10 wells in the AoR that penetrate the Injection Zone	Cased hole logging of 10 wells that penetrate the Injection Zone and Upper Confining Zone
Pressure and temperature of the Injection Zone, and Upper Confining Zone	Measurements in five stratigraphic test wells, one monitoring well, and four brine withdrawal wells	Measurements conducted during well construction and continuously once pressure gauges are installed and/or DTS interrogators are operational
Pressure and temperature of the Lower Confining Zone	Measurements in two stratigraphic test wells	Measurements conducted during well construction
Near wellbore properties of the Injection Zone	3 wells	Pressure fall-off testing at BRP CCS1, BRP CCS2, and BRP CCS3

Baseline data	Baseline Data Locations	Description of Data Collection
Mechanical integrity of wellbores and piping construction materials	MIT annular testing and logging in 10 wells	MIT annular testing and/or logging acquired during well construction
Geochemical and isotopic properties of the CO_2 injectate stream	Gas analyzers located at the DAC facility	During DAC facility commissioning phase
	Gas chromatograph and gas analyzers located near the CO_2 custody transfer meter	Prior to accepting custody of CO_2 in the pipeline

The map below shows the location of monitoring wells and instruments.

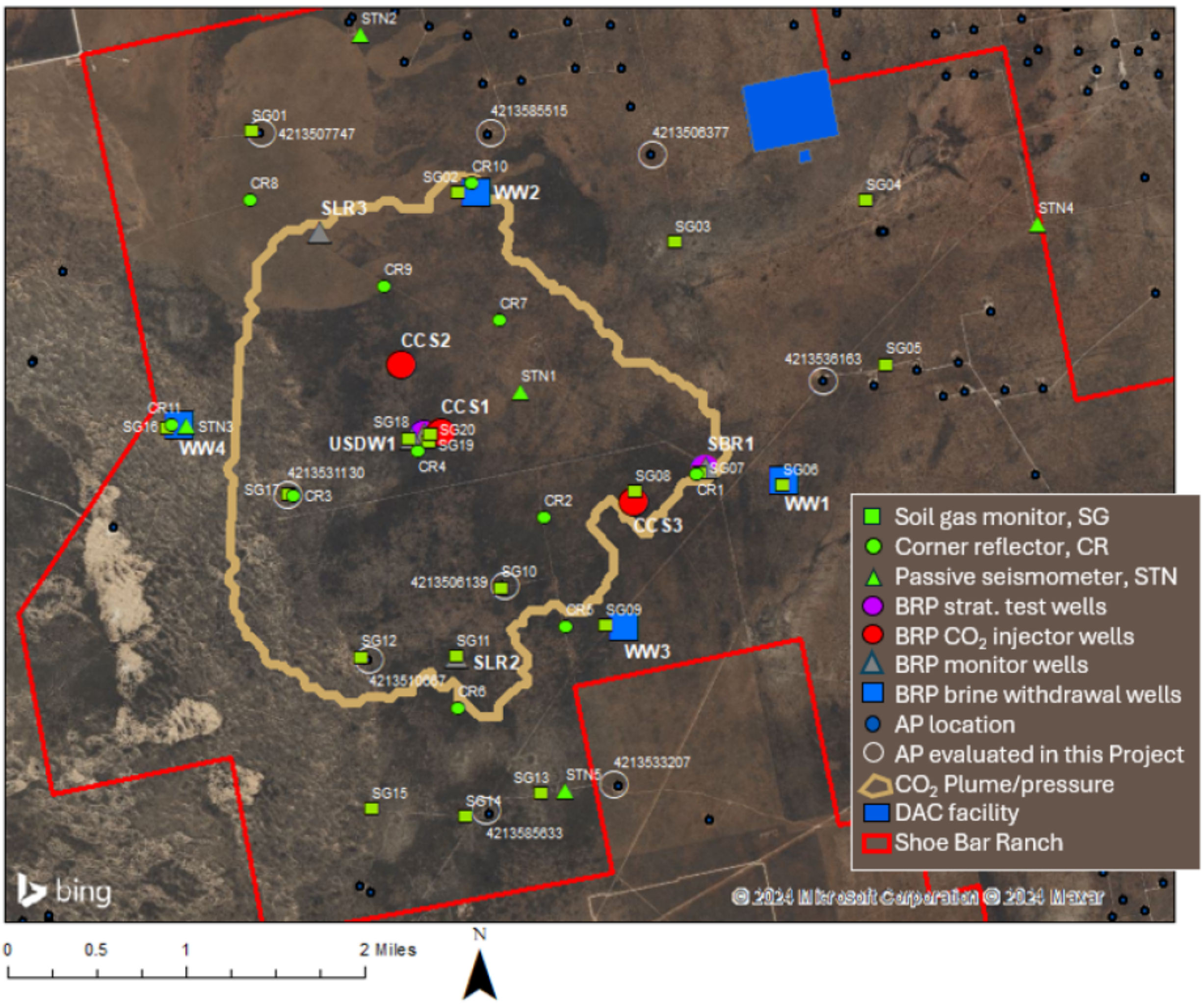

Figure 61. Map of BRP Project showing baseline monitoring locations.

5.1 Baseline Geochemical and Isotopic Properties of Subsurface Fluids

Pursuant to 40 CFR 146.82(a)(6), OLCV has collected baseline geochemical data on subsurface formations. Pursuant to 40 CFR 146.90(d) and 40 CFR 146.90(g), OLCV will compare data collected before and after commencement of CO_2 injection to monitor groundwater quality and geochemical changes above the Confining Zone and to track the extent of the CO_2 plume and pressure front.

5.1.1 Injection Zone Fluids and Dissolved Gases Collected During Well Construction

Fluids and dissolved gases in the Injection Zone were sampled during well construction of the 10 wells that penetrate the Injection Zone: Shoe Bar 1, Shoe Bar 1AZ, WW1, WW2, WW3, WW4, BRP CCS1, BRP CCS2, and SLR2. Samples obtained during well construction were collected at reservoir pressure and temperature and transported under pressure to the laboratory for analysis of fluids and dissolved gases. These samples were collected at specific depths using an MDT tool during open hole wireline logging runs. Sample locations were selected in rock packages with log porosity greater than approximately 10% and sufficient thickness to land the MDT tool. At least one sample was obtained in the G1 or G4 sub-zone of the Lower San Andres Formation and one sample was obtained in the Holt sub-zone of the Lower San Andres Formation. The BRP CCS2 samples were not considered in the baseline evaluation, because OLCV interprets that drilling fluids impacted sample quality during collection.

At each sample location, a flowline resistivity measurement was taken by the sensor on the MDT tool to discriminate between formation fluids and filtrate from muds. Then the pump-out module on the MDT tool sampled the fluid while monitoring the flowline resistivity to exclude filtrate-contaminated fluid from the sample chamber. Reservoir fluid samples were transported under pressure to a third-party laboratory for analyses. OLCV is confident that the samples obtained are representative of the formation fluid in all sampled wells except for BRP CCS2. The fluid analysis results of the BRP CCS2 are consistent with mud filtrate contamination and are excluded from the discussion below.

Injection Zone samples were analyzed for geochemical and isotopic properties to characterize as-drilled conditions. Analyses included the following parameters (note: some samples only were analyzed for a subset of these parameters):

- Total Metals: Al, As, Ba, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Si, Sr, Th, U, V, and Zn Dissolved CO_2
- Alkalinity: Total, Carbonate, Bicarbonate, and Hydroxide
- Br, Cl, F, Sulfate, Nitrate and Nitrite as N
- Phosphorous and Orthophosphate as P
- Total Dissolved Solids (TDS), Conductivity, pH, Specific Gravity

- Dissolved Gas Abundances: C1-C6+, CO_2, N_2, H_2S
- Dissolved Gas Isotopes: $\delta^{13}C$ of C1-C5 and CO_2, $\delta^{2}H$ of C1, and ^{14}C of C1
- $\delta^{13}C$ and ^{14}C of Dissolved Inorganic Carbon (DIC)
- $\delta^{18}O$ and $\delta^{2}H$ of H^2O
- $^{87}Sr/^{86}Sr$
- Radium-228 and Radium-226
- Radon-222

Although these samples represent a baseline, they are not comparable to other baseline samples collected during subsequent post-construction sampling events, because these events sampled fluids at surface conditions or through different downhole sampling techniques.

A summary of sampling events conducted during well construction is provided in Table 106 below.

[redacted]

5.1.2 Results of Injection Zone Fluids and Dissolved Gases Collected and Analyzed During Well Construction

A summary of key results is shown in Table 107, presented below.

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[redacted]

[redacted]

[redacted]

5.1.3 Injection Zone Fluids and Dissolved Gases Collected Post-Construction

Repeat sampling events in the WW1, WW2, WW3, WW4, and SLR2 occurred approximately quarterly between well construction and the commencement of CO_2 injection. In the brine withdrawal wells, OLCV collected samples of Injection Zone fluids produced to the surface. In the SLR2 well, OLCV will collect samples of Injection Zone fluids produced to the surface through a U-tube that maintains reservoir pressure and temperature conditions. Note that U-tube sampling systems are not compatible with the design criteria for brine withdrawal wells, Class VI injector wells, or wells intended to monitor the Confining Zone.

A schedule of post-construction sampling events is provided in Table 108 and a summary of sample numbers and locations is provided in Table 109. Fluids in the Injection Zone are unlikely to be impacted by seasonal or other episodic events; therefore, a baseline can be established with fewer sampling events than for the USDW.

Table 108. Schedule of geochemical sampling events forming the post-construction baseline.

Well	Zone	3Q24	4Q24	1Q25	2Q25*
WW1	Injection Zone	Aug	Dec	--	Jun
WW2	Injection Zone	Aug	Dec	--	Jun
WW3	Injection Zone	Aug	Dec	Mar	Jun

Well	Zone	3Q24	4Q24	1Q25	2Q25*
WW4	Injection Zone	Aug	Dec	Mar	Jun
SLR2	Injection Zone	-	-	Mar	Jun

Notes:
The WW1 and WW2 wells were undergoing maintenance and unavailable for sampling in March 2025
*Sampling event date is proposed, not yet conducted.

[redacted]

OLCV collected samples in the WW1, WW2, WW3, and WW4 by connecting sampling tubing to the sampling port at each well (see Figure 64 below of WW2) and filling laboratory-supplied containers with appropriate preservatives, as required. For analyses requiring field filtration, groundwater samples were first field filtered utilizing a 0.45 µm filter prior to filling of the sample containers.

Figure 64. Sampling port for fluid and dissolved gas sampling of brine withdrawal Well WW2.

Groundwater and dissolved gas samples from WW1, WW2, WW3, and WW4 were analyzed by state-accredited laboratories for the following parameters (also see Section 2.2.1.3 of the QASP):

- Total and Dissolved Metals: Ag, Al, As, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Th, Tl, U, V, and Zn
- Dissolved Inorganic Carbon (DIC) and Dissolved Organic Carbon (DOC)
- Dissolved CO_2
- Alkalinity: Total, Carbonate, Bicarbonate, and Hydroxide
- Br, Cl, F, Sulfate, Nitrate and Nitrite as N
- Phosphorous and Orthophosphate as P
- Sulfide
- TDS, Conductivity, pH, Specific Gravity
- Benzene, toluene, xylenes, and ethylbenzene
- Dissolved Gas Abundances: CO_2, CO, N_2, Ar, H_2, O_2, C1-C6+
- Dissolved Gas Isotopes: $\delta^{13}C$ of C1-C5 and CO_2, $\delta^{2}H$ of C1, and ^{14}C of C1
- $\delta^{13}C$ of DIC and ^{14}C of DIC
- $\delta^{18}O$ and $\delta^{2}H$ of H^2O
- $^{87}Sr/^{86}Sr$

- Radium-228 and Radium-226
- Radon-222

5.1.4 Results of Injection Zone Fluids and Dissolved Gases Collected and Analyzed Post-Construction

Analytical results for fluid and dissolved gas samples collected at wells WW1, WW2, WW3, and WW4 post-construction are presented as an attachment to this report. A summary of key results is presented in Table 110 below. Because the brine withdrawal wells are perforated in the G4, G1, and Holt sub-zones of the Lower San Andres Formation, fluid and dissolved gas samples collected at the surface are representative of comingled fluids from all three sub-zones.

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5.1.5 Differences Between Dissolved Gas Data for Pre-Construction vs. Post-Construction Samples

[redacted]

5.1.6 USDW Fluids and Dissolved Gases Collected Post-Construction

OLCV drilled the USDW1 well for the dedicated purpose of testing and monitoring fluids and dissolved gases in the Santa Rosa member of the Dockum Group, which is the lowermost USDW, and the first permeable zone above the Confining Zone. Fluids and dissolved gases were sampled at the USDW1 well in general accordance with procedures described in EPA Manual LSASDPROC-301-R6 (EPA, 2023a) and guidelines set by Yeskis and Zavala (2002), utilizing a permanent QED ST1102M Stainless Steel Bladder Pump. A 6-in. OD Wall Mill Slot Screen at was set between 800 and 840 ft below ground surface (bgs), and the inlet for the bladder pump tubing was set at approximately 818 ft bgs (see USDW1 wellbore and bladder pump construction diagram in Section 3.4.2).

The sampling schedule was designed to capture seasonal or other near-surface variability. Repeat samples were obtained in March, June, September, and December of 2024 (Table 111). OLCV anticipates one or two additional sample collection events prior to commencement of CO_2 injection at the BRP Project.

Table 111. Summary of geochemical sampling events forming the post-construction baseline.

Well	Zone	1Q24	2Q24	3Q24	4Q24	1Q25	2Q25*
USDW1	USDW	Mar	Jun	Sep	Dec	Mar	Jun

*Sampling event date is proposed, not yet conducted.

[redacted]

[redacted]

Table 113. Water quality parameter stabilization criteria.

Water Quality Parameter	Stabilization Criteria
Temperature	+/- 3 °C
pH	+/- 0.1 Standard Units
Specific Conductivity	+/- 3%

For analyses requiring field filtration, groundwater samples were first field filtered utilizing a 0.45 µm filter prior to filling of the sample containers. Groundwater samples from USDW1 were collected in laboratory-supplied containers with appropriate preservatives, as required, and analyzed by state-accredited laboratories for the following parameters (also see Section 1.4.1 of the QASP):

- Total and Dissolved Metals: Ag, Al, As, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Th, Tl, U, V, and Zn
- Dissolved Inorganic Carbon (DIC) and Dissolved Organic Carbon (DOC)
- Dissolved CO_2
- Alkalinity: Total, Carbonate, Bicarbonate, and Hydroxide
- Br, Cl, F, Sulfate, Nitrate and Nitrite as N
- Phosphorous and Orthophosphate as P
- Sulfide
- Total Dissolved Solids, Conductivity, pH, Specific Gravity
- Benzene, toluene, xylenes, and ethylbenzene
- Dissolved Gas: CO_2, CO, N_2, Ar, H_2, O_2, C1-C6+
- Dissolved Gas Isotopes: $\delta^{13}C$ of C1-C5 and CO_2, $\delta^{2}H$ of C1, and ^{14}C of C1
- $\delta^{13}C$ of DIC and ^{14}C of DIC
- $\delta^{18}O$ and $\delta^{2}H$ of H_2O
- $^{87}Sr/^{86}Sr$
- Radium-228 and Radium-226

5.1.7 Results of USDW Fluids and Dissolved Gases Collected and Analyzed Post-Construction

Analytical results for fluid and dissolved gas samples collected at well USDW1 are submitted as an attachment to this report. Notable results of fluid and dissolved gas sample analyses conducted at USDW1 are shown in Table 114 and are listed below.

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[redacted]

[redacted]

5.2 Baseline Geochemical and Isotopic Properties of Soil and Soil Gases

5.2.1 Soil and Soil Gas Methods

The BRP Project installed 20 soil gas probes in and around the AoR of the BRP Project between June – August 2024. The following factors were considered in siting soil gas probes: (1) the location of injection and monitoring wells, (2) the location of artificial penetrations discussed the Area of Review and Corrective Action Plan; (3) variable surface soil characteristics, such as caliche deposits; (4) site accessibility constraints; (5) the potential effects of the Stratos facility on natural processes in the near-surface; and (6) the location of adjacent property owners. Three probe stations are located near the UIC Class VI injection wells, where highest pressures and resulting risk of vertical migration may be expected. One probe station is located near each BRP Project monitoring well and each legacy artificial penetration within the AoR (i.e., legacy wells drilled for oil and gas exploration). Two probe stations are located near Stratos, and three probe stations are located along the southern boundary of the Shoe Bar Ranch, near an adjacent ranch.

Soil gas probe locations were installed utilizing direct push technology. During borehole advancement, soils were logged in accordance with the Unified Soil Classification System (USCS) and screened with a field organic vapor analyzer (i.e., photoionization detector). At each soil gas probe location, one soil sample was collected in general accordance with EPA Method LSASDPROC-300-R5 (EPA, 2023a) for laboratory analysis of pH, electrical conductivity, sodium adsorption ratio (SAR), TOC, and soil moisture. Two soil samples were collected from soil gas probe location SG20 only. Soil samples were collected once, during installation of soil gas probe

[1] https://www.epa.gov/sites/default/files/2015-09/documents/analytical_methods_and_detection.pdf

stations. Table 115 below lists the locations, installation date, soil sample depth, and sampling dates of soil samples at the soil gas probe locations.

Table 115. Location of soil gas probes and soil samples collected.

Probe number	Date of installation	Depth (ft) of installation	Latitude (NAD 27)	Longitude (NAD 27)	Soil Sample Depth (ft)	Soil sample collected
SG01	6/6/2024	9.5	31.7880	-102.7490	7.5-10	6/6/2024
SG02	6/5/2024	9.5	31.7842	-102.7290	7.5-10	6/5/2024
SG03	8/14/2024	9.5	31.7815	-102.7080	7.5-10	8/14/2024
SG04	6/5/2024	9.5	31.7859	-102.6900	7.5-10	6/5/2024
SG05	6/5/2024	9.5	31.7728	-102.6870	7.5-10	6/5/2024
SG06	6/5/2024	9.0	31.7625	-102.6960	7.5-10	6/5/2024
SG07	6/4/2024	9.5	31.7630	-102.7040	7.5-10	6/4/2024
SG08	6/4/2024	9.5	31.7611	-102.7100	5-10	6/4/2024
SG09	6/5/2024	9.5	31.7501	-102.7120	7.5-10	6/5/2024
SG10	8/13/2024	9.5	31.7527	-102.7230	5-7	8/13/2024
SG11	8/13/2024	9.0	31.7468	-102.7260	8-10	8/13/2024
SG12	8/14/2024	9.5	31.7462	-102.7350	8-10	8/14/2024
SG13	8/13/2024	9.0	31.7362	-102.7170	7-9.5	8/13/2024
SG14	8/13/2024	8.5	31.7340	-102.7240	7.5-10	8/13/2024
SG15	8/14/2024	9.5	31.7340	-102.7330	7.5-10	8/14/2024
SG16	6/7/2024	9.5	31.7636	-102.7550	5-10	6/7/2024
SG17	6/6/2024	9.5	31.7589	-102.7430	7.5-10	6/6/2024
SG18	6/4/2024	8.5	31.7641	-102.7320	7.5-10	6/4/2024
SG19	6/4/2024	9.5	31.7639	-102.7300	7.5-10	6/4/2024
SG20	6/4/2024	9.5	31.7645	-102.7300	2.5-5	6/4/2024
					7.5-10	

Following soil sampling, permanent soil gas probes were installed in the boreholes approximately six inches above borehole bottom within a 1-ft thick, clean, 10/20 silica sand filter pack. Dedicated ¼-inch OD Nylaflow tubing connected to the soil gas probe was extended to ground surface. The remainder of the soil gas probe station consists of six inches of dry granular bentonite above the sand filter pack and then hydrated bentonite to ground surface. A general schematic of the soil gas probe station construction is presented below in Figure 65, and an example of the surface completion (2 ft by 2 ft concrete pad with flush-mount 6-in. diameter manhole) is provided below in Figure 66.

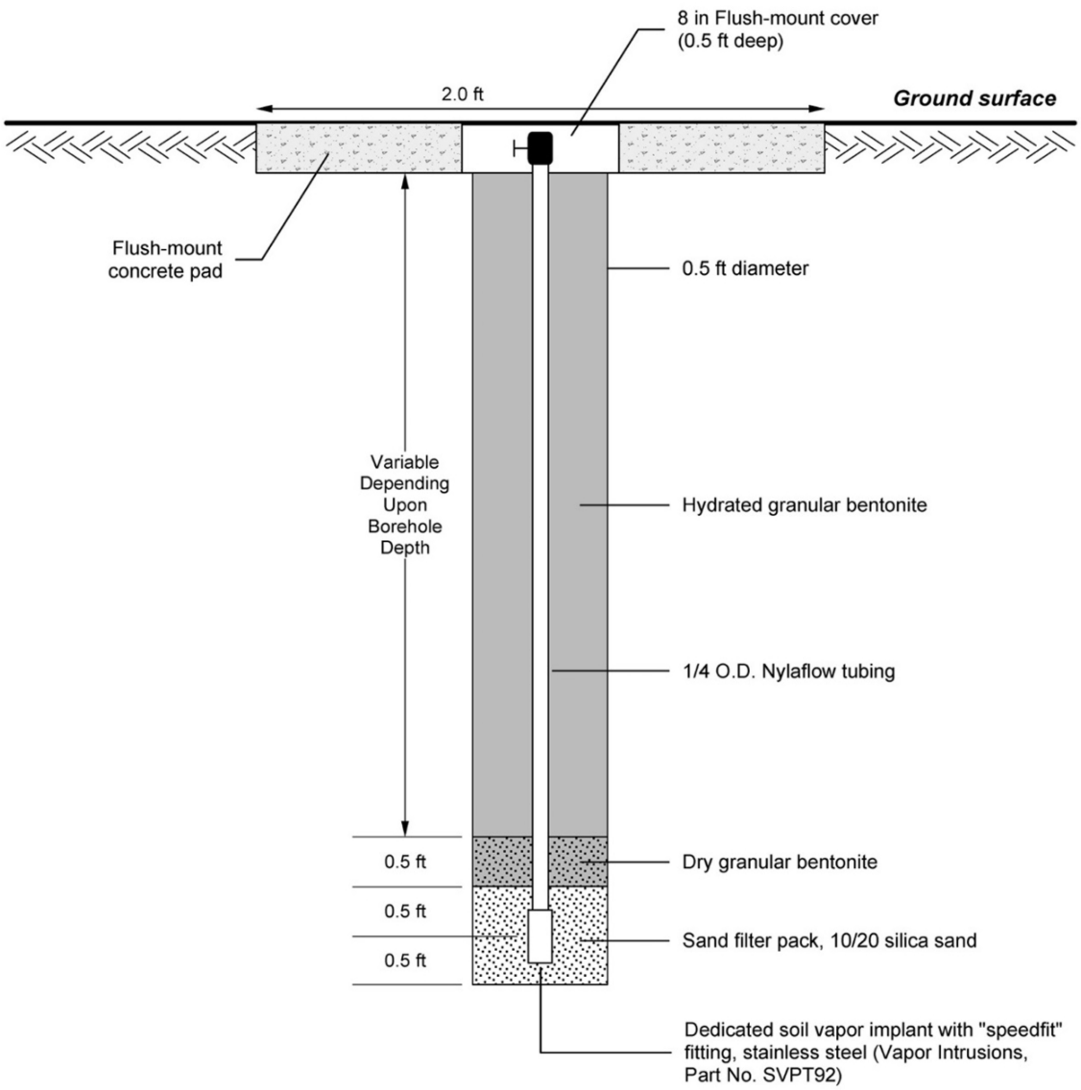

Figure 65. General soil gas probe station construction schematic for BRP Project.

Figure 66. Surface completion of soil gas probe station at SG-7.

Soil gas samples were collected after installation of the probes. Additional soil gas samples were collected in August and December 2024 and March 2025. OLCV anticipates one or two additional sample collection events prior to commencement of CO_2 injection at the BRP Project.

Table 116 below lists the locations, installation date, and sampling dates of the soil gas probes prior to commencement of CO_2 injection operations. Soil gas samples at the probe stations were collected following the procedures set forth in EPA Method SESDPROC-307-R5 (EPA, 2023b) and industry standards ASTM D7648/D7648M-18, for laboratory analysis of the following constituents.

- H_2, He, O_2, N_2, CO_2, CH_4, CO, Ar, C2-C6+
- $\delta^{13}C$ of CH_4 and CO_2, δ^2H of CH_4
- ^{14}C of CO_2

During soil gas sampling, a leakage test was conducted by releasing helium gas as a tracer gas within a shroud over each soil gas sampling site. See QASP 2.2.1.4 for details on sampling and QASP Table 7 for analysis methodologies.

Table 116. Schedule of geochemical sampling events forming the soil gas baseline.

Probe number	Initial sample date	3Q24 sample date	4Q24 sample date	1Q25	2Q25*
SG01	6/8/2024	9/12/2024	12/12/2024	March	June
SG02	6/6/2024	9/12/2024	12/11/2024	March	June
SG03	8/15/2024	9/12/2024	12/11/2024	March	June
SG04	6/7/2024	9/11/2024	12/11/2024	March	June

Probe number	Initial sample date	3Q24 sample date	4Q24 sample date	1Q25	2Q25*
SG05	6/7/2024	9/11/2024	12/10/2024	March	June
SG06	6/7/2024	9/12/2024	12/11/2024	March	June
SG07	6/5/2024	9/12/2024	12/10/2024	March	June
SG08	6/6/2024	9/12/2024	12/11/2024	March	June
SG09	6/7/2024	9/12/2024	12/11/2024	March	June
SG10	8/14/2024	9/11/2024	12/12/2024	March	June
SG11	8/15/2024	9/11/2024	12/11/2024	NS	June
SG12	8/15/2024	9/11/2024	12/12/2024	March	June
SG13	8/14/2024	9/11/2024	12/12/2024	March	June
SG14	8/14/2024	9/11/2024	12/12/2024	March	June
SG15	8/15/2024	9/11/2024	NS	March	June
SG16	6/8/2024	9/10/2024	12/12/2024	March	June
SG17	6/8/2024	9/10/2024	12/12/2024	March	June
SG18	6/5/2024	9/10/2024	12/10/2024	March	June
SG19	6/6/2024	9/10/2024	12/12/2024	March	June
SG20	6/6/2024	9/10/2024	12/12/2024	March	June

Note: NS = Not sampled; unable to access SG15 location during December 2024 sampling event. Station 11 was discovered to be damaged in March 2025 and a sample was not obtained.

* Date of sampling is tentative and has not yet been confirmed

5.2.2 Results of Soil and Soil Gas Analyses

Analytical results for soil and soil gas samples collected at soil gas probe locations SG01 to SG20 are described below. Notable results of soil and soil gas sample analyses are summarized in Table 117 and Table 118 and as listed below. Results of the March 2025 sampling event are not yet available.

[redacted]

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[redacted]

[redacted]

[redacted]

5.3 Baseline Demonstrating Confining Zone Integrity

OLCV collected data to meet and exceed the objectives of 40 CFR 146.82(a)(3)(iii) for the Upper Confining Zone, Upper Confining System, and Lower Confining Zone. The data collected in the Shoe Bar 1 and Shoe Bar 1AZ were reported in the Area of Review and Corrective Action Plan, Appendix A to the Area of Review and Corrective Action Plan and in Appendix D to the Area of Review and Corrective Action plan that were submitted as part of the UIC Class VI application. See Section 6.1 for a summary of the current results and interpretation of the Upper and Lower Confining Zones and Upper Confining System.

Table 119. Summary of data points used to interpret integrity of the Upper Confining Zone, Upper Confining System and Lower Confining Zone.

Data	Upper Confining System	Upper Confining Zone	Lower Confining Zone
Wireline logs	Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic Scanner, Density/Neutron, Elemental Spectroscopy, Nuclear Magnetic Resonance, Formation Micro Imager in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2; Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic, Density/ Neutron in WW1 and WW4; Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic, Density/ Neutron, Nuclear Magnetic Resonance in WW2 and WW3	Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic Scanner, Density/Neutron, Elemental Spectroscopy, Nuclear Magnetic Resonance, Formation Micro Imager in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2; Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic, Density/ Neutron in WW1 and WW4; Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic, Density/ Neutron, Nuclear Magnetic Resonance in WW2 and WW3	Spontaneous Potential, Caliper, Resistivity, Gamma ray, Sonic and Density/Neutron in: Shoe Bar 1, Shoe Bar 1AZ, WW1, WW2, WW3, WW4, SLR2, BRP CCS1, BRP CCS2, BRP CCS3; additionally acquired High resolution Image and Magnetic resonance image in BRP CCS1, BRP CCS2 and BRP CCCS3
Mud logs and cuttings	Every 30 ft in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2; every 50 ft in WW1, WW2, WW3, WW4	Every 30 ft in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2; every 50 ft in WW1, WW2, WW3, WW4	Every 30 ft in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2; every 50 ft in WW1, WW2, WW3, WW4
Whole core	None	50 feet of whole core in Shoe Bar 1; 12 feet of whole core in Shoe Bar 1AZ	None
Rotary sidewall core (RSWC)	None	32 cores in the Shoe Bar 1; 40 cores in the Shoe Bar 1AZ; 26 cores in the BRP CCS3	3 cores in the BRP CCS3
RSWC samples analyzed to determine porosity and permeability	None	20 samples in the Shoe Bar 1, 17 samples in the Shoe Bar 1AZ; 26 cores in the BRP CCS3	3 cores in the BRP CCS3
Modular Dynamic Tester (MDT) pre-tests for mobility, permeability	9 tests in WW1; 8 tests in WW2; 9 tests in WW3; 10 tests in WW4	None	None
Geomechanical data	None	3 samples from the Shoe Bar 1; 9 samples from the Shoe Bar 1AZ; 1 sample from the BRP CCS3	4 samples from the Shoe Bar 1AZ; 1 sample from the BRP CCS3
Threshold Entry Pressure	None	1 sample from Shoe Bar 1; 3 samples from BRP CCS3	2 samples from Shoe Bar 1; 1 sample from BRP CCS3
Mercury Injection Capillary Pressure	None	13 samples from the Shoe Bar 1 and 1AZ; 26 samples from BRP CCS3	4 samples from the Shoe Bar 1 and 1AZ; 3 samples from BRP CCS3

Data	Upper Confining System	Upper Confining Zone	Lower Confining Zone
Saturation logging	PNL in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, SLR2, WW1, WW2, WW3, WW4	PNL in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, SLR2, WW1, WW2, WW3, WW4	PNL in Shoe Bar 1 and Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, SLR2, WW1, WW2, WW3, WW4
Reservoir Pressure	None	None	None
Reservoir temperature	DST in Shoe Bar 1, BRP CCS1, BRP CCS2, BRP CCS3, SLR2; temperature logs in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, WW1, WW2, WW3, WW4	DST in Shoe Bar 1, BRP CCS1, BRP CCS2, BRP CCS3, SLR2; temperature logs in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, WW1, WW2, WW3, WW4	Temperature logs in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS3, WW1, WW2, WW3, WW4
Fracture propagation pressure	None	1 test in Shoe Bar 1; 1 test in Shoe Bar 1AZ; 1 test in BRP CCS1; 1 test in BRP CCS2; 1 test in BRP CCS3	1 test in Shoe Bar 1; 1 test in Shoe Bar 1AZ; 1 test in BRP CCS1; 1 test in BRP CCS3
3D seismic	Acquired and interpreted	Acquired and interpreted	Acquired and interpreted
2D VSP and 2D surface seismic	Acquired and preliminary interpretation conducted	Acquired and preliminary interpretation conducted	Acquired and preliminary interpretation conducted

To further describe baseline conditions prior in the Upper Confining Zone and Upper Confining System, OLCV obtained temperature data from DTS fiber located in the Shoe Bar 1 well.

5.3.1 Interpretation of Baseline Confining Zone Integrity

OLCV integrated log and core data obtained in Project wells with seismic data collected in the AoR and surrounding areas to confirm properties of the Upper Confining Zone, Upper Confining System, and Lower Confining Zone. These data are consistent with the interpretation that the Upper Confining Zone and Upper Confining System can hold back the volume of CO_2 anticipated to be injected at the BRP Project and prevent migration of Injection Zone fluids to the USDW. Similarly, the Lower Confining Zone does not contain leakage pathways or other properties that would allow Injection Zone fluids to pass through it.

5.4 Baseline Seismicity

The BRP Project is situated in an area of West Texas that has historically exhibited low seismic activity, based on catalogs from both USGS[2] (up to and including December 2016) and TexNet[3] (January 2017 to present). The most recent recorded event of local magnitude 2 (ML 2) or greater closest to the project site occurred approximately five miles to the east on 22 November 2001. Recent seismicity 25 miles north-northeast of the Project site is attributed to saltwater disposal (SWD) in deeper formations near the basement rock and near critically stressed basement faults, according to communication on the RRC website in 2022[4].

The risk to the Project from these recent seismic events is considered minimal because the proposed Injection Zone is vertically separated from deeper faulted strata by approximately 2,500 ft, as observed on 2D and 3D seismic images, providing sufficient vertical separation to prevent any interaction between injection pressures and the faults. Additionally, OLCV proposes to manage pressure by producing brine from the Injection Zone, further reducing the risk of seismicity from the proposed Project. The USGS predicts this site to have low future seismic hazard. Because of these factors, the site has a low risk of induced seismicity due to Project operations.

OLCV concludes that the risk of CO_2 surface leakage resulting from induced or natural seismicity due to Project operations is low.

5.4.1 Seismic Monitoring Network Installation

OLCV has installed five seismometers delivering real-time seismicity alerts within the BRP Project area. In addition, two regional seismometer arrays are present close to the BRP Project area: the MTX array, a private subscription array, and the TexNet array, managed the USGS. Together, the data from the TexNet and MTX arrays provide accurate seismicity information throughout the Permian Basin. OLCV will use the existing seismometer array plus the new Project array to monitor events with magnitudes of 1.0 ML and greater. The combined datasets will provide appropriate coverage of seismicity events at the Project location and in the surrounding area.

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2 https://earthquake.usgs.gov/earthquakes/search/
3 https://www.beg.utexas.edu/texnet-cisr/texnet
4 https://www.rrc.texas.gov/oil-and-gas/applications-and-permits/injection-storage-permits/oil-and-gas-waste-disposal/injection-disposal-permit-procedures/seismicity-review/seismicity-response/

The BRP Project array was installed in June 2024. The table below shows the locations of seismic monitors. These station locations were selected based on modeling to detect events of ML 1.0. Locations may be changed in the future to optimize monitoring of the site.

Table 120. Locations of seismic monitors deployed at the BRP Project site (BRP Project array).

Seismometer number	Latitude (NAD 27)	Longitude (NAD 27)	Monitoring commencement date
STN1	31.768406	-102.721598	June 2024
STN2	31.796274	-102.739287	June 2024
STN3	31.763746	-102.753219	June 2024
STN4	31.784879	-102.673469	June 2024
STN5	31.736494	-102.714587	June 2024

The equipment for seismicity monitoring includes broadband sensors, a data logger, a solar power system and backup battery, communication system, cabling, and mounting equipment (Figure 69).

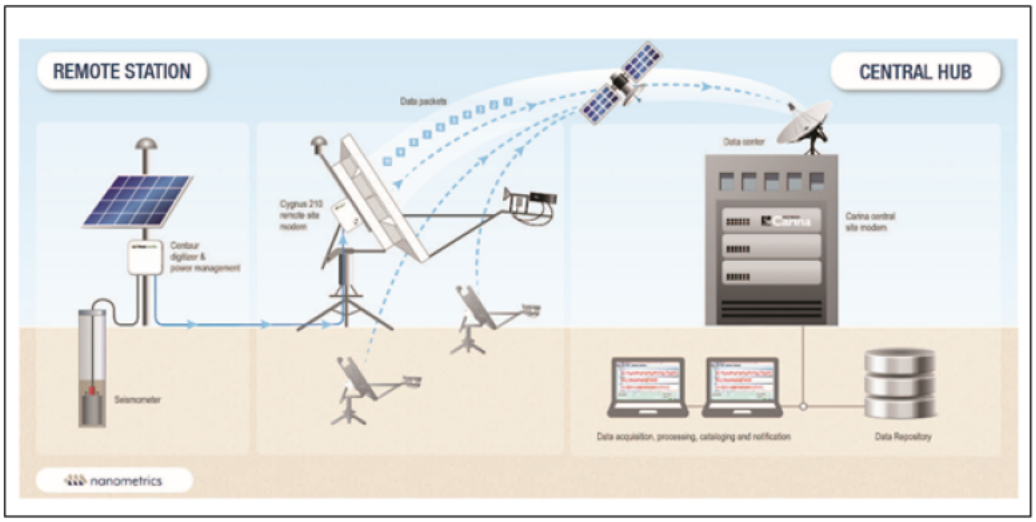

Figure 69. System for data acquisition, transfer, storage, and analysis.

5.4.2 Seismic Monitoring Accuracy and Precision Modeling

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5.4.3 Baseline seismic monitoring results

Seismic array monitoring commenced on June 21, 2024. OLCV recorded five seismic events at or above -0.3 Mc between June 2024 and February 2025, as listed in Table 121.

The events were widely distributed throughout the AoR (Figure 72). It is not possible to correlate the events to structural features due to an insufficient number of occurrences. Additionally, OLCV established a lack of correlation between these events and anthropogenic activity occurring at the BRP Project site. OLCV interprets these very low magnitude events as naturally occurring.

Table 121. Locations of seismic events at or above -0.3 Mc that were recorded by BRP Project seismometers.

Date	Time	Latitude	Longitude	Magnitude (ML)	Depth (ft)
2025-01-27	20:42:19	31.7382734	-102.6742466	0.08	6266.4
2024-11-24	10:13:03	31.7918521	-102.7303691	-0.25	6856.96
2024-09-18	05:53:10	31.7920766	-102.7275422	0.24	5675.85
2024-09-03	21:18:55	31.7556942	-102.7167081	0.04	12106.3
2024-08-07	00:32:19	31.8047455	-102.7132242	-0.2	5446.19

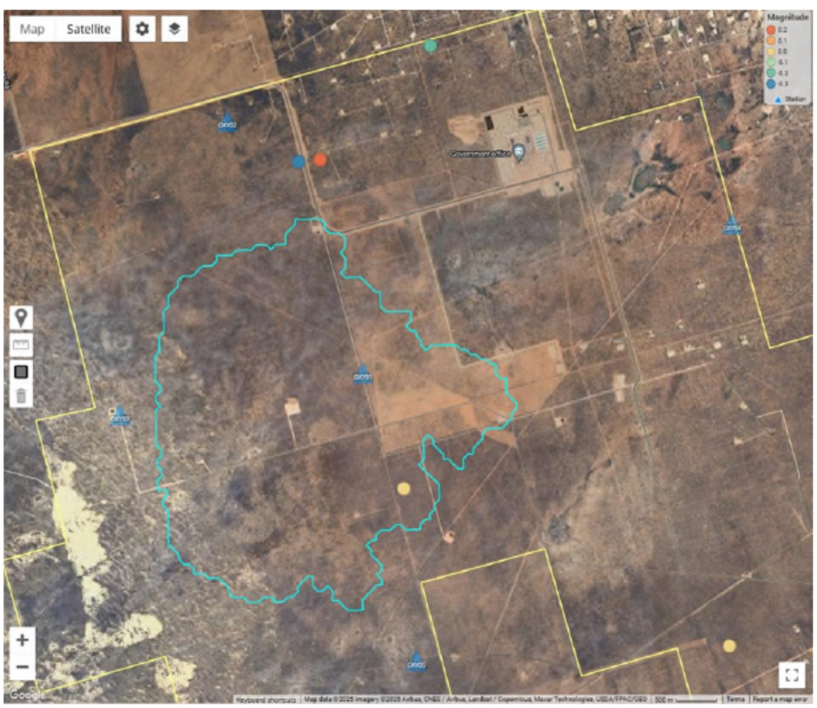

Figure 72. Map of BRP Project showing seismic event locations.

5.4.4 Seismic monitoring alert system

OLCV utilizes a "traffic light" alert system to monitor and act on recorded seismic events. OLCV will implement the response plan if a seismic event of ML 2.0 is recorded by the BRP Project array, MTX, or TexNet that occurs within 5.6 miles of the BRP CCS1, BRP CCS2, or BRP CCS3. The plan is described below. Note that a 5.6-mile radius is consistent with the metric used for RRC disposal well applications: "Pursuant to 16 Texas Administrative Code §3.9(3)(B) and §3.46(b)(1)(C), SWD well permit applications must include a review of USGS earthquake records for a circular area of 100 square miles around the proposed SWD well location (a circular area with a radius of 9.08 kilometers, or 5.64 miles)."

For events above ML 2.0 but below ML 4 within 5.6 miles of the Class VI injection wells, OLCV will closely monitor seismic activity and may implement a pause to operations or continue operations at a reduced rate, should analysis indicate a causal relationship between injection operations and detected seismicity.

For events above ML 4 but below ML 4.5 within 5.6 miles of the Class VI injection wells, OLCV will initiate contact with the RRC and the EPA. OLCV will begin a technical review within 24 hours of the event to determine if a causal relationship exists between BRP Project operations and the event. Should a causal relationship be determined, a revised injection plan will be developed to reduce or eliminate operationally related seismicity. Such plans are dependent on the pressures and seismicity observed and may include, but are not limited to:

- Reducing CO_2 injection pressures until reservoir pressures fall below a critical limit;
- Increasing water production rates until reservoir pressures fall below a critical limit; or
- Continuing operations at a reduced rate and/or below a revised maximum operation pressure.

OLCV will obtain approval from the EPA and/or the RRC to implement revised plan. If the seismic event is not related to the BRP Project activities, OLCV will resume normal injection rates.

For events above ML 4.5 within 5.6 miles of the Class VI injection wells, OLCV will stop injection as soon as safely practical. OLCV will inform the regulator of seismic activity confirming that operations have stopped pending a technical analysis. OLCV will initiate an inspection of surface infrastructure for damage from the seismic event. A detailed analysis will be conducted to determine if a causal relationship exists between BRP Project injection operations and observed seismic activity. Should a causal relationship be determined, a revised injection plan will be developed to reduce or eliminate operationally related seismicity before resuming BRP Project injection operations. Such plans are dependent on the pressures and seismicity observed and may include, but are not limited to:

- Reducing injection pressures until reservoir pressures fall below a critical limit;
- Increasing water production rates until reservoir pressures fall below a critical limit; or
- Continuing operations at a reduced rate and/or below a revised maximum operation pressure.

OLCV will obtain approval from the EPA and/or the RRC to implement a revised plan. If the seismic event is not related to the BRP Project activities, and with prior approval from the regulators, OLCV will adjust injection and/or production rates to previous rates in steps, while increasing surveillance.

5.5 Baseline DInSAR and GPS

The BRP Project will use DInSAR and GPS data to indirectly monitor the position of the CO_2 pressure plume. DInSAR is a non-intrusive, non-destructive technology that utilizes satellite data to measure, with high accuracy, relative displacement over time. It is highly effective for measuring ground deformation over multiple years.

The BRP Project contracted a specialized third-party to conduct a pre-CO_2 injection baseline evaluation of radar data obtained from the Sentinel-1 satellite. To further improve the accuracy and precision of future data evaluation, the BRP Project installed 11 permanent monuments with highly reflective metallic caps to be used as corner reflectors (CR) and conducted a GPS survey at those CRs.

To establish a pre-injection baseline, OLCV reviewed historical DInSAR data and commenced a quarterly data sampling and analysis program. Table 122 below lists the timing of data collections and analyses.

Table 122. Timing of DInSAR and GPS data collection.

Reflector name	3Q2024 Sampling	4Q2024 Sampling	1Q2025 Sampling*	2Q2025 Sampling*	3Q2025 Sampling*
DInSAR data review period	Jan 2017 – August 2024	August – December	January-March	March - May	May - July
GPS survey	August	November	February	May	August

*Future timing is for planning purposes and not yet confirmed.

5.5.1 DInSAR, Corner Reflectors, and GPS Method

The BRP Project contracted TRE Altamira Inc. (TREA) to conduct a DInSAR evaluation of historical data from the Sentinel-1 satellite. TREA evaluated two flight directions of the satellite: ascending (flight direction from north to south) and descending (flight direction from north to south) to image the east and west, respectively. Using a proprietary algorithm, TREA combined spatial and temporally overlapping results to produce a series of 2D images showing vertical and east-west ground displacement at the BRP Project site.

OLCV installed 11 monuments around the BRP Project area in July 2024 (Table 123). The monuments are constructed with 4.5-in. diameter pipe installed vertically at a depth of 12-13 ft below ground and 5 ft above ground level. In August 2024, CR's were installed on top of the monuments. Corner reflectors are custom-made metallic plates designed to reflect radar signals back to satellites designed to retrieve those signals. The purpose of corner reflectors is to increase the signal-to-noise ratio and improve accuracy of measurements. An example of a corner reflector installed on a monument at the BRP Project is shown in Figure 72 below.

Table 123. Locations of monuments / corner reflectors/ GPS stations at the BRP Project.

Reflector name	Latitude (NAD 27)	Longitude (NAD 27)
CR1	31.76287	-102.7043
CR2	31.75850	-102.7186
CR3	31.75876	-102.7425
CR4	31.76308	-102.7310
CR5	31.74980	-102.7157
CR6	31.74259	-102.7255
CR7	31.77415	-102.7241
CR8	31.78241	-102.7487
CR9	31.77626	-102.7353
CR10	31.78504	-102.7277
CR11	31.76386	-102.7546

Figure 73. A representative example of a monument, installed at the CR7 location.

To further improve precision of deformation measurements, GPS data were collected at corner reflectors in August 2024 and November 2024. GPS data were recorded at monument stations using a 10-second interval for an eight-hour observation period. The integration of GPS data with satellite measurements allows for comprehensive 3D monitoring in the north-south, east-west, and up-down directions. The GPS data processing strategy aims to attain vertical accuracy of ± 3 mm. It integrates data from the National Geodetic Survey (NGS), processing tools from the Canadian Geodetic Survey, and Trimble Business Center (TBC) software.

5.5.2 DInSAR Baseline Results

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[redacted]

[redacted]

[redacted]

5.5.3 Discussion of DInSAR Results

[redacted]

5.5.4 GPS Baseline Results

As of this report, the results from GPS campaigns 3Q2024 and 4Q2024 have been processed using a combined strategy based on Precise Point Positioning (PPP) and Differential GPS processing (TBC software). Three National Geodetic Survey Continuously Operating Reference Stations (NGS CORS; txkm, txmh, and txoe) were selected as base reference stations using their known coordinates updated from PPP. Subsequently, all eleven GPS stations (located at CRs) were processed from the three NGS CORS (txkm, txmh, and txoe) and adjusted. OLCV used the following parameters for the TBC processing: sampling rate of 30 seconds, precise orbits from the International Global Navigation Satellite System Survey (IGS), and antenna calibration parameters from NOAA. Final GPS results are referenced to ITRF20 (epoch 2024.6).

During the survey, a malfunctioning tribrach impacted stations CR6 and CR9, which were replaced before the campaign in 4Q2024. The integration of PPP and TBC yielded an accuracy of ±3 mm, after excluding the outliers CR6 and CR9.

The observed differences between the campaigns conducted in 3Q2024 and 4Q2024 are expected and do not signify ground deformation. Instead, these differences stay within the precision limits of the GPS method.

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5.6 Baseline 2D VSP and 2D Surface Seismic

5.6.1 Seismic Methods

Following the drilling and installation of single mode DAS fiber in BRP CCS1, BRP CCS2, BRP CCS3, and SLR2, OLCV acquired baseline 2D VSP and 2D surface seismic. OLCV acquired the baseline surface 2D seismic in a radial pattern around the wells, concurrent with the baseline 2D VSP acquisition. The acquisition was conducted using conventional Vibroseis vehicles in a dense pattern to improve imaging throughout the entire stratigraphic column, from surface to basement. The figure below shows the imaging area for 2D VSPs.

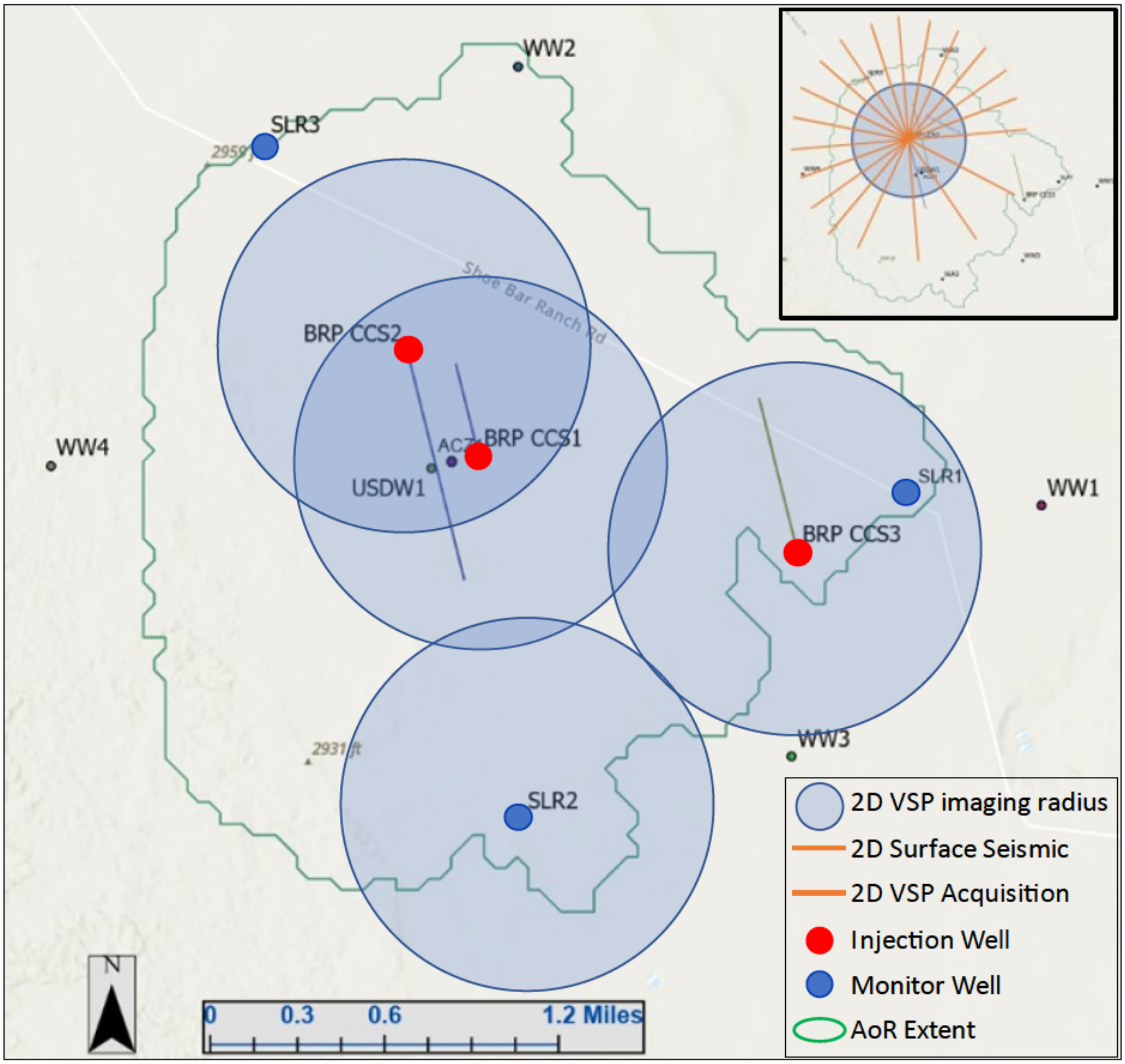

Figure 75. The extent of the 2D VSP imaging area (blue circles). The inset map shows an idealized survey design for 2D surface seismic (orange lines) with 2D VSP acquisition. The maximum distance between two open 2D lines is ~800 ft for VSP and ~1,200 ft for surface seismic.

5.6.2 2D VSP and 2D Surface Seismic Results

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

5.6.3 Status of processing 2025 dataset and future monitoring plans

[redacted]

5.7 Baseline Saturation Logging

Baseline saturation logging was acquired over the Upper Confining Zone and the Injection Zone in the following wells: Shoe Bar 1, Shoe Bar 1AZ, WW1, WW2, WW3, WW4, BRP CCS1, BRP CCS2, BRP CCS3, and SLR2. The interpretation of the pulsed neutron log acquired in each well indicates the pore space is fully saturated with water. Minor traces of hydrocarbon are present and are determined to be non-volatile or non-thermovaporizable (See Section 4.3.8.1).

Saturation logging will be conducted in the future as part of the Testing and Monitoring Plan that was submitted as part of this UIC Class VI application. Saturation logging of the Upper Confining Zone will be conducted in the Shoe Bar 1 and Shoe Bar 1AZ to demonstrate the absence of fluid migration above the Injection Zone. Saturation logging will be conducted annually in the Injection Zone in the SLR2 to inform the presence or absence of CO_2 at the well location. In addition, saturation logging may be conducted in the WW1, WW2, WW3, or WW4 to constrain the position of the CO_2 plume. Saturation logging in the UIC Class VI injectors may be performed in the future to calibrate logging results from other wells.

5.8 Baseline Pressure and Temperature Data

Baseline temperature and reservoir pressure logging was acquired from surface to TD in the following wells: Shoe Bar 1, Shoe Bar 1AZ, WW1, WW2, WW3, WW4, BRP CCS1, BRP CCS2, BRP CCS3 and SLR2.

5.8.1 Pressure in the Injection Zone and Confining Zones

OLCV reported reservoir pressure for the Shoe Bar 1 and Shoe Bar 1AZ in the Appendix A of the Area of Review and Corrective Action Plan document. A total of 40 samples were collected and eight were considered high-quality data points. OLCV obtained reservoir pressure measurements using a wireline deployed MDT logging tool in BRP CCS1, BRP CCS2, BRP CCS3, WW1, WW2, WW3, and WW4. A total of 86 pretests were performed and analyzed (including post pump-out pretests) which resulted in 40 high-quality formation pressures, 13 medium-quality formation pressure and 33 low-quality formation pressures.

Figure 79 shows the reservoir pressure plotted against reservoir depth (TVD) in Shoe Bar 1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, BRP CCS3, WW1, WW2, WW3, and WW4. OLCV considered only high-quality samples for analysis. The gradient data ranges from 0.49 to 0.52 psi/ft. The dotted line is a fitted linear equation showing a constant reservoir gradient of 0.496 psi/ft. OLCV assumes that 0.5 psi/ft is a representative formation gradient to calculate initial reservoir pressure based on the average of the data points collected for the Project wells. OLCV did not acquire reservoir pressure data in the Upper and Lower Confining Zones due to the lack of fluid mobility in these low porosity, low permeability formations.

[redacted]

5.8.2 Temperature in the Injection Zone and Confining Zones

OLCV acquired temperature logs during the open hole logging of the Injection and Upper and Lower Confining zones. This data agrees with the temperature measurements from the DTS fiber. OLCV proposes to utilize the DTS data for future monitoring of temperature. The figure below shows a comparison of DTS temperature data and temperature log in the BRP CCS2 well.

[redacted]

5.8.3 Discussion

The formation pressure presented in the Area of Review and Corrective Action Plan that was submitted as part of the UIC Class VI application for the BRP Project agrees with the data acquired in BRP CCS1, BRP CCS2, BRP CCS3, WW1, WW2, WW3, and WW4. An average gradient of 0.5 psi/ft is interpreted to be representative of the Injection Zone initial reservoir pressure.

5.9 Internal and External Mechanical Integrity of Wellbores

5.9.1 Internal Mechanical Integrity

OLCV conducted logs and tests to confirm that the wells constructed for the BRP Project have internal and external mechanical integrity. To establish baseline internal mechanical integrity OLCV conducted tubing and casing annulus pressure tests. These tests are described in the Section

9.2 of the Testing and Monitoring Plan that was submitted as part of this UIC Class VI application and is also in accordance with RRC H-5 requirements. All tested Project wells successfully passed an internal mechanical integrity test. The results are shown in Table 127 below.

Table 127. Internal mechanical integrity test results.

Well Name	Internal Mechanical Integrity Testing Date	Results	Test Pressure (psig)
BRP CCS1	03/26/2025	Pass	545
BRP CCS2	04/04/2025	Pass	530
BRP CCS3	03/26/2025	Pass	540
SLR2	04/04/2025	Pass	545
SLR1	02/18/2025	Pass	570
ACZ1	03/06/2025	Pass	580

OLCV will perform annular pressure tests at least once every five years, coincident with well maintenance operations in which tubing and packers are pulled. In addition, OLCV will monitor internal mechanical integrity utilizing data on injection temperature, pressure, rate, volume, and annulus pressure.

5.9.2 External Mechanical Integrity

OLCV conducted temperature logging in UIC Class VI injector wells to demonstrate external mechanical integrity. OLCV conducted USIT logging in monitoring and support wells to demonstrate external mechanical integrity. The results are shown in Table 128 below.

Table 128. External mechanical integrity test results.

Well Name	Log Type	Log Date	Results
BRP CCS1	Temperature Log	03/01/2025	Confirmed mechanical integrity
BRP CCS2	Temperature Log	02/07/2025	Confirmed mechanical integrity
BRP CCS3	Temperature Log	12/11/2024	Confirmed mechanical integrity
SLR2	Temperature Log	02/15/2025	Confirmed mechanical integrity
SLR1	USIT Log	02/20/2023	Confirmed mechanical integrity
ACZ1	USIT Log	08/28/2023	Confirmed mechanical integrity
WW1	USIT Log	02/24/2024	Confirmed mechanical integrity
WW2	USIT Log	06/05/2024	Confirmed mechanical integrity
WW3	USIT Log	06/04/2024	Confirmed mechanical integrity
WW4	USIT Log	04/23/2024	Confirmed mechanical integrity

OLCV will continuously monitor external mechanical integrity using DTS in the UIC Class VI injection wells, SLR2 and SLR1. OLCV will conduct annual temperature logging in UIC Class VI wells and may collect additional mechanical integrity logs such as an electromagnetic pipe examiner or casing inspection log. Logging will be conducted during well maintenance events to minimize disruption to the injection schedule. If DTS data indicate potential loss of mechanical integrity, OLCV will acquire a mechanical integrity log. OLCV will conduct external mechanical integrity logging in the SLR, ACZ1, and WW wells at least once every five-year period, following well maintenance.

5.10 Injectivity and Pressure Fall-Off Testing

OLCV performed an injectivity test in the BRP CCS1, BRP CCS2, and BRP CCS3 to simulate conditions expected during CO_2 injection and to obtain for estimation of reservoir properties. A radial model was used to calibrate the test data and to confirm the appropriate injection and shut-in duration. Table 129 summarizes the reservoir properties from injectivity and fall-off test for the Project wells.

[redacted]

[redacted]

5.11 Geochemical and Isotopic Properties of the CO_2 Injectate Stream

Prior to commencement of CO_2 injection at the BRP Project, OLCV will conduct sampling of the CO_2 injectate stream for geochemical and isotopic analyses. The results of these analyses will determine whether the CO_2 injectate stream conforms to the specification described in Section 3.0 of the Testing and Monitoring plan. OLCV will not accept the CO_2 injectate stream from the Stratos Direct Air Capture facility unless and until the CO_2 injectate stream conforms to the specification. Testing has not yet been performed. Results will be submitted to the UIC Director when those results are available and prior to commencement of CO_2 injection operations.

5.12 Summary and Conclusions of Pre-Injection Baseline Data Collection

OLCV collected site-specific data from 11 wells constructed for the BRP Project. In addition, OLCV installed 20 permanent soil gas probes, 11 permanent corner reflectors/GPS stations, and five seismometers. OLCV has collected DInSAR and GPS data over the AoR and surrounding area, and OLCV acquired 2D VSPs and 2D surface seismic at four wells. In addition, OLCV acquired 3D seismic data in an area of ~20 m^2 that were used for initial site characterization.

The dataset acquired for the BRP Project establishes a baseline characterization for geochemistry of fluids and dissolved gases, pressure, temperature, and/or other properties of the Injection and Confining Zones, and the USDW.

6.0 Site Characterization Updates [40 CFR 146.82(c)(2)]

6.1 Regional Geology, Hydrogeology, and Local Structural Geology [40 CFR 146.82(a)(3)(vi)]

6.1.1 Regional Stratigraphy

The regional stratigraphy of the BRP Project area is well-constrained by literature, logs, and seismic data that were incorporated into the BRP Project Class VI application. OLCV did not obtain data in the pre-operations testing phase that changed its understanding of the regional stratigraphy.

The BRP Project is located on the Central Basin Platform (CBP) of the Permian Basin. Formations of the Central Basin Platform include clastic and carbonate rocks that were deposited between the Ordovician to Tertiary periods. A summary of the key stratigraphic elements of the storage system is described below.

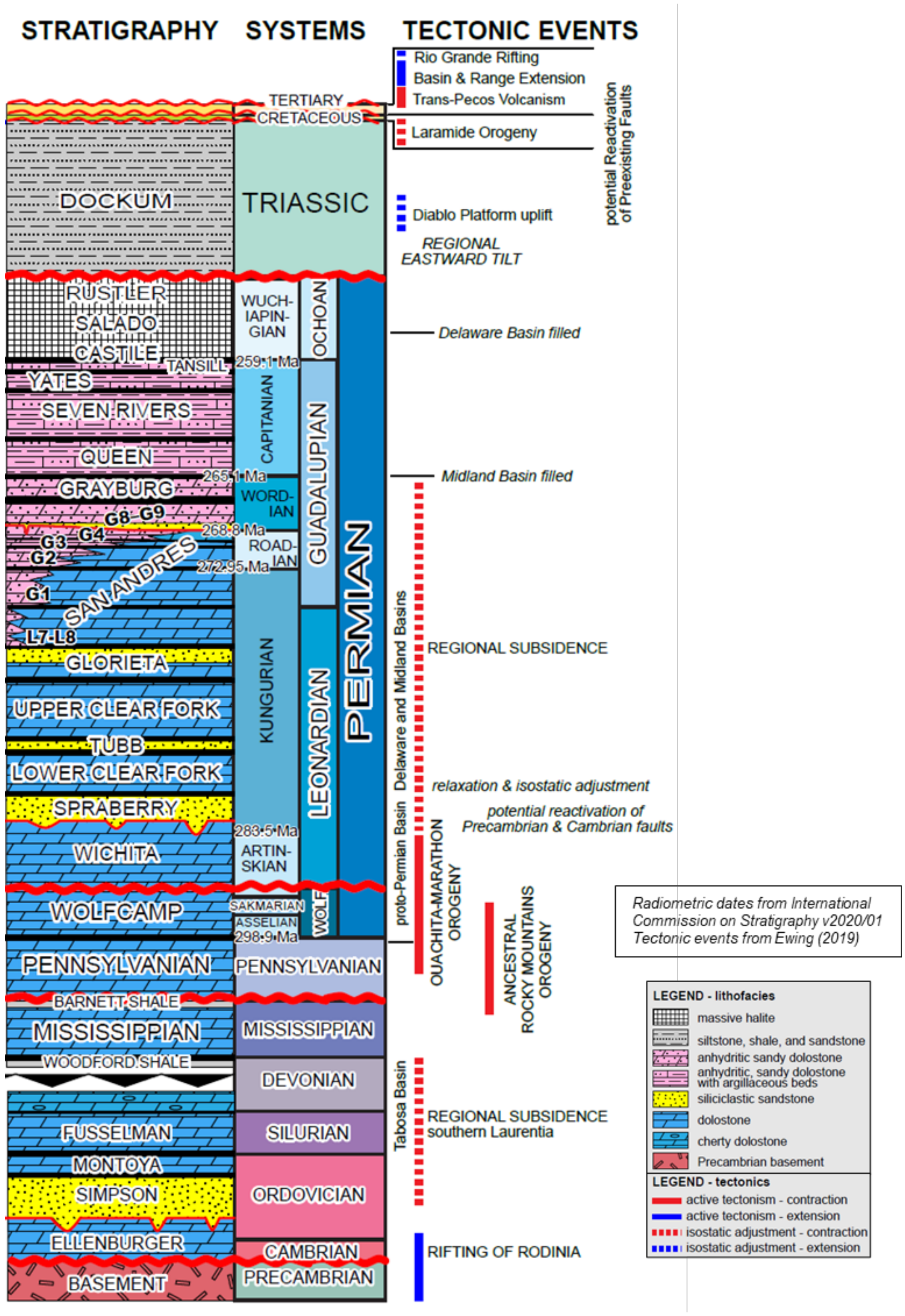

Figure 81. Stratigraphic column for the Central Basin Platform with tectonic events.

6.1.1.1 USDW

The Santa Rosa Member of the Dockum Group is lowermost USDW in the BRP Project. The Dockum Aquifer underlies the Pecos Valley Aquifer and is composed of the Triassic-age Dockum Group, which consists of various lithologies, including shales, sandstones, and siltstones. The Santa Rosa Formation is the lowermost member of the Dockum group and is interpreted to be the lowermost USDW in the AoR. The Dewey Lake Formation separates the base USDW from the regional seal and consists of red siltstone and shale (Meyer et al., 2012). The Dewey Lake Formation is not known to yield water to wells (Bradley and Kalaswad, 2001) and is not listed as an aquifer by the TWDB. Additional results on the USDW are presented in Section 6.1.2.

6.1.1.2 Upper Confining System

The Queen, Seven Rivers, Yates, Tansill, and Rustler Formations are defined as the Upper Confining System. The interbedded clay and siltstone marker beds in the Queen through Rustler Formations are traceable across much of the western Permian Basin as a function of their regionally continuous mineralogy and resulting sealing capacity (Anderson et al., 1972). The laterally continuous evaporites (anhydrite, halite), shale, and tight silt of the Artesia Group and Ochoan strata serve as regional, world-class seal for the hydrocarbon accumulations throughout the Permian Basin of West Texas and New Mexico with a thickness in excess of 2,500 ft (Adams, 1944; Tait et al., 1962). High capillary entry pressure and low permeability make these lithologies suitable as caprock for carbon sequestration projects (Espinoza and Santamarina, 2017), in addition to their proven track record of trapping and containing oil and gas in the Permian Basin for 200+ million years (Fairhurst et al., 2021). Due to their importance as a petroleum reservoir top seal and host to the only permanent storage facility for radioactive waste (i.e., waste isolation pilot plant, or WIPP) in the US, the Castile and Salado Formations of the Permian Basin are one of the most studied ancient evaporite systems in the world (Beauheim and Roberts, 2002; Dean et al., 2000; Espinoza and Santamarina, 2017; Kendall and Harwood, 1989; Kirkland et al., 2000).

6.1.1.3 Upper Confining Zone

The Upper San Andres and the Grayburg Formations are the Upper Confining Zone of the BRP Project. Regionally throughout the CBP, the Upper San Andres and Grayburg have low porosity and permeability. The Upper San Andres and Grayburg generally exhibit a systematic facies change to higher-energy paleo-depositional environments with increased porosity and permeability on the eastern and western edges of the CBP, preferentially along paleo-topographic structural highs (Ward et al., 1986). These paleo-topographic highs provided ideal conditions for a carbonate factory to grow, resulting in a combination of good reservoir rock and trap configuration that form prolific San Andres hydrocarbon fields throughout the Permian Basin (Fairhurst et al., 2021). The closest example of this facies change to more porous and permeable rocks based on log and operational data is located 3 to 5 miles southeast of the AoR in the Penwell oil and gas field. However, reservoir quality of the Upper San Andres and Grayburg Formations quickly deteriorates away from these localized structural highs towards the platform interior, rendering the strata into effective seals for lateral and vertical fluid flow, which is in agreement with well log and production data from the Project area.

6.1.1.4 Injection Zone

The Lower San Andres Formation is the Injection Zone for the BRP Project. The Lower San Andres is well characterized throughout the Permian Basin by Kerans et al. (1994) and Kerans and Fitchen (1995), who measured stratigraphic sections and mapped facies across a 2.5-mile outcrop window of the Lower San Andres Formation centered at Lawyer Canyon along the Algerita Escarpment. The facies encountered in the BRP Project Injection Zone is equivalent in time to the peloid-fusulinid-crinoid grain-dominated packstone facies of the Lower San Andres composite sequence described by Kerans et al. (1994). This is a subtidal facies that has a sheetlike geometry.

6.1.1.5 Lower Confining Zone

The Glorieta Formation is the Lower Confining Zone for the BRP Project. The Glorieta Formation consists of cyclic successions of tidal flat and tidal flat-capped subtidal dolostones (Ruppel and Bebout, 1996). Across the Permian Basin, the Glorieta Formation exhibits good reservoir quality, structurally high settings where depositional fabric and diagenetic overprint resulted in favorable porosity and permeability development (Dutton et al., 2004). However, the Glorieta strata in the BRP Project are situated in a structural low that did not undergo the depositional or diagenetic processes for the development of high porosity or high permeability. The Glorieta facies encountered in the BRP Project comprise massive anhydrite and tidal flat mudstone and wackestone deposits with permeability values of less than 0.1 mD, forming a competent Lower Confining Zone that is correlatable in well log and seismic data across the Project area.

6.1.2 Local Stratigraphy

6.1.2.1 Drilling results

The local stratigraphy of the BRP Project was initially constrained by log data from 357 wells in the BRP AoR and surrounding area. The majority of these wells were drilled by other operators for oil and gas exploration.

OLCV drilled two new stratigraphic test wells in 2023 to provide modern site-specific data in the BRP AoR. OLCV drilled the Shoe Bar 1 well in January 2023 and collected a suite of >10 wireline logs, 714 feet of whole core, 78 rotary sidewall core plugs, and three fluid samples. OLCV drilled the Shoe Bar 1AZ approximately 1.5 miles west of the Shoe Bar 1 well in August 2023 and collected a suite of >10 wireline logs, 725 feet of whole core, 51 rotary sidewall core plugs, and three fluid samples. OLCV also drilled the USDW1 well in December 2023 and collected lithology information and logs from surface to 850 feet. During March through May 2024, OLCV drilled four brine withdrawal wells: WW1, WW2, WW3, and WW4. OLCV analyzed two fluid samples in each well and acquired a suite of >10 wireline logs in each well.

Four new wells were drilled during the pre-operations construction and testing phase: BRP CCS1, BRP CCS2, BRP CCS3, and SLR2. In September 2024, OLCV drilled the BRP CCS3 well to provide additional stratigraphic test information and acquired 75 rotary sidewall cores, three fluid samples, and a suite of >10 wireline logs. OLCV drilled the BRP CCS1 in October 2024, the BRP CCS2 in November 2024, and the SLR2 in December 2024/January 2025. Fluid samples and wireline logs were acquired in each of these wells.

OLCV utilized the wireline log data to pick stratigraphic tops. As expected, OLCV observed small differences between the pre-drill v. post-drill depths. The difference between the pre-drill and post-drill tops is shown in the table below.

[redacted]

[redacted]

[redacted]

During the pre-operations phase, OLCV collected log porosity information in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 wells. OLCV acquired core in the BRP CCS3 and measured core porosity and permeability in that well. These data are similar to data previously acquired during the site characterization phase in the Shoe Bar 1, Shoe Bar 1AZ, WW1, WW2, and WW3.

[redacted]

The following table summarizes the rock properties of key stratigraphic intervals in the BRP Project, based on data from wells drilled in the BRP AoR.

[redacted]

The well data collected during the site characterization and pre-operations period confirm the characteristics described below.

6.1.2.2 USDW

The Santa Rosa Formation is the lowermost member of the Dockum Group and is interpreted to be the lowermost USDW in the AoR. Lithologies encountered in the Santa Rosa Formation are predominantly yellow to off-white, partially consolidated, poorly sorted, angular to sub-angular sandstone; and reddish to off-white, partially consolidated, poorly sorted, and rounded conglomerate. Minor lithologies in the Santa Rosa Formation are shale of various colors (red / orange / brown / gray), that is soft to moderately firm and sub-blocky to sub-platy. The thickness and rock properties obtained in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are consistent with the characterization reported in the Area of Review and Corrective action plan for the BRP Project. No material changes to the geocellular or dynamic simulation model are required based on these new data.

6.1.2.3 Upper Confining System

[redacted]

[redacted]

The thickness and rock properties obtained in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are consistent with the characterization reported in the Area of Review and Corrective action plan for the BRP Project. No material changes to the geocellular or dynamic simulation model are required based on these new data.

6.1.2.4 Upper Confining Zone

The Upper San Andres and Grayburg Formations are defined as the Upper Confining Zone. Core facies encountered in Shoe Bar 1, Shoe Bar 1AZ, and BRP CCS3 in the Upper San Andres Formation are dominated by wackestone with pervasive massive anhydrite and chert nodules, whereas the Grayburg Formation comprises predominantly massive anhydrite that is interspersed with stringers of silt and stacked with dolo-mudstones and dolo-wackestones. OLCV observes variability in mineralogy and sedimentary structures, including the mineralogical fraction of anhydrite vs. quartz vs. dolomite, the presence or absence of bedding, and the types and fraction of bioclasts. [redacted]

[redacted]

[redacted]

The thickness and rock properties obtained in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are consistent with the characterization reported in the Area of Review and Corrective action plan for the BRP Project. No material changes to the geocellular or dynamic simulation model are required based on these new data.

6.1.2.5 Injection Zone

The Lower San Andres Formation is the Injection Zone for the BRP Project. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

The thickness and rock properties obtained in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are consistent with data reported in the site characterization phase. No material changes to the static geocellular or dynamic simulation model and resulting storage capacity are required based on these new data.

6.1.2.6 Lower Confining Zone

The Glorieta Formation is defined as the Lower Confining Zone. In the Shoe Bar 1 and Shoe Bar 1AZ stratigraphic wells, the Upper Glorieta Formation exhibits a porosity of <1% and <0.1 mD of permeability. Rotary sidewall core data from the Glorieta Formation in well BRP CCS3 confirmed pervasive massive anhydrite facies with a porosity of <1% and <0.1 mD in the Lower Confining Zone. Based on seismic data interpretation, and confirmed with the newly drilled BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 wells, the Glorieta Formation is present and continuous throughout the AoR and extends at least to the edge of the seismic image area.

These data are consistent with the interpretation that the Glorieta Formation will act as the lower confining layer of the CO_2 storage complex.

The thickness and rock properties obtained in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are consistent with data reported in the site characterization phase. No material changes to the geocellular or dynamic simulation model are required based on these new data.

6.1.3 Hydrogeology

The hydrogeology of the BRP Project area is well constrained by literature and by logs and seismic data that were incorporated into the BRP Project Class VI application. OLCV did not obtain data in the pre-operations testing phase that changed its understanding of the regional hydrogeology. A summary of the regional hydrogeology is below.

Southeast Ector County has two sources of groundwater in the extent of the Shoe Bar Ranch that meet the formal definition of a USDW by EPA Class VI standard (40 CFR §144.3): the Pecos Valley major aquifer (surface), and the Dockum minor aquifer (lowermost USDW) (Bradley and Kalaswad, 2001; Mace et al., 2006; George et al., 2011). Data on USDW depths reported in Texas Water Development Board (TWDB) Groundwater Advisory Unit (GAU) letters were utilized to build a regional understanding.

The Pecos Valley major aquifer is Cenozoic age and consists of unconsolidated to partially consolidated sand, silt, gravel, clay, and caliche (White, 1971). Hydraulic conductivity of the Pecos Valley aquifer in southwest Ector County is ~10 ft/day (Anaya and Jones, 2009). The Pecos Valley aquifer is unconfined (Meyer et al., 2012) and extends from ground level to a depth of ~250 ft near the Project area.

The Dockum aquifer underlies the Pecos Valley Aquifer and is composed of the Triassic-age Dockum Group, which consists of various lithologies, including shales, sandstones, and siltstones. The Santa Rosa Formation is the lowermost member of the Dockum group and is interpreted to be the lowermost USDW in the AoR. Hydraulic conductivity of the Dockum aquifer in southwest Ector County is in the range of 0 to 5 ft/day (Ewing et al., 2008).

Drainage of the Pecos Valley and Dockum aquifers from the Shoe Bar Ranch is directed towards the Pecos River (30 miles SW), following the Monument Draw Trough (Boghici, 1999). This elongated basin is oriented NW-SE with its main axis located in the vicinity of the intersection of Ector, Winkler, Ward, and Crane counties (Ashworth and Hopkins, 1995).

6.1.3.1 Characterization of the lowermost USDW

The lowermost USDW in the BRP Project AoR is well constrained by literature, as well as by logs and seismic data that were incorporated into the BRP Project Class VI application. OLCV collected new data on the AoR during the pre-operations testing phase. These data compliment OLCV's previous characterization of the Dockum. A summary of the USDW characterization in the AoR is below.

Open hole logs were acquired from the surface through the Dockum Group in the USDW1, Shoe Bar 1AZ, BRP CCS1, BRP CCS2, and BRP CCS3 wells. Cased hole logs were acquired from surface through the Dockum Group in the Shoe Bar 1, WW1, WW2, WW3, WW4, and SLR2. These logs were used to interpret the top and base of the lowermost USDW and rock properties in the lowermost USDW. A cross section showing the well log correlation is in Figure 82 below. A summary of the tops and rock properties is in Table 134 below.

[redacted]

[redacted]

[redacted]

6.1.4 Regional Structural Geology

The regional structural geology of the BRP Project area is well constrained by literature and by logs and seismic data that were incorporated into the BRP Project Class VI application was submitted. OLCV did not obtain data in the pre-operations testing phase that changed its understanding of the regional structural geology. A summary of the regional structural geology is below.

The Permian Basin initially formed as a foreland basin during convergent plate motion of the South American (Gondwanan) plate along the southern margin of the North American (Laurentian) plate (Ross, 1986; McBride, 1989; Reed and Strickler, 1990; Yang and Dorobek, 1995). The structural framework of the Permian Basin is influenced by older rifting that occurred in the Neoproterozoic-Cambrian age that created deep, basement-involved faults (Mosher et al., 2004, Ewing et al., 2019).

Basement faults were reactivated in the Late Pennsylvanian to Early Permian as convergence and thrust-loading of the North American plate peaked (Yang and Dorobek, 1995; Ewing et al., 2019). Based on cross-section reconstructions and seismic data, the Wolfcamp Formation was deposited during a period of significant deformation in the Early Permian (Yang and Dorobek, 1995).

Basement rooted faults are observed to terminate in the Wolfcamp and the absence of faulting above the Wolfcamp is interpreted to represent the cessation of tectonic activity in the Permian Basin during the Mid to Late Permian age (Yang and Dorobek, 1995).

Minimal tectonic deformation occurred in the Permian Basin since the late Paleozoic, so the present structural features are essentially the same as those inherited from Proterozoic–Early Permian orogenic events (Hills, 1984; Ward et al., 1986; Ewing et al., 1993; Yang and Dorobek, 1995). The most recent tectonic events include Cenozoic Basin and Range extension and Rio Grande rifting (Henry and Price, 1986). These events have generated a complex regional network of Miocene and younger normal faults that predominantly impact the western margin of the Delaware Basin, where Permian strata have been exhumed along escarpments and westward-dipping horst and grabens that are incised by canyons (King, 1948; Boyd, 1958).

6.1.4 Local Structural Geology

Four new wells were drilled during the pre-operations construction and testing phase: BRP CCS1, BRP CCS2, BRP CCS3 and SLR2. OLCV utilized the well log data to pick stratigraphic tops, and those tops were incorporated into an updated structural framework of the geologic model. The difference between pre-drill and post-drill tops was approximately 5-30 ft and did not make a substantive difference to the overall structural geometry of the Injection, Confining Zone or Upper Confining System in the BRP Project AoR. No faults were encountered while drilling. See Section 6.1 for a table that lists the tops encountered by wells.

The local structural geology of the BRP Project area is well constrained by site-specific seismic and well log data that were utilized in the Class VI application submission. OLCV's conclusions on structural geology of the AoR are consistent with what was submitted in the Class VI application and are summarized below.

OLCV interpreted seismic data in the AoR and identified basement-rooted faults. These deep faults terminate at the Pennsylvanian Unconformity in the Wolfcamp Formation, which is approximately 2,500 feet below base of the proposed Injection Zone. OLCV did not map any faults in the Project area above the Wolfcamp Formation. Therefore, no faults are interpreted to intersect the Injection Zone or confining zones in the AoR. This interpretation is consistent with regional interpretations found in literature (Ewing et al., 2019).

Integration of seismic, well, and literature data shows no faulting after Wolfcamp time, i.e., no faulting shallower than 2,500 ft below Injection Zone. Below are a series of seismic sections and time slices through the AoR, which confirm this interpretation.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

The following pertinent updated maps and cross sections are provided as separate attachments:

- N_S Log Cross Section 2025_cbi.pdf

- W_E Log Cross Section 2025_cbi.pdf
- Top Lower San Andres Structure Map 2025_cbi.pdf
- Injection Zone Thickness Map 2025_cbi.pdf
- Base Pecos Valley Aquifer Structure Map 2025_cbi.pdf
- Top Dockum USDW Structure Map 2025_cbi.pdf
- Base Dockum USDW Structure Map 2025_cbi.pdf

6.3 Faults and Fractures [40 CFR 146.82(a)(3)(ii)]

In November 2022, OLCV acquired high density 3D seismic data in an area of ~20 mi^2 that encompasses the BRP Project AoR and surrounding area. Two orthogonal 2D lines totaling 10 line-miles were acquired in addition to the 3D survey. These data were used in conjunction with seismic data licensed from vendors and data from the Texas Bureau of Economic Geology to construct the structural framework. There are no known or suspected faults or fractures in the Injection Zone or penetrating the Injection and Confining Zones. The proposed Injection Zone is vertically separated from deeper faulted strata by approximately 2,500 ft, as observed on 2D and 3D seismic images, providing sufficient vertical separation to prevent any interaction between injection pressures and the faults.

OLCV did not encounter faults while drilling wells for the BRP Project. OLCV did not obtain data in the pre-operations testing phase that changed its understanding of faulting or fracturing in the AoR.

6.3.1 Image Log Interpretation Results and Discussion

[redacted]

[redacted]

6.4 Injection and Confining Zone Details [40 CFR 146.82(a)(3)(iii)]

The regional stratigraphy of the BRP Project area is well constrained by literature and by logs and seismic data that were incorporated into the BRP Project Class VI application. OLCV did not obtain data in the pre-operations testing phase that changed its understanding of the Injection Zone, Upper Confining System, Upper Confining Zone, or Lower Confining Zone. Details on well results for the Injection and Confining Zones are presented in Section 4. A summary with discussion of the stratigraphy, structural history, seismic history, geomechanics, geochemistry, and other characteristics are presented in Section 6.

6.5 Geomechanical and Petrophysical Information [40 CFR 146.82(a)(3)(iv)]

The geomechanical properties in the BRP Project AoR are well constrained by data obtained in the Shoe Bar 1 and Shoe Bar 1AZ. OLCV obtained geomechanical data from the BRP CCS3 during the pre-operations testing phase. These data are consistent with the previous geomechanical model. A summary of the geomechanical data and the interpretation is presented below.

6.5.1 Geomechanical Properties of the Injection Zone

Core data were collected in the Shoe Bar 1 and BRP CCS3 to determine: static and dynamic elastic properties, Young's modulus, Poisson's ratio, and Biot's coefficient. Those properties are necessary inputs for horizontal principal stress calculation in the industry standard poroelastic stress model. The core data are used to calibrate and constrain well-log-based calculations of those stress model inputs. The table below presents the site-specific geomechanical data collected for the BRP Project in the Injection Zone.

[redacted]

Mohr-Coulomb failure analysis was applied in the AoR to evaluate CO_2 injection-induced seismicity, reactivation of existing faults, and breakdown of the formation. Effective stress calculations in a Mohr-Coulomb analysis depend on an empirical stress model that includes pore pressure and three principal stress magnitudes and azimuths. A publicly available methodology for estimating the tectonic strain terms in the poroelastic stress equation (εh and εH) was used to constrain the maximum principal horizontal stress.

[redacted]

[redacted]

[redacted]

[redacted]

6.5.2 Geomechanical Properties of the Upper and Lower Confining Zones

OLCV acquired core data to constrain the stress model for the Upper Confining Zone. The table below presents the site-specific geomechanical data collected for the BRP Project.

[redacted]

OLCV acquired core data to constrain the stress model for the Lower Confining Zone. The table below presents the site-specific geomechanical data collected for the BRP Project.

[redacted]

[redacted]

6.6 Seismic History [40 CFR 146.82(a)(3)(v)]

The BRP Project is situated in an area of West Texas that has historically exhibited low seismic activity, based on catalogs from both USGS[5] (up to and including December 2016) and TexNet[6] (January 2017 to present). The most recent recorded event of local magnitude 2 (ML 2) or greater closest to the project site occurred approximately 5 miles to the east on 22 November 2001. Recent seismicity 25 miles north-northeast of the Project site is attributed to SWD in deeper formations near the basement rock near critically stressed basement faults, according to communication on the RRC website in 2022[7].

The risk to the Project from these recent seismic events is considered minimal because the proposed Injection Zone is vertically separated from deeper faulted strata by approximately 2,500 ft, as observed on 2D and 3D seismic images, providing sufficient vertical separation to prevent any interaction between injection pressures and the faults. Additionally, OLCV proposes managing pressure by producing brine from the Injection Zone, further reducing the risk of seismicity from the proposed Project. The USGS predicts this site to have low future seismic hazard. Because of these factors, the site low risk of induced seismicity due to Project operations.

OLCV concludes that the risk of induced or natural seismicity due to Project operations is low. Data collected during the pre-operations phase is consistent with low risk of seismicity.

[redacted]

[5] https://earthquake.usgs.gov/earthquakes/search/
[6] https://www.beg.utexas.edu/texnet-cisr/texnet
[7] https://www.rrc.texas.gov/oil-and-gas/applications-and-permits/injection-storage-permits/oil-and-gas-waste-disposal/injection-disposal-permit-procedures/seismicity-review/seismicity-response/

[redacted]

6.8 Geochemistry [40 CFR 146.82(a)(6)]

OLCV reported the geochemical composition of downhole fluids and dissolved gases for the Shoe Bar 1, Shoe Bar 1AZ, and USDW1 in Appendix A to the Area of Review and Corrective Action Plan. OLCV included geochemical data on downhole fluids and dissolved gases measured in the BRP CCS1, BRP CCS2, BRP CCS3, SLR2, WW1, WW2, WW3, and WW4 as data files attached to this submission (total of 20 brine samples analyzed) and discussed the results in Section 5.1. OLCV measured rock minerology of samples from the BRP CCS3 using XRD (See Section 4.3). These data will form a pre-injection baseline.

[redacted]

[redacted]

6.8.1 Downhole Fluids Geochemistry

[redacted]

[redacted]

[redacted]

6.8.2 Rock Mineralogy

[redacted]

[redacted]

[redacted]

6.8.3 Geochemical Modeling

The predictions from the stratigraphic wells Shoe Bar 1 and Shoe Bar 1AZ downhole fluid composition and rock mineralogy results are in close agreement with the new data obtained from BRP CCS1, BRP CCS3, SLR2, WW1, WW2, WW3, WW4. The previously reported modeling of mineral reactivity and predicted CO_2 mineral trapping appropriately represents the data collected for the BRP Project. No updates are required to the geochemical and reactive-transport simulation modelling. A summary of the geochemical modeling and the compatibility of the CO_2 injectate stream with the reservoir fluids and formation is described in Section 9.0. Details of the geochemical equilibrium and kinetic reactions among the modeled CO_2 trapping mechanisms are described in the Area of Review and Corrective Action Plan document.

6.9 Other Information (Including Surface Air and/or Soil Gas Data)

OLCV collected data on soil and soil gas as part of the pre-injection baseline. These data are reported in Section 5.2.

6.10 Site Suitability [40 CFR 146.83]

OLCV demonstrated in the site characterization phase that the BRP Project area is well suited for CO_2 storage. OLCV obtained data in the pre-operations testing phase that confirmed its understanding of the site suitability.

7.0 Corrective Action Status [40 CFR 146.82(c)(6)]

OLCV evaluated the location and status of Artificial Penetrations (APs) within the AoR that may require re-entry and corrective action. OLCV utilized multiple methods including a search of public records at the RRC, Texas Bureau of Economic Geology, Texas Commission on Environmental Quality, Texas Water Development Board, and Texas Department of Licensing and Regulation; search of third-party licensed databases and a review of historical photos. OLCV conducted a site-specific airborne magnetic survey in May 2023 to identify and/or to confirm the location of existing artificial penetrations in the AoR. The magnetic data was cross-referenced with a high-resolution drone photographic survey collected in July 2023 and licensed satellite imagery to further refine locations of APs.

OLCV confirmed the presence of four APs within the AoR, based on the methods listed above. Two additional APs were identified based on a private subscription database (one AP located on the edge of the AoR and the other located outside the AoR), but the location of these two APs were absent from any public databases and their presence was undetected on the airborne magnetic survey, drone survey, or aerial photos. OLCV concluded that these two additional APs do not exist in or near the AoR.

Table 150. Locations of legacy APs in BRP AoR.

API or state well number	Well Name	Recorded Status	Drill Date	Abandon Date	Corrective Action Date	Latitude NAD27	Longitude NAD27
4213506139	Eidson-Scharbauer-1	Dry hole	4/18/1958	9/21/1959	2/26/2025	31.752609	-102.722402
4213510667	Scharbauer Eidson-1	Dry hole	12/23/1964	2/19/1965	2/26/2025	31.746054	-102.734506

API or state well number	Well Name	Recorded Status	Drill Date	Abandon Date	Corrective Action Date	Latitude NAD27	Longitude NAD27
4213531130	Eidson E-1	Dry hole	8/1/1973	8/23/1973	2/26/2025	31.758779	-102.742806
4511701	-	Brackish water producer	1940	9/20/2023	No corrective action required	31.771943	-102.720554

A brackish water producer, state well number 4511701, was plugged and abandoned by a qualified contractor to OLCV in September 2023. OLCV determined that the remaining three APs in the AoR may require corrective action. Because the three APs had previously been plugged and abandoned, there was no wellhead present. In October 2024, a team of Oxy drilling engineers conducted a handheld magnetometer survey to precisely locate the buried conductor casing for these three APs and commence excavation operations in preparation for re-entry and corrective action.

Corrective action was conducted on the three legacy APs in the AoR during November 2024 – February 2025. OLCV's actions will prevent migration of Injection Zone fluids or brine into the USDW through these legacy APs. The procedures and wellbore diagrams depicting the current configurations of the wells are shown below.

7.1 Re-Entry and Corrective Action on Eidson-Scharbauer-1 (4213506139)

7.1.1 Procedure

The purpose of the corrective action was to isolate the Injection Zone and limit the risk of fluid migration to the USDW. A summary of the key corrective action steps is listed below.

[redacted]

[redacted]

7.1.2 Results

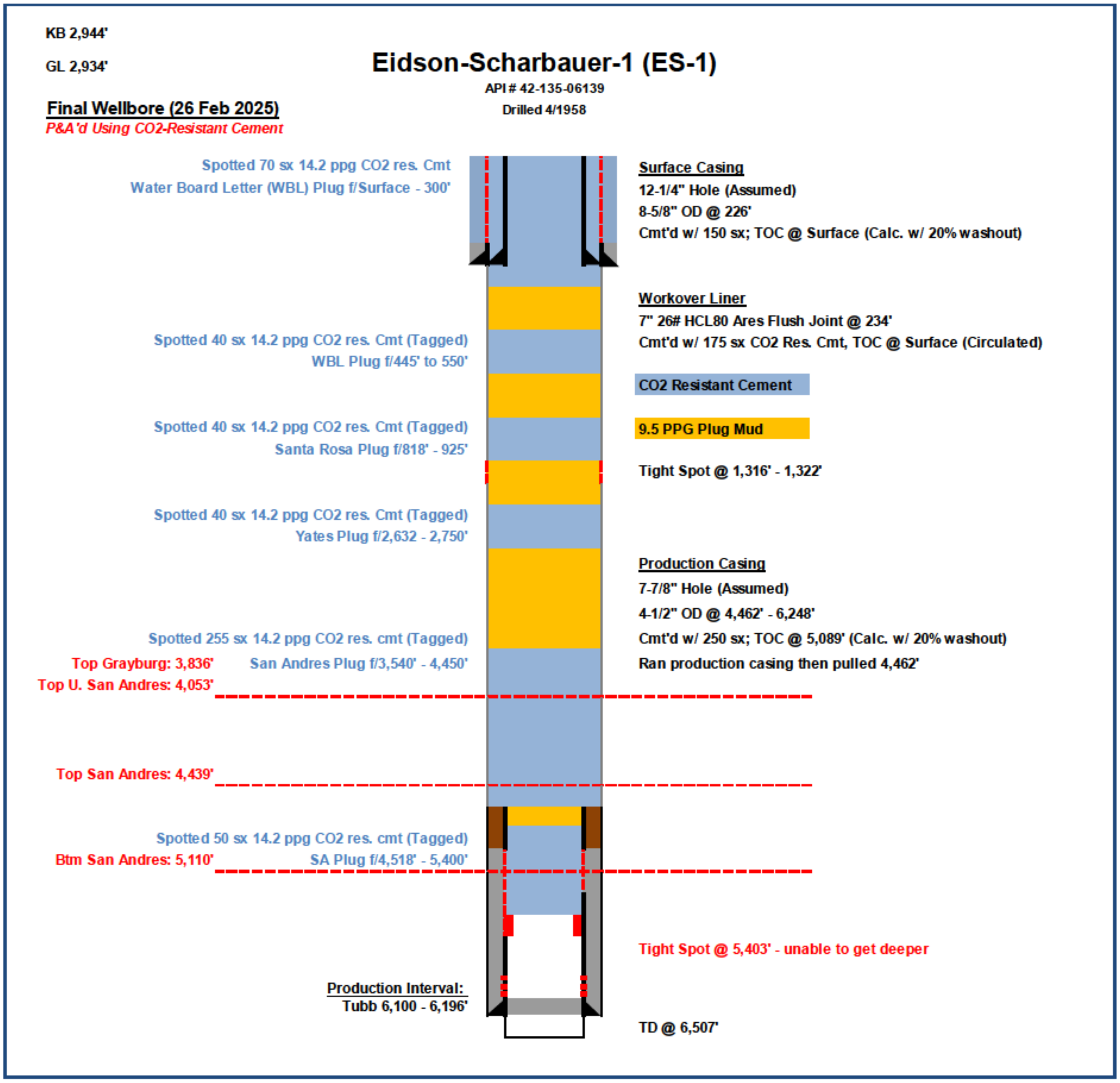

Figure 97. Wellbore diagram following corrective action for Eidson-Scharbauer-1 (4213506139).

7.2 Re-Entry and Corrective Action on Scharbauer Eidson-1 (4213510667)

7.2.1 Procedure

The purpose of the corrective action was to isolate the Injection Zone and limit the risk of fluid migration to the USDW. A summary of the key corrective action steps is listed below.

[redacted]

[redacted]

7.2.2 Results

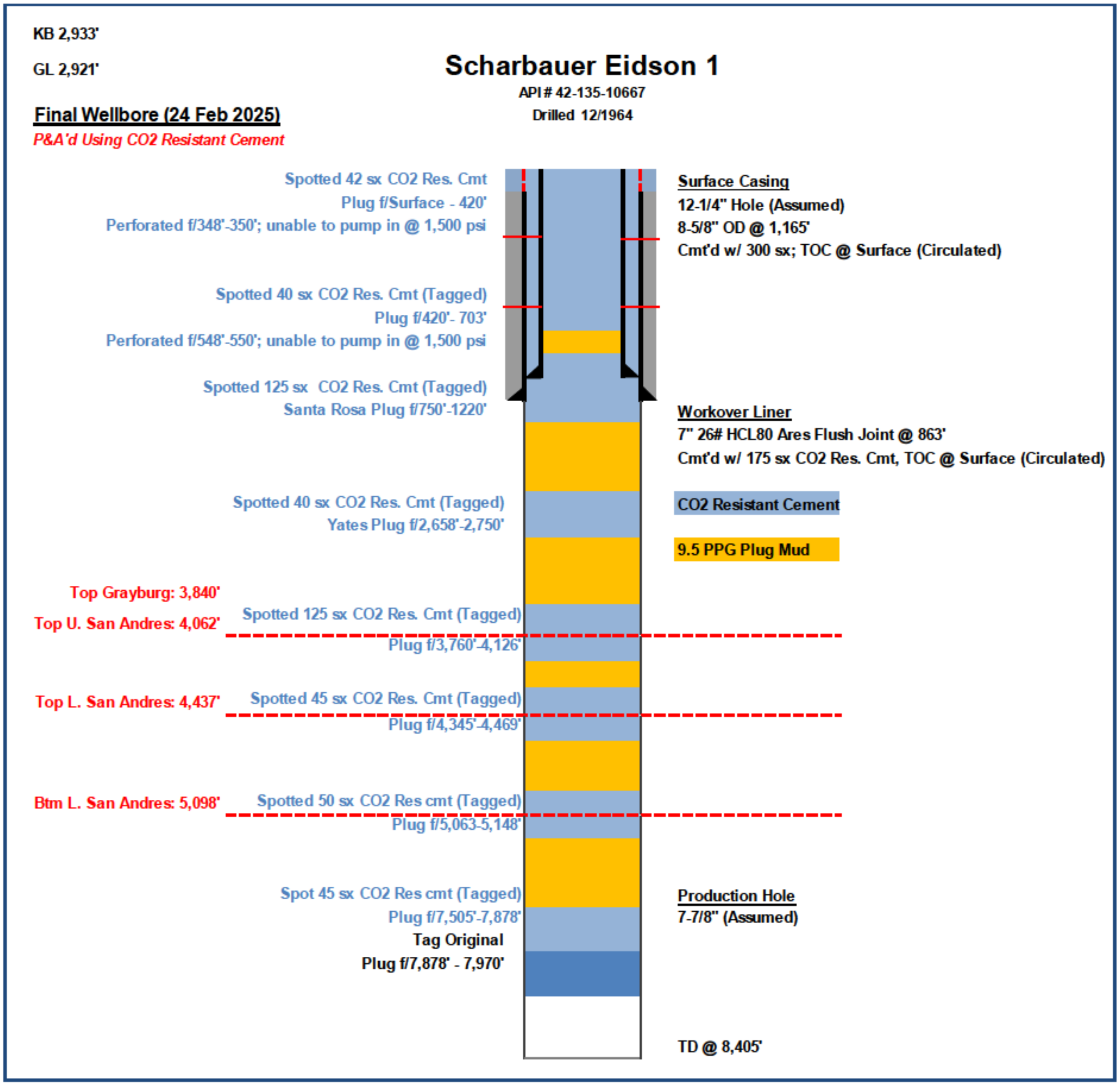

Figure 98. Wellbore diagram following corrective action on Scharbauer Eidson-1 (4213510667).

7.3 Re-Entry and Corrective Action on Eidson E-1 (4213531130)

7.3.1 Procedure

The purpose of the corrective action was to isolate the Injection Zone and limit the risk of fluid migration to the USDW. A summary of the key corrective action steps is listed below.

[redacted]

[redacted]

7.3.2 Results

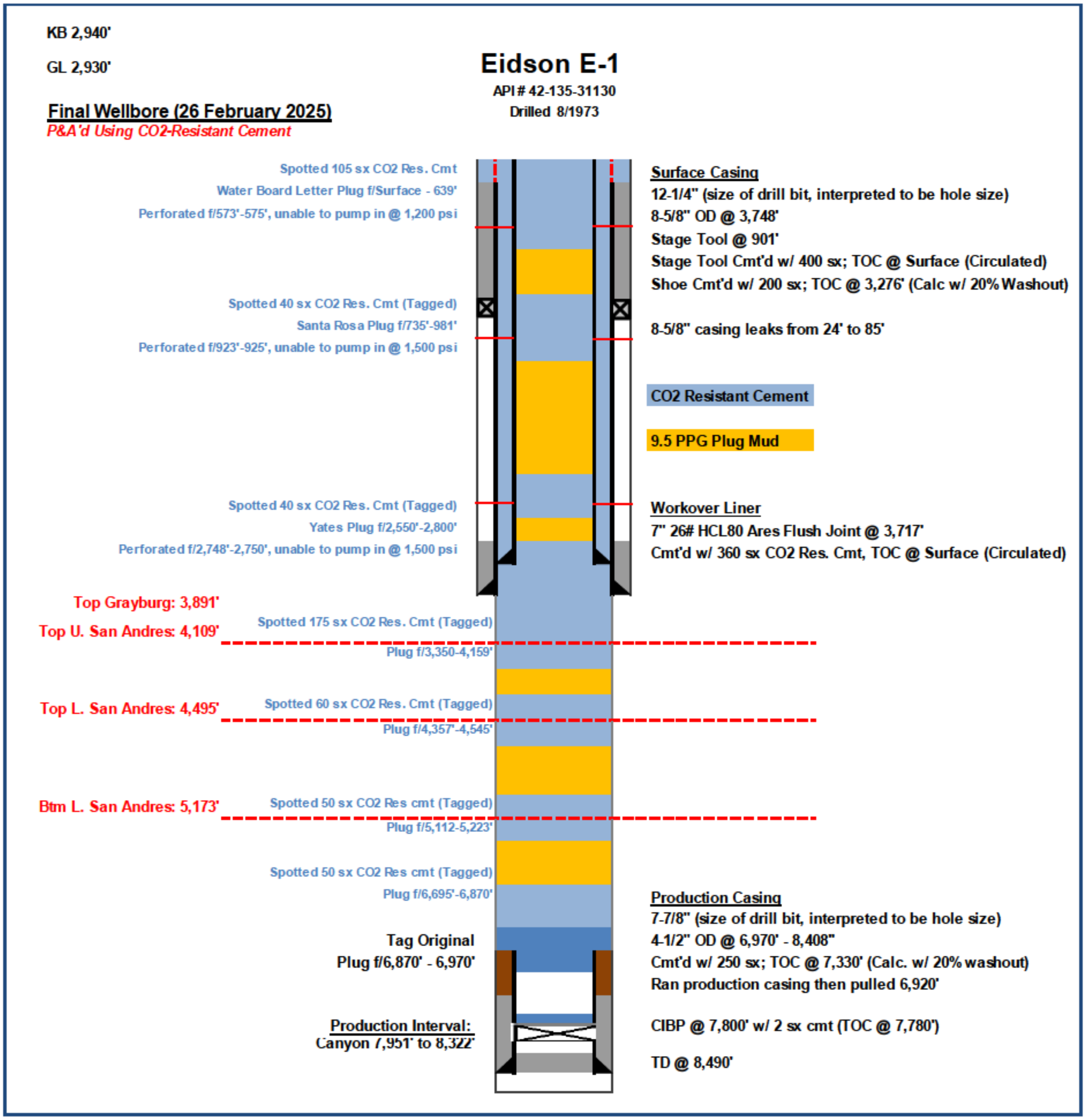

Figure 99. Wellbore diagram following corrective action on Eidson E-1 (4213531130).

7.4 Conclusions of Corrective Action Program

Corrective action was conducted on the three legacy APs in the AoR during November 2024 – February 2025. All three wells have been plugged to prevent migration of Injection Zone fluids or brine into the USDW through these APs.

8.0 Final AoR Model and Delineation [40 CFR 146.82(c)(1)]

Pursuant to 40 CFR 146.82(c)(1), OLCV reviewed the data obtained during logging and testing of the BRP CCS1, BRP CCS2, and BRP CCS3 and concludes that no updates are required to the AoR for the BRP Project. OLCV observed little variation in the recently acquired wells compared with the wells and seismic available during construction of the geocellular and dynamic simulation models presented in the Area of Review and Corrective Action Plan that was submitted as part of the UIC Class VI application for the BRP Project. OLCV presents the following:

- No changes to the geologic structure or hydrogeologic properties of the Injection Zone or Upper or Lower Confining Zones [40 CFR 146.82(c)(2)].
- No changes to the compatibility of the CO_2 injectate stream with fluids in the Injection Zone or minerals in the Injection or Confining Zones [40 CFR 146.82(c)(3)].
- No changes resulting from the formation testing program [40 CFR 146.82(c)(4)].
- Corrective action was executed, as planned, and no additional wells requiring corrective action were identified [40 CFR 146.82(c)(6)].
- All available logging and testing results have been considered [40 CFR 146.82(c)(7)].

OLCV utilized information on injectivity and fracture propagation pressure interpreted in the BRP CCS1, BRP CCS2, and BRP CCS3 to update operational limits. Updated limits are presented in Section 10.8

8.1 Geocellular Model

OLCV compared the structural framework and porosity/permeability properties of the geocellular model with formation tops and well log data acquired in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2. The log and core results of recently drilled wells are well aligned with data collected and reported in the Area of Review and Corrective Action Plan that was submitted as part of the UIC Class VI application for the BRP Project.

8.1.1 Data Integrated to the Geocellular Model

Formation tops interpreted in the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are similar to depths of modeled surfaces. Porosity well log data from the new wells provide additional data control points but do not change the porosity and permeability property model.

8.1.2 Results of Updates to Geocellular Model

The logging results of the BRP CCS1, BRP CCS2, BRP CCS3, and SLR2 are in general agreement with pre-drill predictions geocellular model. As a result, no updates were required to the structural framework or porosity/permeability properties of the geocellular model. The petrophysical properties, volumes, and storage capacity are unchanged.

8.2 Dynamic Simulation Model

OLCV updated the injection commencement schedule, operational injection limits, well trajectories, transmissivity, and skin factor for the newly drilled wells in the dynamic simulation model. OLCV did not make updates to the AoR delineation.

8.2.1 New and revised data incorporated into dynamic simulation model

OLCV updated the injection commencement schedule to accommodate the current forecasted Project start date. OLCV plans to commence CO_2 injection operations in the BRP CCS1, BRP CCS2 and BRP CCS3 in June 2025. Previously, OLCV modeled that BRP CCS1 and BRP CCS2 would commence CO_2 injection in January 2025 and BRP CCS3 would commence injection in January 2027. The adjustment to the start date results in an increase of approximately 900 tonnes of CO_2, representing a 0.01% change to the total mass of CO_2 injected over the life of the Project.

The fracture gradient from mini-frac results was updated for the BRP CCS1, BRP CCS2, and BRP CCS3 resulting in a new upper limit for the injection pressure. OLCV used the deviation survey in each well to update the as-drilled trajectory. Injectivity test results provided the updated net injection transmissivity and skin factor.

8.2.2 Results of updates to dynamic simulation model

OLCV observed minor impact in results due to changes in total CO_2 mass to be injected in the project from modification in injection commencement schedule for BRP CCS1, BRP CCS2 and BRP CCS3. The injection pressure is lower than the updated pressure limit calculated from the fracture gradient for each Project well. Thus, the dynamic model results in no changes in the injection bottomhole pressure and rate values. The wells were constructed as planned, so there were no significant changes in well trajectory. Finally, the updated net injection transmissivity and well skin factors result in no material change.

8.3 Discussion and implications to the Project of updates to dynamic simulation model

The simulated changes in injection commencement schedule represent a minor change in total CO_2 injected. In addition, the predictions from the stratigraphic wells Shoe Bar 1 and Shoe Bar 1AZ logging and tests results are in close agreement with the new data obtained from the BRP1 CCS1, BRP CCS2, and BRP CCS3. Thus, the changes result in no significant modification to the dynamic simulation model. OLCV did not change the AoR delineation.

8.4 Future modeling plans

Future log, core, or seismic data may be incorporated into the geocellular model. No updates to the geocellular model are planned prior to commencement of CO_2 injection.

OLCV will update the dynamic simulation model after commencement of CO_2 injection by performing a history match of the historical rate and pressure injection data. History matching is the process of adjusting the dynamic simulation model to reproduce the past behavior of a reservoir by changing reservoir properties, such as regional permeability and well skin factor. If the changes result in AoR delineation, or at least every five years, a revised AoR will be submitted in accordance with 40 CFR 146.84(b)(2)(i).

9.0 Compatibility of the CO_2 Stream [40 CFR 146.82(c)(3)]

9.1 Compatibility of the CO_2 Injectate Stream with the Injection and Confining Zone

OLCV conducted geochemical equilibrium and reactive-transport simulations to confirm compatibility of the CO_2 injectate stream with Injection Zone rocks and fluids. OLCV conducted the evaluation using site-specific rock and fluid acquired from the Shoe Bar 1AZ stratigraphic test well. The results of this work are reported in Section 3 of the Area of Review and Corrective Action Plan that was submitted as part of the Class VI application material for BRP CCS1, BRP CCS2, and BRP CCS3. Rock and fluid data that were collected after the Shoe Bar 1AZ (i.e., WW1, WW2, WW3, WW4, BRP CCS1, BRP CCS2, BRP CCS3, SLR2) and are generally consistent with the data collected in Shoe Bar 1AZ and do not require a revision of the equilibrium modeling for reactive-transport modeling. Furthermore, no deviation is expected in the composition of the CO_2 injectate stream from what was initially modeled. A summary of the results reported in the Area of Review and Corrective Action Plan is provided below.

9.1.1 Equilibrium modeling

[redacted]

[redacted]

9.1.2 Reactive-transport modeling

OLCV conducted reactive-transport modeling using GEM software. The objective of reactive-transport modeling was to evaluate geochemical impact on reservoir storage capacity, possible injectivity modifications, and mechanisms. The extended Debye-Hückel equation was used, to be consistent with the geochemical equilibrium simulations. Dolomite, calcite, gypsum, and anhydrite [redacted]

9.2 Compatibility of the CO_2 Injectate Stream with Wellbore Materials

OLCV selected cement, casing, tubing, and packer materials with chemical and mechanical resistance to the effects of carbonic acid exposure and to be CO_2 injectate stream. There is no evidence that the interactions between the CO_2 injectate and cement, casing, tubing, or packers will result in loss of mechanical integrity. OLCV will monitor the mechanical integrity of the Class VI Injection wells and monitoring wells using DTS fiber (in BRP CCS1, BRP CCS2, BRP CCS3, Shoe Bar 1, and SLR2), pressure and temperature gauges, and corrosion coupons. Continuous on-line analyzers and routine laboratory chemical analyses of the CO_2 injectate stream will be used to confirm continued compatibility.

9.2.1 Cement Design

OLCV designed a CO_2-resistant slurry improve chemical and mechanical resistance to carbonic acid exposure. Details of the design criteria and formulation are provided in Appendix A to the Construction Plan that was submitted as part of the Class VI application for BRP CCS1, BRP CCS2, and BRP CCS3. There is no evidence that the interactions between the CO_2 injectate and OLCV's CO_2-resistant slurry will cause deterioration of the cement or a loss of mechanical integrity.

A summary of the design criteria and composition of CO_2-resistant slurries is provided below.

OLCV's CO_2-resistant slurry:

- Contains reduced Portland Cement content.
- Incorporates small and fine particle sizes of non-Portland solid materials including, but not limited to, pozzolan(s), fly ash, silica sand/flour in concentrations > 20% BWOC.
- Is formulated to reduce structural permeability.
- Incorporates fluid loss and latex cement additive technologies known to block internal matrix communication of components vulnerable to carbonization.

9.2.2 Casing, Tubing, and Packer Selection

Details of the casing, tubing, and packer selection design criteria are provided in Appendix A to the Construction Plan that was submitted as part of the Class VI application for BRP CCS1, BRP CCS2, and BRP CCS3. There is no evidence that the interactions between the CO_2 injectate and well construction materials will cause a loss of mechanical integrity. A summary of the material selection is provided below.

Casing string materials for the Class VI wells are selected based on the risk of corrosion. Casing is made of alloy steel in zones where there is low risk of CO_2 coming in contact with the casing. In zones where casing will be in contact with the CO_2 and formation water, the casing is composed of corrosion resistant alloy (CRA).

To determine the appropriate CRA, OLCV modeled the chemical reactions of the CO_2 injectate stream and the Injection Zone brine at reservoir conditions using OLI Software to predict the in-situ pH and the corrosion severity. Based on these results, OLCV selected 2507 Super Duplex stainless steel for its compatibility with the downhole conditions and its long-term durability.

OLCV used L-80 tubing with TK805 internal coated tubing, connected with premium gas-tight VAM-TOP threaded connection and packers that are composed of nickel-plated/ Inconel 925 parts and HNBR (RGD) elastomers.

10.0 Plan Updates [40 CFR 146.82(c)(9)]

10.1 Pre-Operational Logging and Testing

OLCV did not make changes to the Pre-Operational Logging and Testing Plan. The Project wells were constructed and tested, as expected.

Pre-Operational Logging and Testing GSDT Submissions
GSDT Module: Pre-Operational Testing ***Tab(s):*** All tabs Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Logging and testing results ***[40 CFR 146.82(c)(7) and 146.87]***

10.1.1 Pre-Operational Logging and Testing Completeness Review

Completeness Check	Location of data / OLCV comments
Compare the as-built schematics and construction procedures to those submitted with the permit application and the approved injection well construction plan. Verify that the well was constructed as planned, including the use of proper lengths and diameters of casing and acceptable materials and cement.	UIC Class VI wells were constructed as expected. Wellbore schematics are located in Section 3.0.
If the well is deviated at all from vertical, compare the radius of curvature to the length of monitoring instruments described in the Testing and Monitoring Plan to ensure that the instruments will not become lodged in the bend of the well casing.	UIC Class VI wells are deviated. OLCV selected logging tools appropriate for deviated wellbores.
Review the results of logs run during well drilling and construction to evaluate whether the well was properly constructed.	Cement and casing verification in UIC Class VI wells is presented in Section 4.1.3, 4.1.4, 4.2.3, 4.2.4, 4.3.3, and 4.3.4.
Review cementing records to ensure that cement was circulated to the surface. If cement was not returned to the surface or logs indicate missing or thin cement in any areas, determine whether the existing cement is adequate to ensure that there will be no fluid migration along the wellbore for the duration of the Class VI project.	UIC Class VI CBL/VDL logs are submitted through the GSDT.

Completeness Check	Location of data / OLCV comments
Review the results of formation testing and analyses of geochemical samples taken to verify that the assumptions on which well construction plans were based are accurate and that there are no concerns about the compatibility of the well construction materials with the carbon dioxide stream.	Geochemical baseline results are presented in Section 5.1. Compatibility analysis is presented in Section 9.1 and 9.2.
Verify that the well has mechanical integrity.	Mechanical integrity testing of UIC Class VI wells is presented in 4.1.10, 4.2.10, and 4.3.10.
Verify that any needed remedial actions for wells that were converted pursuant to 40 CFR 146.81(c) were performed as planned and that all information necessary to demonstrate that the wells were engineered and constructed to meet the requirements at 40 CFR 146.86(a) is present.	Corrective action status is presented in Section 7.0.
If geologic testing revealed the presence of additional USDWs or porous formations, confirm that the well was cemented across these zones.	No additional USDWs or porous formations were encountered while constructing the UIC Class VI wells.
Confirm that the well shut-in procedures are appropriate based on the most up-to-date information about the site or changes to planned operations.	Operating limits are presented in Section 10.8. Limits on the injectate stream are presented in Section 3.0 of the Testing and Monitoring Plan.
Verify that the approved well construction is suitable to the final operating conditions, e.g., related to the materials' strengths versus anticipated pressures.	UIC Class VI wells were constructed as planned.
Final, as-built well construction specifications and schematics that describe all required casings, cement, safety and shutoff devices, and monitoring gauges.	As-built construction diagrams are presented in Section 3.0. Casing, cement, shut-off systems, and monitoring devices are described in Section 4.0.

10.2 Site Characterization

10.2.1 Site Characterization Completeness Review

OLCV did not collect data during pre-operational construction and baseline testing that changed the characterization of the BRP Project site.

Completeness Check	Location of data / OLCV comments
Operator performed testing required at 40 CFR 146.82(c) and 146.87.	Results of testing conducted during construction of the UIC Class VI wells is presented in Section 4.0.
Verify that cores and samples were properly collected, and that the submission includes the log analyst's report required at 40 CFR 146.87(b).	Core was collected in the BRP CCS3 well. These data are described in Section 4.3.8. OLCV petrophysicists provided the interpretation of logs, fulfilling the requirements for a log analyst's report.

Completeness Check	Location of data / OLCV comments
Confirm that all parameters specified in the approved pre-operational formation testing Program were analyzed and that all QA protocols were followed.	UIC Class VI wells were tested as planned.
Confirm that samples were taken at all locations and depths/formations specified in the approved pre-operational formation testing program.	UIC Class VI wells were sampled as planned.
Verify that the specified analytical techniques were used and that all chemical analyses were performed at certified or accredited labs following the protocols in the approved QASP.	OLCV utilized laboratories skilled in rock and fluid interpretation to conduct analyses on UIC Class VI samples.
Verify that logging results support consistent findings about subsurface stratigraphy and that they corroborate other geologic data provided in the original permit application.	Logging results from UIC Class VI wells are within the expected range of variability and generally consistent to other Project wells.
Verify the locations of any USDWs and any hydrocarbon-containing zones.	OLCV did not encounter zones with moveable hydrocarbons while drilling the UIC Class VI wells. USDW information is presented in Section 6.1.2.2.
Confirm that information about porosity, permeability, petrology, and mineralogy based on core analyses is consistent with other submitted information on the injection and confining zones.	Rock properties determined from core in the BRP CCS3 are consistent with rock properties determined from core in the Shoe Bar 1 and Shoe Bar 1AZ.
Review information on formation fluids in the injection zone to determine if they agree information in the permit application.	Fluid geochemical analyses are presented in Section 5.1. Fluids encountered in the UIC Class VI wells are interpreted to be within the expected range of fluid properties to be consistent with fluids encountered in other Project wells.
Review the fracture pressure data to verify that the test was performed properly, and the fracture pressure was calculated accurately.	Mini-frac test results of UIC Class VI wells are presented in Sections 4.1.11, 4.2.11, and 4.3.11.
Verify that a pressure fall-off test and either a pump test or injectivity test were performed, that proper testing and analytical procedures were followed, and that the testing parameters are based on the operating conditions in the permit (e.g., injection pressures).	Injectivity testing and fall-off testing for UIC Class VI wells are presented in Sections 4.1.12, 4.2.12, and 4.3.12.
Assess whether newly acquired information confirms that facies interpretations about the injection and confining zones are consistent with the descriptions in the permit application.	OLCV did not obtain information while constructing the UIC Class VI wells that changed its characterization of the Injection or Confining Zones.
Review the results of any logging within wells other than the injection well and whether they confirm that the structures of the injection and confining zones are	OLCV confirmed properties of the Upper Confining Zone and Upper Confining System in the UIC Class VI wells. A summary of properties is presented in Sections 6.1.2.3 and 6.1.2.4.

Completeness Check	Location of data / OLCV comments
conducive to GS and form an adequate confining system.	
Demonstrate the compatibility of the carbon dioxide stream with subsurface fluids and minerals.	OLCV measured fluid geochemistry in UIC Class VI wells. The results of the baseline are shown in Section 5.1; the geochemical summary for site characterization is shown in Section 6.8; and the compatibility of fluids is shown in Section 9.
If estimates of injection zone storage capacity change based on pre-operational formation testing results, determine whether adjusting the injection rates and volume limits in the permit is necessary.	OLCV did not change estimates of storage capacity.
Compare the fracture pressure to assumptions on which the evaluation of confining zone integrity was based and to the distribution of pressures in the AoR.	Fracture pressure interpreted in the UIC Class VI wells is comparable to data obtained in the Shoe Bar 1 and Shoe Bar 1AZ and is presented in Sections 4.1.11, 4.2.11, and 4.3.11. The new data support OLCV's interpretation of Upper and Lower Confining Zone integrity.
Review any updated information about seismic activity at the site.	OLCV installed five new site-specific seismometers and commenced seismic monitoring commenced. See Section 5.4.

10.3 AoR and Corrective Action

OLCV did not make changes to the AoR and Corrective Action Plan.

AoR and Corrective Action GSDT Submissions
GSDT Module: AoR and Corrective Action ***Tab(s):*** All applicable tabs Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☐ Updated AoR and Corrective Action Plan ***[40 CFR 146.82(c)(9) and 146.84(b)]*** ☒ NO UPDATES NECESSARY

Corrective Action GSDT Submissions

GSDT Module: AoR and Corrective Action module

Tab(s): Corrective Action tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☒ Corrective action documentation ***[40 CFR 146.82(c)(6)]***

☐ NO UPDATES NECESSARY

10.3.1 AoR and Corrective Action Completeness Review

Completeness Check	Location of data / OLCV comments
Identify the changes made to the AoR delineation, any key updates of the modeling data, and the revisions that have been made to the plan.	OLCV made no changes to the AoR delineation.
Verify that all changes and amendments are documented comprehensively and consistently	OLCV made no changes to the AoR delineation.
Determine whether the submitted information is sufficient to evaluate compliance with the requirements for computational modeling and AoR delineation with an appropriate level of detail and clarity.	OLCV submitted information to support the AoR delineation as part of the UIC Class VI application. Data acquired in the pre-injection period support this delineation.
Verify that all relevant new information has been appropriately considered in the delineation of the final AoR and identifying areas where new information supports the previous approaches/assumptions.	The data acquired in the UIC Class VI wells is in agreement with data collected in other Project wells. No updates are required to the AoR delineation.
Ensure that the updated conceptual/geologic model and model inputs are consistent with pre-operational testing results and evaluate how the newly available information addresses the data gaps/uncertainties associated with the existing AoR delineation.	The data acquired in the UIC Class VI wells is in agreement with data collected in other Project wells. No updates are required to the AoR delineation.
Assess whether the updated computational/numerical model used to delineate the final AoR complies with 40 CFR 146.84, that it is constructed to reasonably and accurately represent the geologic and operational systems, and that it yields the information necessary to delineate the AoR.	The data acquired in the UIC Class VI wells is in agreement with data collected in other Project wells. No updates are required to the AoR delineation.
Confirm that the methodology used to delineate the AoR (based on the modeling results) is a conservative and reasonable approach to ensure that the AoR accurately represents the area where USDWs may be endangered.	OLCV made no changes to the AoR delineation methodology.

Completeness Check	Location of data / OLCV comments
Ensure that all simplifying assumptions are clearly stated, documented, and justified, as are the methods used for integrating new information into the modeling approach.	OLCV made no changes to the AoR delineation.
Assess the completeness of the pre-operational testing data incorporated into the AoR delineation to ensure that all available relevant information collected pursuant to 40 CFR 146.87 and the permit has been used to support the process.	Pre-operational well data are presented in Section 4. Pre-operational baseline testing and monitoring data are presented in Section 5.
Assess the conceptual/geologic model and model inputs to evaluate the data/information used in the model.	OLCV did not change the geocellular model. OLCV updated the dynamic simulation model to reflect injectivity and fracture pressure data from the UIC Class VI wells. These data did not change the AoR delineation.
Review the owner or operator's computational/numerical modeling effort to verify compliance with the rule requirements, assess consistency with the approach described in the approved AoR and Corrective Action Plan, and evaluate appropriateness for the project.	OLCV updated the dynamic simulation model to reflect injectivity and fracture pressure data from the UIC Class VI wells. These data did not change the AoR delineation.
Assess the owner or operator's methodology for delineating the AoR to ensure that it represents the area where USDWs may be endangered.	OLCV made no changes to the AoR delineation.
Verify that the amended AoR and Corrective Action Plan reflects the most up-to-date information on the AoR delineation and corrective action.	OLCV made no changes to the AoR delineation.
Evaluate whether corrective action conducted on all previously determined and/or newly identified wells was completed in a suitable manner.	OLCV performed re-entry and corrective action on three legacy wellbores, as planned. The results are presented in Section 7.

10.4 Testing and Monitoring

OLCV made minor changes to the Testing and Monitoring Plan. Key changes include:

- Installation of a U-tube fluid sampling system in the SLR2 well, whereas the previous plan included either a U-tube or wireline logging sampling system.
- No perforation in the Upper Confining Zone of the Shoe Bar 1 and Shoe Bar 1AZ, and therefore no installation of pressure or temperature gauges. This change is designed to

further enhance wellbore mechanical integrity. DTS will provide temperature data in the Shoe Bar 1. PNL logs for saturation monitoring may still be conducted in both wells.

- Utilization of fluid samples obtained in the WW1, WW2, WW3, and WW4 for baseline characterization. The previous submission assumed that SLR2 would be available for sampling for approximately one year prior to commencement of CO_2 injection. In the current plan, SLR2 will be sampled at least once after construction and prior to commencement of CO_2 injection.

- Installation of gas analyzers (O_2 and H_2O) and a gas chromatograph (CO_2) on the pipeline leading to the three UIC Class VI injectors, instead of on the flowlines at each UIC Class VI injector wellhead. The location of the devices was changed to better accommodate maintenance and calibration requirements.

Testing and Monitoring GSDT Submissions

GSDT Module: Project Plan Submissions

Tab(s): Testing and Monitoring tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☒ Updated Testing and Monitoring Plan ***[40 CFR 146.82(c)(9) and 146.90]***

☐ NO UPDATES NECESSARY

10.4.1 Testing and Monitoring Completeness Review

Completeness Check	Location of data / OLCV comments
Confirm that the plan includes changes to the planned carbon dioxide stream analyses (e.g., analytes or sampling frequency) that are needed to address updated information about the carbon dioxide composition or source.	OLCV made no changes to the composition of the CO_2 injectate or the source of the injectate.
Confirm that planned well testing (e.g., corrosion testing, MITs, or continuous monitoring of operational parameters) reflects the most up-to-date information on project operations, well construction, carbon dioxide stream composition and source, and the compatibility of the carbon dioxide stream with well materials.	OLCV made no changes to planned Project operations. UIC Class VI wells and monitoring and support wells were constructed, as planned. OLCV made no changes to do the CO_2 stream composition or source.

Verify that planned groundwater sampling or other above-confining-zone monitoring reflects the most up-to-date information on site characteristics.	OLCV conducted baseline sampling of the USDW. Sampling is proceeding as planned. Baseline data are in agreement with data acquired during construction of the USDW monitoring well.
Verify that all monitoring wells that need to be installed prior to commencing injection are in place and properly constructed.	OLCV installed all monitoring and support wells that were planned to be installed prior to commencement of CO_2 injection operations: WW1, WW2, WW3, WW4, SLR2, and USDW1. OLCV converted the Shoe Bar 1 and Shoe Bar 1AZ to monitor the Upper Confining Zone. No other well intervention activities are planned prior to commencement of CO_2 injection.
Confirm that plume and pressure front monitoring strategies are appropriate based on the most up-to-date geologic information, planned operational procedures, and computational modeling results.	The baseline for plume and pressure front monitoring has commenced. Based on early results, OLCV interprets that the data may be used for plume and pressure front monitoring after the commencement of CO_2 injection. See Section 5.
Confirm that any surface air monitoring and/or soil gas monitoring (if required) remains appropriate based on the results of updated geologic information.	Soil gas baseline data has commenced, and results are presented Section 5.2.
Request and review a revised QASP if any testing or monitoring activities (or the associated QA/QC needs) change.	OLCV revised the QASP based on final selection of monitoring devices and laboratory procedures. The QASP document will be submitted through the GSDT.

10.5 Injection Well Plugging

The Injection Well Plugging Plan for the BPR Project was updated to reflect as-constructed configurations of BRP CCS1, BRP CCS2, and BRP CCS3. Plug depths and cement volumes were adjusted in accordance with the formation tops encountered while drilling and the depths of perforations performed.

Appendix A to the Injection Well Plugging Plan for the BRP Project was updated to reflect as-constructed configurations of SLR2, WW1, WW2, WW3, and WW4 wells. Plug depths and cement volumes were adjusted in accordance with the formation tops encountered while drilling and the depths of perforations performed. Additionally, Appendix A was updated to reflect the conversion of Shoe Bar 1 to the SLR1 monitoring well, and Shoe Bar 1AZ to the ACZ1 monitoring well.

Injection Well Plugging GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** Injection Well Plugging tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☒ Updated Injection Well Plugging Plan ***[40 CFR 146.82(c)(9) and 146.90]***

☐ NO UPDATES NECESSARY

10.5.1 Injection Well Plugging Completeness Review

Completeness Check	Location of data / OLCV comments
If any aspects of injection well construction varied from the approved procedures, verify that the types and amounts of cement and plugs in the final Injection Well Plugging Plan reflect these changes.	The plugging plan was updated to reflect the formation tops, casing and tubing set points, and perforations executed in the wells. Wells were constructed as planned, with minor variations due to operational conditions. See Section 3 for construction information.
If any new information is available about the injectate or formation fluid geochemistry (including any anticipated geochemical changes that could affect the compatibility of the injectate with well materials), confirm that the plugging materials and cement described in the Injection Well Plugging Plan are suitable to those conditions.	Geochemical results from the BRP CCS1 and BRP CCS3 are consistent with other Project wells and with the data obtained during the site characterization phase of the Project. OLCV considers the BRP CCS2 fluid samples as contaminated with drilling mud filtrate during sampling; therefore, these analyses do not reflect reservoir fluids. Due to the close proximity of the BRP CCS2 to the Shoe Bar 1AZ and BRP CCS1, OLCV proposes using the fluid samples obtained in these nearby wells as analogues for the BRP CCS2. OLCV interprets this as indicating that no changes are required to ensure compatibility with well materials or plugging materials.
If pre-operational formation testing reveals the presence of any additional USDWs, other fluid-containing or porous formations, or other geologic features that could allow fluid movement that could endanger USDWs, confirm that the plan includes plugs and cement at appropriate depths and that the calculated quantity of cement is sufficient to cover all relevant formations	OLCV encountered no USDWs or other permeable zones between the Dockum (lowermost USDW) and the Lower San Andres Formation (Injection Zone) in Project wells.
If any aspects of the Injection Well Plugging Plan change based on the review, alert the staff reviewing the financial responsibility cost estimates that the estimates to plug the well may need to be revised.	OLCV did not make changes to the Plugging Plan that would result in changes to the financial assurance.

10.6 Post-Injection Site Care (PISC) and Site Closure

OLCV did not make updates to the PISC and Site Closure Plan as no updates were made to the AoR delineation.

PISC and Site Closure GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** PISC and Site Closure tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☐ Updated PISC and Site Closure Plan ***[40 CFR 146.82(c)(9) and 146.90]*** ☒ NO UPDATES NECESSARY
GSDT Module: Alternative PISC Timeframe Demonstration ***Tab(s):*** All tabs (only if an alternative PISC timeframe is requested) Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☐ Updated alternative PISC timeframe demonstration ***[40 CFR 146.82(c)(9) and 146.90]*** ☒ NO UPDATES NECESSARY

10.6.1 PISC Completeness Review

Completeness Check	Location of data / OLCV comments
Verify that the predictions of post-injection phase plume and pressure front behavior are consistent with the most up-to-date computational modeling results.	OLCV made no changes to the AoR delineation.
Review the proposed post-injection testing and monitoring program.	OLCV made minor changes to the post-injection testing and monitoring program. For example, the SLR2 was constructed to include with fiber, so OLCV plans to collect 2D using fiber in the SLR2 in the post-injection period. This change is minor and does not warrant a plan update at this time. Updates will be provided when the AoR is re-evaluated

Completeness Check	Location of data / OLCV comments
If new pathways for potential carbon dioxide movement (e.g., additional faults, fractures, or other pathways) have been identified, verify that post-injection monitoring will target these areas.	OLCV identified no new pathways for CO_2 movement.
If any new USDWs are identified during pre-operational testing, verify that the final plan includes monitoring to ensure that these USDWs are not endangered.	OLCV identified no new USDWs.
If formation testing data indicate that mobilization of additional constituents is possible, confirm that the groundwater monitoring program in the PISC and Site Closure Plan includes monitoring for these constituents.	OLCV identified no new constituents or mobilization of additional constituents.
If the most up-to-date computational modeling results indicate that the predicted speed, direction, or extent of plume and pressure migration have changed, verify that the spatial and temporal coverage of plume and pressure front tracking methods are appropriate considering the new information.	OLCV made no changes to the AoR delineation or timing of AoR movement.
Verify that the locations/depths, spatial coverage, and frequencies of post-injection phase testing and monitoring are appropriate to the most up-to-date AoR delineation, predictions of plume and pressure front behavior, and any new information about endangerment to USDWs within the AoR.	OLCV made no changes to the AoR delineation.
If the plan includes provisions to decrease monitoring parameters or frequencies during the post-injection phase, confirm that any quantitative triggers specified to reduce monitoring (or the baselines against which they would be compared) remain accurate based on the current understanding of the site and model predictions.	OLCV did not update the frequency of monitoring in the post-injection period.
If any new monitoring activities are included in the amended plan, confirm that they are addressed in an updated QASP.	OLCV proposes no new monitoring activities.
Review the alternative PISC timeframe demonstration in the context of new information (if applicable).	OLCV proposes no changes to the PISC timeframe.
Review the non-endangerment demonstration criteria in light of newly available information.	OLCV made no changes to the AoR delineation or demonstration criteria.
Review plans for monitoring well plugging and site closure.	OLCV proposes no new plans for monitoring well plugging or site closure.

10.7 Emergency and Remedial Response

OLCV did not make updates to the Emergency and Remedial Response Plan.

Emergency and Remedial Response GSDT Submissions

GSDT Module: Project Plan Submissions

Tab(s): Emergency and Remedial Response tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Updated Emergency and Remedial Response Plan ***[40 CFR 146.82(c)(9) and 146.90]***

☒ NO UPDATES NECESSARY

10.7.1 ERRP Completeness Review

Completeness Check	Location of data / OLCV comments
If the size or shape of the delineated AoR changes based on newly acquired information, the Emergency and Remedial Response Plan should address risk to all resources and infrastructure throughout the final, approved AoR.	OLCV made no changes to the AoR delineation.
If updated geologic information or modeling investigations suggest that there is a potential for induced seismicity, the Emergency and Remedial Response Plan should address induced seismicity.	OLCV anticipates no changes to the potential for induced seismicity.
If pre-operational geochemical testing identifies additional USDWs within the AoR, the Emergency and Remedial Response Plan should address potential carbon dioxide or other fluid movement into these USDWs.	OLCV identified no new USDWs.
If updated information about the geologic characteristics of the site indicates the presence of additional pathways for fluid movement, the Emergency and Remedial Response Plan should describe any associated carbon dioxide leakage or groundwater contamination scenarios and identify responses.	OLCV identified no new pathways for fluid movement.

10.8 Well Operation [40 CFR 146.88]

The proposed original and updated permitted values are shown in the table below. The updated values reflect integration of information obtained during construction and testing of the BRP

CCS1, BRP CCS2, and BRP CCS3 wells. Other operational plans and procedures are discussed in the Operational Plan that was submitted as part of the Class VI application.

Table 151. Proposed operational procedures.

Parameter/ Condition	BRP CCS1: Original Permit Value	BRP CCS2: Original Permit Value	BRP CCS3: Original Permit Value	BRP CCS1: Updated Permit Value	BRP CCS2: Updated Permit Value	BRP CCS3: Updated Permit Value	Units
Daily group maximum injection mass	2,116			2,547			Metric tons per day
Daily group average injection mass	1,931			2,079			Metric tons per day
Daily maximum injection mass	600	1,500	600	728	1,196	624	Metric tons per day
Daily average injection mass	450	1,112	450	572	1,040	468	Metric tons per day
Daily maximum injection rate	8.2	25	9.0	14	23	12	Million standard cubic feet per day
Daily average injection rate	7.9	21.9	8.1	11	20	9	Million standard cubic feet per day
Total mass	1.83	4.87	1.77	2.30	4.17	1.88	Million metric tons
Group maximum injection mass	773,000			929,693			Metric tons per year
Group average injection mass	705,000			758,933			Metric tons per year
Maximum injection mass	166,000	481,000	166,000	265,626	436,386	227,680	Metric tons per year
Average injection mass	153,000	406,000	153,000	208,706	379,466	170,760	Metric tons per year
Maximum surface wellhead injection pressure	1,100	1,800	1,100	2,357	3,027	1,936	psig
Maximum bottomhole injection pressure	2,625.30	3,391.80	2,625.30	3,376.30	4,125.30	2,844.30	psig

Parameter/ Condition	BRP CCS1: Original Permit Value	BRP CCS2: Original Permit Value	BRP CCS3: Original Permit Value	BRP CCS1: Updated Permit Value	BRP CCS2: Updated Permit Value	BRP CCS3: Updated Permit Value	Units
Average bottomhole injection pressure	2,600.30	3,300	2,600.30	3,001.20	3,667.00	2,528.70	psig
Minimum annulus pressure	100	100	100	100	100	100	psig
Minimum annulus pressure/ tubing differential	100	100	100	100	100	100	psig

10.8.1 Operations Completeness Review

Completeness Check	Location of data / OLCV comments
Confirm that the maximum allowable injection pressure in the permit is appropriate based on pre-operational formation testing results.	See Sections 4.1.11, 4.2.11, and 4.3.11.
Confirm that the total permitted volume of carbon dioxide to be injected is appropriate.	OLCV proposes no changes to the total permitted volume of CO_2 to be injected. However, updated operational limits may allow a revision to the total permitted volume in the future.
Confirm that the permitted annular pressure is acceptable in light of pre-operational testing results.	Annular pressure results obtained in UIC Class VI wells are in alignment with pre-construction estimates.
Confirm that the final operating limits in the permit reflect any needed changes to maximum injection pressure, volume, or annulus pressure limits.	See Sections 4.1.11.5, 4.2.11.5, and 4.3.11.5.
Document any reviews that resulted in changes to or confirmed the operating limits in the permit.	OLCV engineers reviewed data collected in the UIC Class VI wells and used that data to update operational limits, in line with industry best practices for peer review and collaboration.

10.7 Financial Assurance [40 CFR 146.85(c)(2)]

OLCV did not update the Financial Assurance Plan.

11.0 Other Pre-Injection Activities

11.1 Experimental Geophone Array

[redacted]

[redacted]

12.0 Key Acronyms and Abbreviations

2D	Two dimensional
3D	Three dimensional
AoR	Area of Review
AP	Artificial Penetration
API	American Petrolem Institute
ATS	Average Time Series
BOP	Blowout Preventer
BRP Project	Brown Pelican Project
CBL	Cement Bond Log
CBP	Central Basin Platform
CCL	Casing Collar Log
CR	Corner Reflectors
CRA	Corrosion Resistant Alloy
DAS	Distributed Acoustic Sensing
DFA	Downhole Fluid Analysis
DIC	Dissolved Inorganic Carbon
DInSAR	Differential Interferometric Synthetic Aperture Radar
DITF	Drilling-induced Tensile Fractures
DO	Dissolved Oxygen
DTS	Distributed Temperature Sensing
ECS	Elemental Capture Spectroscopy
EOR	Enhanced Oil Recovery
EPA	Environmental Protection Agency
ESDV	Emergency Shutdown Valve
FMI	Formation Micro Imager
GPS	Global Positioning System
ID	Inner Diameter
LMWL	Local Meteoric Water Line
Mc	Magnitude of Completeness
MCL	Maximum Contaminant Level
MD	Measured Depth
mD	mili Darcies
MDT	Modular Dynamic Formation Tester
MICP	Mercury Injection Capillary Pressure
MIT	Mechanical Integrity Test
ML	Local Magnitude Level
MPSR	Multi-sample production sample receptacles
NCS	Net Confining Stress
NMR	Nuclear Magnetic Resonance
NMS	Net Mean Stress
NTU	Nephelometric turbidity units
OD	Outer Diameter
OLCV	Oxy Low Carbon Ventures
OPC	Ordinary Portland Cement
ORP	Oxidation Reduction Potential
Oxy	Occidental Petroleum Corporation

P/T	Pressure / Temperature
PISC	Post Injection Site Care
PIT	Pressure Indicating Transmitters
PLC	Programmable Logic Controller
PNL	Pulsed Neutron Log
PPP	Precise Point Processing
PTA	Pressure Transient Analysis
QC	Quality Control
RCA	Routine Core analysis
RFS	Reservoir Fluid Services
RRC	The Railroad Commission of Texas
RSWC	Rotary Sidewall Core
SAR	Sodium Adsorption Ratio
SCADA	Supervisory Control and Data Acquisition
SEM	Scanning Electon Microscopy
SHMax	Maximum Horizontal Stress
SME	Subject Matter Experts
SOP	Standard Operating Proceedure
SWD	Saltwater Disposal
TD	Total Depth
TDS	Total Dissolved Solids
TEP	Threshold Entry Pressure
TIT	Temperature Indicating Transmitters
TLC	Tough Logging Conditions
TOC	Total Organic Carbon
TS	Thin Section
TVD	True Vertical Depth
TVDSS	True Vertical Depth relative to sea level
TWDB	Texas Water Development Board
UCS	Uniaxial Compressive Strength
UIC	Underground Injection Control
USCS	Unified Soil Classification System
USDW	Underground Source of Drinking Water
USGS	United States Geological Survey
USIT	Ultrasonic Imaging Tool
VDL	Variable Density Log
VM	Velocity Model
VSP	Vertical Seismic Profile
XRD	X-ray Diffraction

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