Application No. 45079, 45080, 46169, 46170, and 46171

INJECTION WELL PLUGGING PLAN

Pelican Sequestration Project

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1.0 Facility Information

Facility name: Pelican Sequestration Project
Pelican CCS 1, Pelican CCS 2, Pelican CCS 3, Pelican CCS 4, and Pelican CCS 5 wells

Facility contact: Tyler Spoede, Project Manager
5 Greenway Plaza Houston, TX 77046
713-985-6954 william_spoede@oxy.com

Well location: Livingston Parish, Louisiana

Well Name	Longitude (NAD 27)	Latitude (NAD 27)	Longitude (NAD 83)	Latitude (NAD 83)
Pelican CCS 1	-90° 40' 55.76"	30° 35' 19.16"	-90° 40' 56.10"	30° 35' 19.83"
Pelican CCS 2	-90° 40' 58.83"	30° 34' 53.98"	-90° 40' 59.17"	30° 34' 54.66"
Pelican CCS 3	-90° 43' 50.13"	30° 36' 10.56"	-90° 43' 50.48"	30° 36' 11.24"
Pelican CCS 4	-90° 44' 29.72"	30° 36' 41.03"	-90° 44' 30.06"	30° 36' 41.70"
Pelican CCS 5	-90° 46' 30.21"	30° 37' 35.26"	-90° 46' 30.56"	30° 37' 35.93°

Pursuant LAC 43:XVII.3631, this Injection Well Plugging Plan describes the actions the Pelican Sequestration Hub, LLC will take to plug and abandon the CO_2 injection wells Pelican CCS 1, Pelican CCS 2, Pelican CCS 3, Pelican CCS 4, and Pelican CCS 5. This plan also describes the proposed abandonment of the monitoring wells in the Injection Well Plugging Plan Appendix A.

After 25 years of injection, the project will plug and abandon the injection wells Pelican CCS 1, Pelican CCS 2, Pelican CCS 3, Pelican CCS 4, and Pelican CCS 5.

The plugging procedure and materials will be designed to prevent any unwanted fluid movement, resist the corrosive aspects of carbon dioxide (CO_2) with water mixtures, and protect any underground sources of drinking water (USDWs).

In compliance with LAC 443:XVII.3631(A)(4), the Pelican Sequestration Hub, LLC will submit the Form UIC-17 to the Louisiana Department of Conservation and Energy (C&E) and receive written approval from the commissioner before plugging operations begin.

The project will submit a certified Well Closure Report to C&E within 30 days after plugging each well and will comply with the requirements in LAC 43:XVII.3631(A)(5). Pelican Sequestration Hub, LLC will retain a copy of the plugging report for a minimum of 10 years following site closure.

2.0 General Tests and Measures Before Plugging and Abandoning CO_2 Injector Wells

Pursuant to LAC 43:XVII.3631(A)(2), the project will perform the following activities prior to plugging each well.

1. Bottomhole pressure (BHP) measurements will be taken using the installed downhole gauges. In case the gauges are not functioning properly, the Pelican Sequestration Project will run downhole pressure gauges via wireline during the plug and abandon (P&A) process of the well.
2. After injection has ceased, the well will be flushed with a kill/buffer fluid. A minimum of three tubing volumes will be injected without exceeding the fracture pressure.
3. An annular pressure test will be performed to assess internal mechanical integrity before the tubing and packer are removed from the well.
4. The project will evaluate the external mechanical integrity and condition of the casing using one of the methods described in Section 3.
5. If a loss of mechanical integrity is discovered, the well will be repaired before proceeding further with the plugging operations.
6. All casing in this well will have been cemented to the surface at the time of construction and will not be retrievable at abandonment.
7. A cement retainer will be used to squeeze and isolate the perforated section to prevent flowback of formation fluids that could contaminate the plug. The balanced-plug placement method will be used for the additional cement plugs planned.
8. Heavy gel mud (9.5-10.5 ppg) will be left between cement plugs.
9. All casing strings will be cut off at least 5 ft below the surface and plow line.
10. A blanking plate with the required permit information will be welded on top of the cutoff casing.

3.0 Planned External Mechanical Integrity Test(s)

The Pelican Sequestration Hub, LLC, will conduct at least one of the tests listed below to verify external mechanical integrity prior to plugging each injection well as required by LAC 43:XVII.3631(A)(2), 3631(A)(3)(b) and specified in LAC 43:XVII.3627:

a. Pulse neutron log
b. Noise log
c. DTS (Distributed Temperature Sensing)/DAS (Distributed Acoustic Sensing) survey
d. Temperature log.

4.0 Information on Plugs

The Pelican Sequestration Hub, LLC, will use the materials and methods noted in Tables PLB-1 through PLB-5 to plug the CO_2 injection wells. The volume and depth of the plug or plugs will depend on the final geology and downhole conditions of the well as assessed during construction. The cement(s) formulated for plugging will be compatible with the CO_2 stream. The cement

formulation and required certification documents will be submitted to C&E with the well plugging plan. Pelican Sequestration Hub, LLC, will report the wet density and retain duplicate samples of the cement used for each plug.

An example of CO_2-resistant cement formulation is provided in the Injection Well Plugging Plan Appendix B.

4.1 Pelican CCS 1 Plug and Abandonment Details

Table PLG-1—Pelican CCS 1 cement plug information.

Plug No	Type Slurry	ID (inches)	Placement Method	Depths top (ft)	Depths bottom (ft)	Density (ppg)	Sacks	Excess (%)	Yield (ft^3/sx)
1	CO_2 Resistant Cement	8.535	Squeeze Plug	6859	7525	14.8-15.5	625	150	1.06
2	CO_2 Resistant Cement	8.535	Squeeze Plug	5930	6415	14.8-15.5	455	150	1.06
3	CO_2 Resistant Cement	8.535	Squeeze Plug	6387	6859	14.8-15.5	445	150	1.06
4	CO_2 Resistant Cement	8.535	Balanced Plug	5853	6387	14.8-15.5	238	20	1.06
5	CO_2 Resistant Cement	8.535	Balanced Plug	4900	5650	14.8-15.5	339	20	1.06
6	Class G cement with additives	8.535	Balanced Plug	3200	4350	15-15.5	544	20	1.01
7	Class G cement with additives	8.535	Balanced Plug	0	100	15-15.5	44	20	1.01

Notes:

- All plug depths will be adjusted after the well is drilled and completed.
- The plugging procedure will be updated as required by C&E.
- Formation tops will be adjusted after running open hole electric logs.

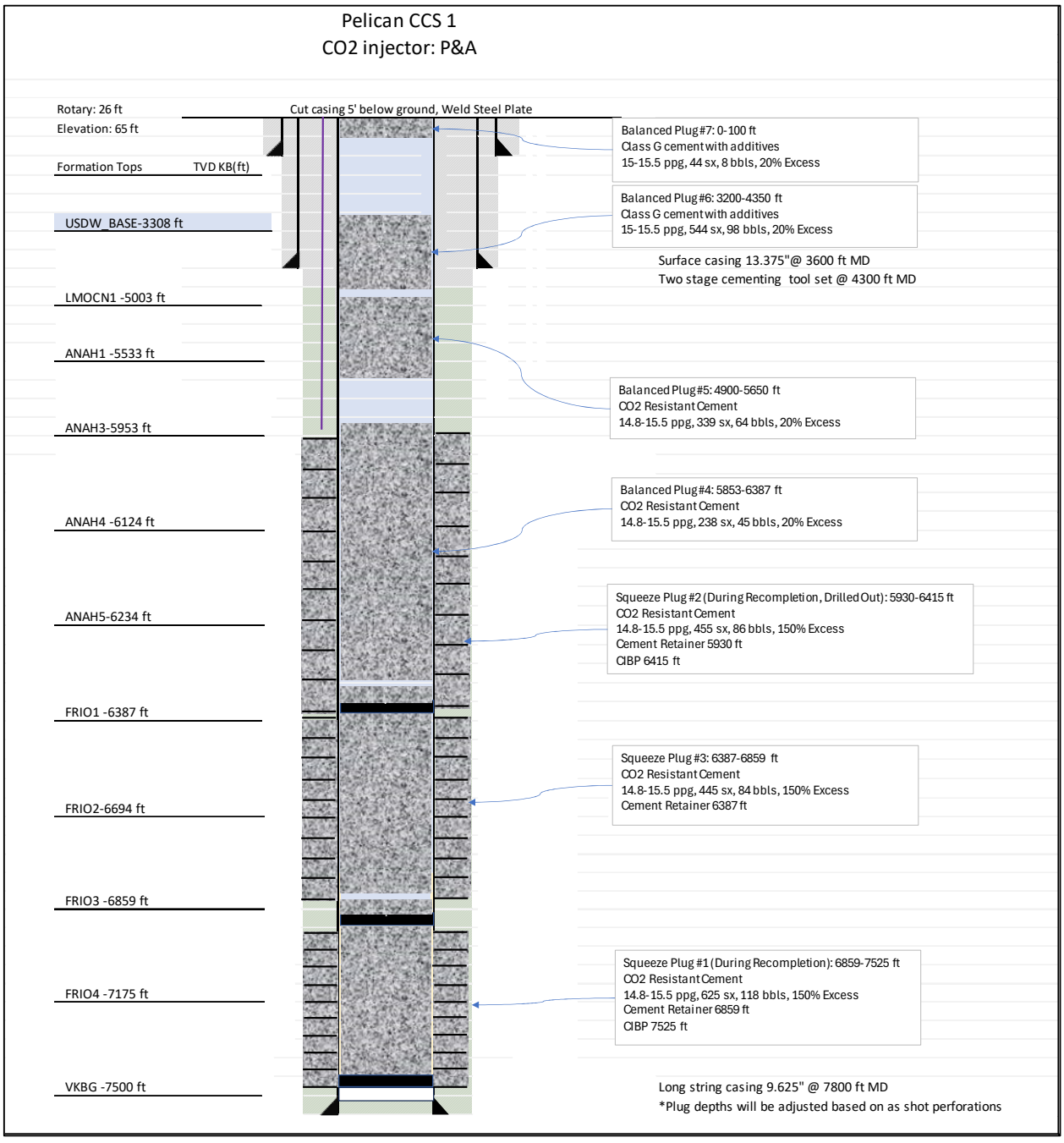

Figure PLG-1—Pelican CCS 1 injection well plug schematic.

4.2 Pelican CCS 2 Plug and Abandonment Details

Table PLG-2—Pelican CCS 2 cement plug information.

Plug No	Type Slurry	ID (inches)	Placement Method	Depths top (ft)	Depths bottom (ft)	Density (ppg)	Sacks	Excess (%)	Yield (ft^3/sx)
1	CO_2 Resistant Cement	8.535	Squeeze Plug	6425	6960	14.8-15.5	503	150	1.06
2	CO_2 Resistant Cement	8.535	Squeeze Plug	6900	7600	14.8-15.5	656	150	1.06
3	CO_2 Resistant Cement	8.535	Balanced Plug	6454	6900	14.8-15.5	201	20	1.06
4	CO_2 Resistant Cement	8.535	Squeeze Plug	5934	6454	14.8-15.5	487	150	1.06
5	CO_2 Resistant Cement	8.535	Balanced Plug	4970	5725	14.8-15.5	339	20	1.06
6	Class G cement with additives	8.535	Balanced Plug	3200	4400	15-15.5	567	20	1.01
7	Class G cement with additives	8.535	Balanced Plug	0	100	15-15.5	44	20	1.01

Notes:

- All plug depths will be adjusted after the well is drilled and completed.
- The plugging procedure will be updated as required by C&E.
- Formation tops will be adjusted after running open hole electric logs.

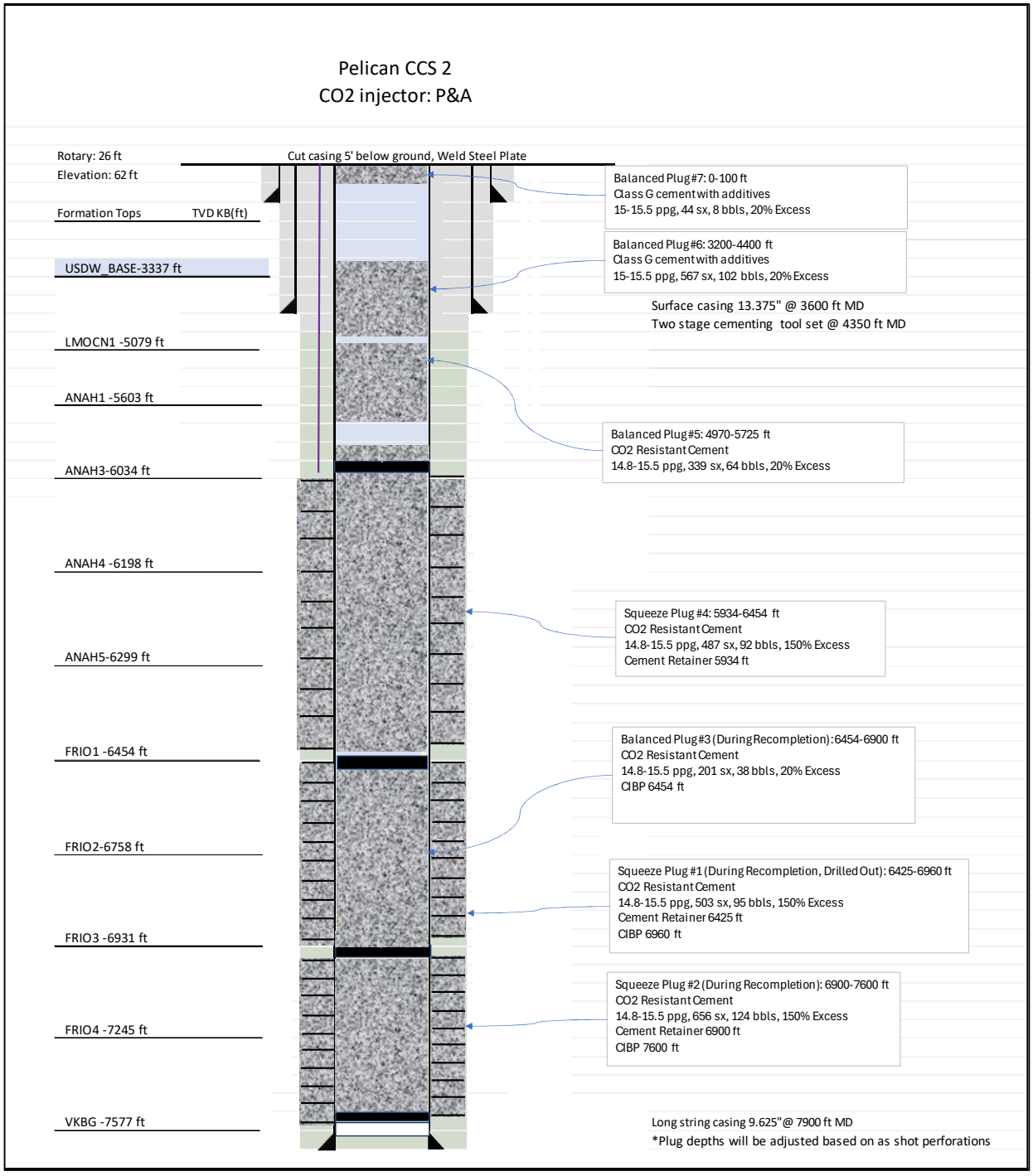

Figure PLG-2—Pelican CCS 2 injection well plug schematic.

4.3 Pelican CCS 3 Plug and Abandonment Details

Table PLG-3—Pelican CCS 3 cement plug information.

Plug No	Type Slurry	ID (inches)	Placement Method	Depths top (ft)	Depths bottom (ft)	Density (ppg)	Sacks	Excess (%)	Yield (ft^3/sx)
1	CO_2 Resistant Cement	8.535	Squeeze Plug	5900	6280	14.8-15.5	355	150	1.06
2	CO_2 Resistant Cement	8.535	Squeeze Plug	6230	6660	14.8-15.5	402	150	1.06
3	CO_2 Resistant Cement	8.535	Squeeze Plug	6600	6940	14.8-15.5	318	150	1.06
4	CO_2 Resistant Cement	8.535	Squeeze Plug	7080	7580	14.8-15.5	466	150	1.06
5	CO_2 Resistant Cement	8.535	Balanced Plug	6455	7080	14.8-15.5	281	20	1.06
6	CO_2 Resistant Cement	8.535	Balanced Plug	5830	6455	14.8-15.5	281	20	1.06
7	CO_2 Resistant Cement	8.535	Balanced Plug	4790	5650	14.8-15.5	386	20	1.06
8	Class G cement with additives	8.535	Balanced Plug	3080	4200	15-15.5	528	20	1.01
9	Class G cement with additives	8.535	Balanced Plug	0	100	15-15.5	44	20	1.01

Notes:

- All plug depths will be adjusted after the well is drilled and completed.
- The plugging procedure will be updated as required by C&E.
- Formation tops will be adjusted after running open hole electric logs.

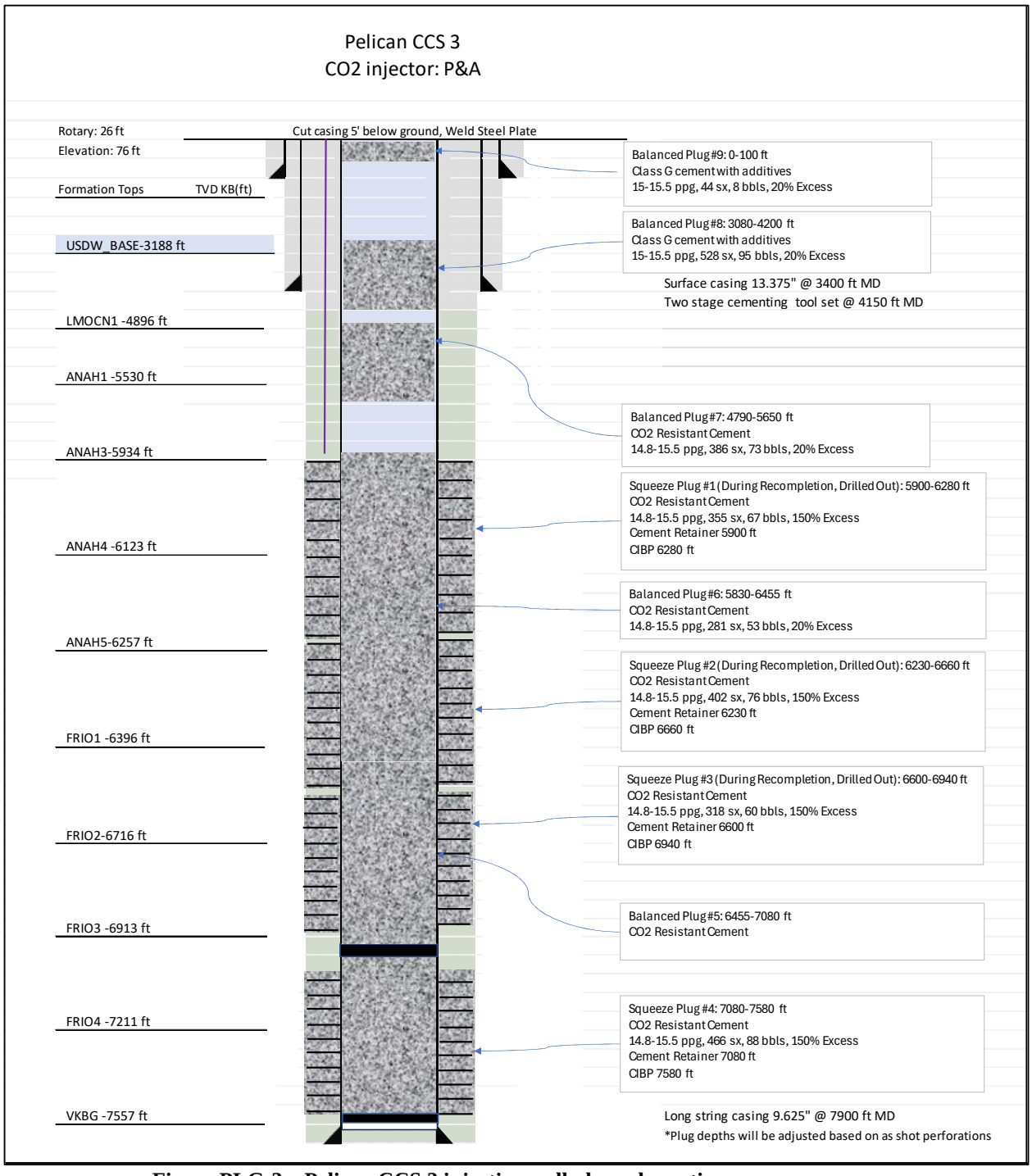

Figure PLG-3—Pelican CCS 3 injection well plug schematic.

4.4 Pelican CCS 4 Plug and Abandonment Details

Table PLG-4—Pelican CCS 4 cement plug information.

Plug No	Type Slurry	ID (inches)	Placement Method	Depths top (ft)	Depths bottom (ft)	Density (ppg)	Sacks	Excess (%)	Yield (ft^3/sx)
1	CO_2 Resistant Cement	8.535	Squeeze Plug	7055	7540	14.8-15.5	455	150	1.06
2	CO_2 Resistant Cement	8.535	Squeeze Plug	5830	6250	14.8-15.5	392	150	1.06
3	CO_2 Resistant Cement	8.535	Squeeze Plug	6195	6600	14.8-15.5	381	150	1.06
4	CO_2 Resistant Cement	8.535	Squeeze Plug	6550	6895	14.8-15.5	323	150	1.06
5	CO_2 Resistant Cement	8.535	Balanced Plug	5750	6550	14.8-15.5	360	20	1.06
6	CO_2 Resistant Cement	8.535	Balanced Plug	4755	5575	14.8-15.5	370	20	1.06
7	Class G cement with additives	8.535	Balanced Plug	3000	4200	15-15.5	567	20	1.01
8	Class G cement with additives	8.535	Balanced Plug	0	100	15-15.5	44	20	1.01

Notes:

- All plug depths will be adjusted after the well is drilled and completed.
- The plugging procedure will be updated as required by C&E.
- Formation tops will be adjusted after running open hole electric logs.

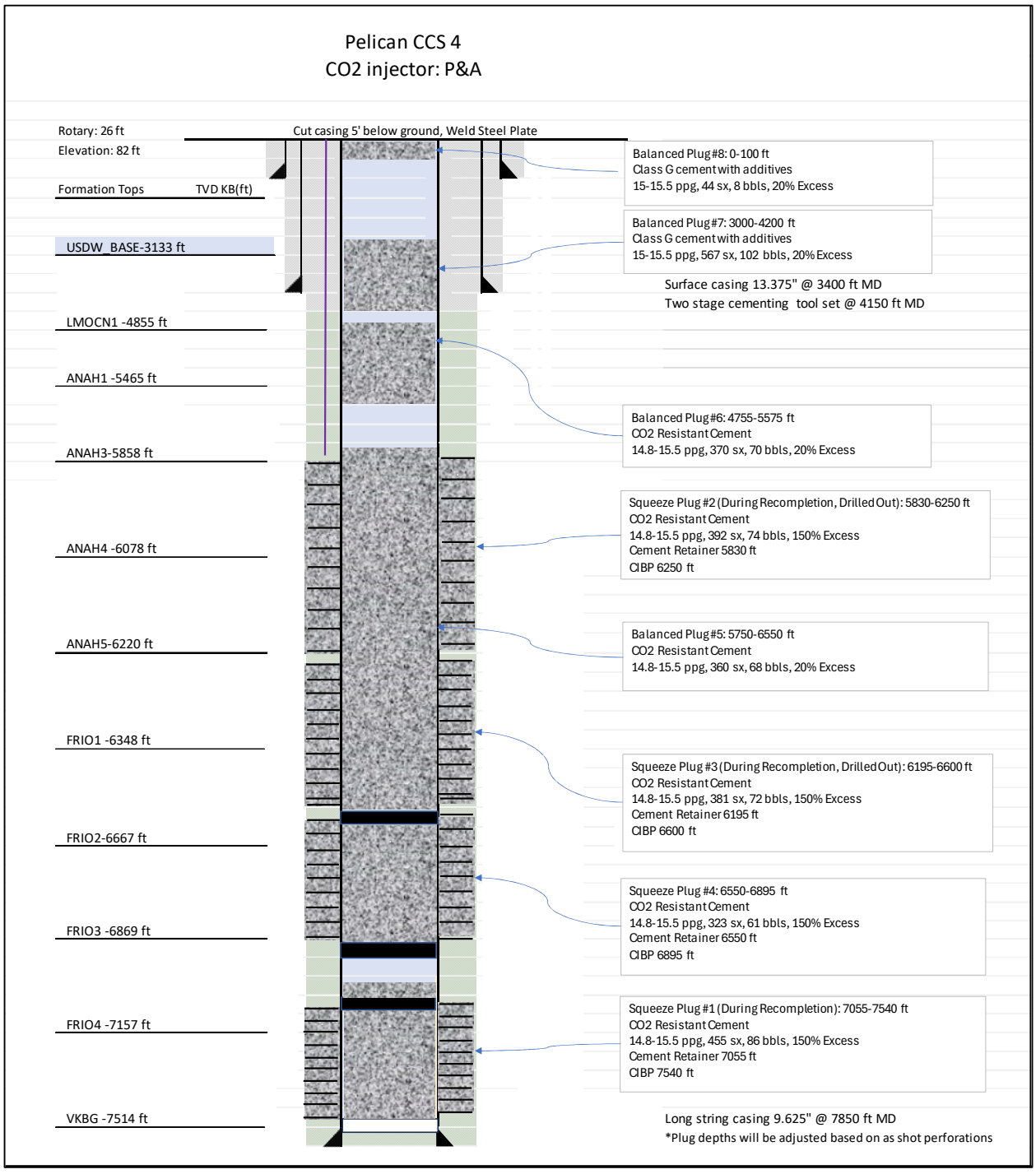

Figure PLG-4—Pelican CCS 4 injection well plug schematic.

4.5 Pelican CCS 5 Plug and Abandonment Details

Table PLG-5—Pelican CCS 5 cement plug information.

Plug No	Type Slurry	ID (inches)	Placement Method	Depths top (ft)	Depths bottom (ft)	Density (ppg)	Sacks	Excess (%)	Yield (ft^3/sx)
1	CO_2 Resistant Cement	8.535	Squeeze Plug	5700	6260	14.8-15.5	524	150	1.06
2	CO_2 Resistant Cement	8.535	Squeeze Plug	6200	6800	14.8-15.5	561	150	1.06
3	CO_2 Resistant Cement	8.535	Squeeze Plug	6750	7410	14.8-15.5	619	150	1.06
4	CO_2 Resistant Cement	8.535	Balanced Plug	6190	6750	14.8-15.5	254	20	1.06
5	CO_2 Resistant Cement	8.535	Balanced Plug	5630	6190	14.8-15.5	254	20	1.06
6	CO_2 Resistant Cement	8.535	Balanced Plug	4660	5475	14.8-15.5	365	20	1.06
7	Class G cement with additives	8.535	Balanced Plug	3050	4100	15-15.5	494	20	1.01
8	Class G cement with additives	8.535	Balanced Plug	0	100	15-15.5	44	20	1.01

Notes:

- All plug depths will be adjusted after the well is drilled and completed.
- The plugging procedure will be updated as required by C&E.
- Formation tops will be adjusted after running open hole electric logs.

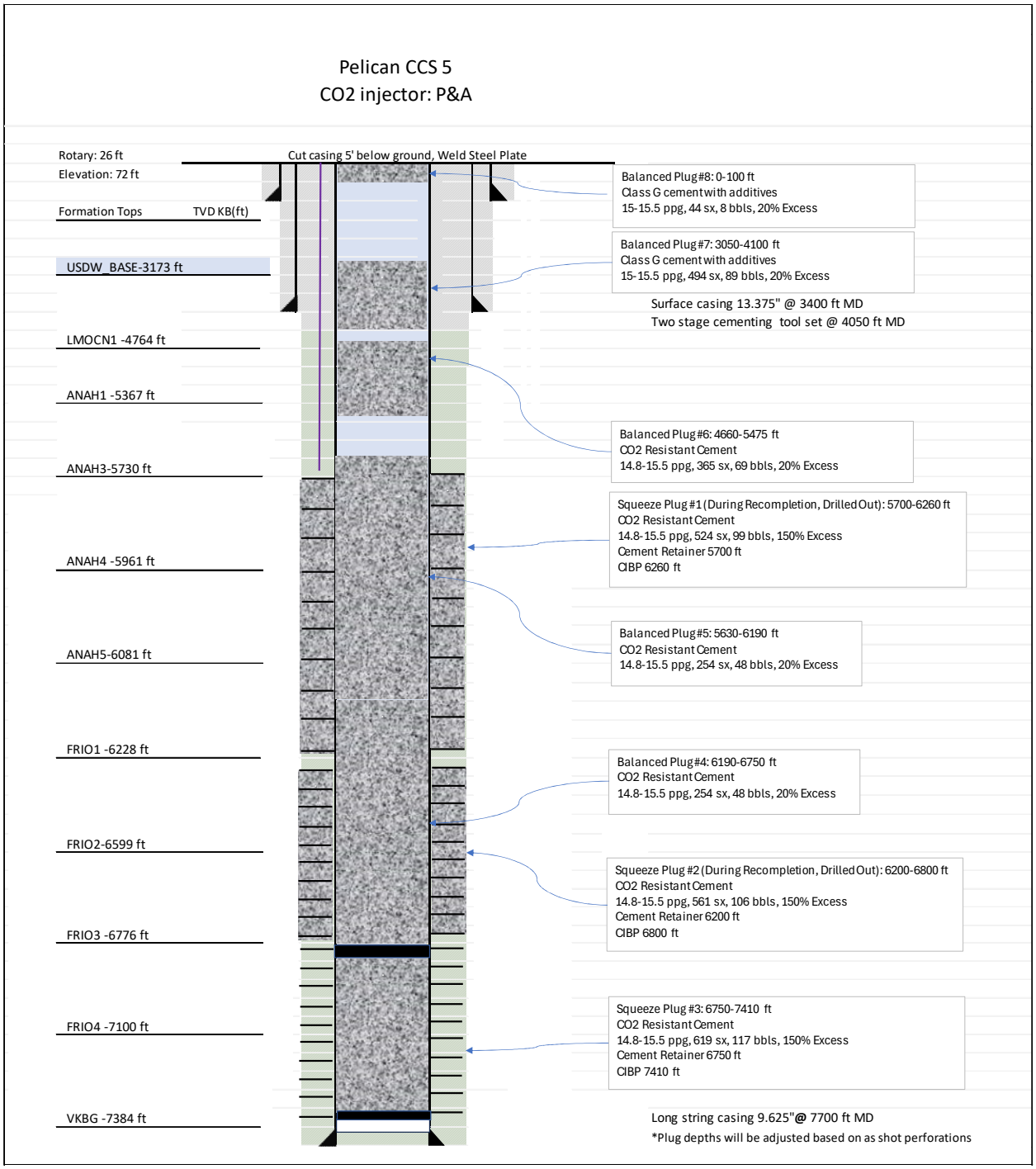

Figure PLG-5—Pelican CCS 5 injection well plug schematic.

5.0 Narrative Description of Plugging Procedures for CO_2 Injector Wells

5.1 Notifications, Permits, and Inspections

In compliance with LAC 443:XVII.3631(A)(4), the Pelican Sequestration Hub, LLC, will submit the Form UIC-17 to C&E and receive written approval from the commissioner before plugging the well.

5.2 Pelican CCS 1 Plugging Procedure

1. Move the rig onto the Pelican CCS 1 site and rig up (RU). All CO_2 pipelines will be marked and noted by the rig supervisor prior to moving in.
2. Conduct and document a safety meeting.
3. Record the BHP from the downhole gauge, perform a DTS survey through the fiber optic cable installed alongside the casing, and calculate the kill fluid density. If the fiber optic cables are not functioning, skip this step and proceed with the methods described above for mechanical integrity evaluation after the tubing is pulled.
4. Test the pump and surface lines to 5,000 psi. Fill the tubing and flush the well with at least three times the tubing volume of kill/buffer fluid with the density determined using the BHP measurement. It may be necessary to bleed off occasionally to remove all air from the system. Monitor the tubing and annular pressure continuously.
5. Test the casing annulus to 500 psi and monitor for 30 minutes. If the pressure decreases more than 5% in 30 minutes, bleed the pressure, check the surface lines and connections, and repeat the test. Then release the pressure.

   Note: If a failure in the long-string casing is identified, the Pelican Sequestration Project will prepare a plan to repair the well before it is plugged and abandoned.
6. If both the casing and tubing are controlled, then nipple up the blowout preventers (BOPs).
7. Pull out of the hole and lay down tubing, packer, cable, and sensors.

   Contingency: If unable to release the tubing and retrieve the packer, rig up a lubricator and slickline and set a plug in the lower profile nipple below the packer. Rig up an electric line and make a cut on the tubing string just above the packer. The cut must be made at least 5–10 ft above the packer. Circulate with kill mud. Then pull the work string out of the hole and proceed recovering the packer with the work string. If problems are noted, update the cement remediation plan. A cement retainer will be used to force the cement in case the packer cannot be removed.
8. Pick up the work string and trip in hole with the bit to condition the wellbore.
9. Pull out of the hole and rig up the logging unit. Confirm external mechanical integrity by running one of the tests listed below:
   a. Pulse neutron log
   b. Noise log
   c. Temperature log
   d. DTS/DAS temperature survey (no need for logging unit)

Rig down the logging unit.

10. Trip in hole with the work string and cement retainer to the top of plug #3 at 6,387 ft (plugs #1 and #2 were set during the recompletions). Circulate the well, set the retainer, and perform an injectivity test. Rig up equipment for cementing operations.
11. Plugs #3 and #4: Mix and pump 14.8-15.5 ppg CO_2-resistant slurry to squeeze and seal the perforations in the injection zone of the Frio formation from 6,387-6,859 ft. Disconnect from the retainer and check the flow. Spot 14.8-15.5 ppg CO_2-resistant slurry on top of the cement retainer from 5,853-6,387 ft to cover the Anahuac formations. Pull up above the plug and circulate heavy mud 9.5-10.5 ppg. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull up out of the hole. Pressure test plug to 500 psi for 30 minutes.
12. Plug #5: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Lower Miocene and ANAH1 (4,900-5,650 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes. Pull the string to the next plug stage.
13. Plug #6: Set a balanced plug with 15-15.5 ppg Class G cement slurry to cover the two-stage cement tool, surface casing shoe and base of the USDW (3,200-4,350 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes.
14. Plug #7: Set a balanced plug with 15-15.5 ppg Class G cement slurry to isolate the top of the surface casing (0-100 ft).
15. Lay down the work string. Rig down all equipment and move out. Cut the casing 5 ft below the ground. Clean the cellar and install a ½-inch steel plate across all casings with the well's serial number, date of P&A, and any additional information requested by the commissioner.

The procedures described above are subject to modification during execution as necessary to ensure a successful plugging operation. Any significant modifications due to unforeseen circumstances will require C&E approval and will be described in the plugging report.

5.3 Pelican CCS 2 Plugging Procedure

1. Move the rig onto the Pelican CCS 2 site and rig up. All CO_2 pipelines will be marked and noted by the rig supervisor prior to moving in.
2. Conduct and document a safety meeting.
3. Record the BHP from the downhole gauge, perform a DTS survey through the fiber optic cable installed alongside the casing, and calculate the kill fluid density. If the fiber optic cables are not functioning, skip this step and proceed with the methods described above for mechanical integrity evaluation after the tubing is pulled.
4. Test the pump and surface lines to 5,000 psi. Fill the tubing and flush the well with at least three times the tubing volume of kill/buffer fluid with the density determined using the BHP measurement. It may be necessary to bleed off occasionally to remove all air from the system. Monitor the tubing and annular pressure continuously.

5. Test the casing annulus to 500 psi and monitor for 30 minutes. If the pressure decreases more than 5% in 30 minutes, bleed the pressure, check the surface lines and connections, and repeat the test. Then release the pressure.

   Note: If a failure in the long-string casing is identified, the Pelican Sequestration Project will prepare a plan to repair the well before it is plugged and abandoned.

6. If both the casing and tubing are controlled, then nipple up the blowout preventers (BOPs).

7. Pull out of the hole and lay down tubing, packer, cable, and sensors.

   Contingency: If unable to release the tubing and retrieve the packer, rig up a lubricator and slickline and set a plug in the lower profile nipple below the packer. Rig up an electric line and make a cut on the tubing string just above the packer. The cut must be made at least 5–10 ft above the packer. Circulate with kill mud. Then pull the work string out of the hole and proceed recovering the packer with the work string. If problems are noted, update the cement remediation plan. A cement retainer will be used to force the cement in case the packer cannot be removed.

8. Pick up the work string and trip in hole with the bit to condition the wellbore.

9. Pull out of the hole and rig up the logging unit. Confirm external mechanical integrity by running one of the tests listed below:

   a. Pulse neutron log
   b. Noise log
   c. Temperature log
   d. DTS/DAS temperature survey (no need for logging unit)

   Rig down the logging unit.

10. Trip in hole with the work string and cement retainer to the top of plug #4 at 5,934 ft (plugs #1, #2, and #3 were set during the recompletions). Circulate the well, set the retainer, and perform an injectivity test. Rig up equipment for cementing operations.

11. Plug #4: Mix and pump 14.8-15.5 ppg CO_2-resistant slurry to squeeze and seal the perforations in the injection zone of the Anahuac formations from 5,934-6,454 ft. Disconnect from the retainer and check the flow. Spot 20 ft of 14.8-15.5 ppg CO_2-resistant slurry on top of the cement retainer at 5,934 ft. Pull up above the plug and circulate heavy mud 9.5-10.5 ppg. Pressure test the plug to 500 psi for 30 minutes. Pull up out of the hole. Pressure test plug to 500 psi for 30 minutes.

12. Plug #5: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Lower Miocene and ANAH1 (4,970-5,725 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.

13. Plug #6: Set a balanced plug with 15-15.5 ppg Class G cement slurry to cover the two-stage cement tool, surface casing shoe and the base of the USDW (3,200-4,400 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes.

14. Plug #7: Set a balanced plug with 15-15.5 ppg Class G cement slurry to isolate the top of the surface casing (0-100 ft)..
15. Lay down the work string. Rig down all equipment and move out. Cut the casing 5 ft below the ground. Clean the cellar and install a ½-inch steel plate across all casings with the well's serial number, date of P&A, and any additional information requested by the commissioner.

The procedures described above are subject to modification during execution as necessary to ensure a successful plugging operation. Any significant modifications due to unforeseen circumstances will require C&E approval and will be described in the plugging report.

5.4 Pelican CCS 3 Plugging Procedure

1. Move the rig onto the Pelican CCS 3 site and rig up. All CO_2 pipelines will be marked and noted by the rig supervisor prior to moving in.
2. Conduct and document a safety meeting.
3. Record the BHP from the downhole gauge, perform a DTS survey through the fiber optic cable installed alongside the casing, and calculate the kill fluid density. If the fiber optic cables are not functioning, skip this step and proceed with the methods described above for mechanical integrity evaluation after the tubing is pulled.
4. Test the pump and surface lines to 5,000 psi. Fill the tubing and flush the well with at least three times the tubing volume of kill/buffer fluid with the density determined using the BHP measurement. It may be necessary to bleed off occasionally to remove all air from the system. Monitor the tubing and annular pressure continuously.
5. Test the casing annulus to 500 psi and monitor for 30 minutes. If the pressure decreases more than 5% in 30 minutes, bleed the pressure, check the surface lines and connections, and repeat the test. Then release the pressure.

   Note: If a failure in the long-string casing is identified, the Pelican Sequestration Project will prepare a plan to repair the well before it is plugged and abandoned.
6. If both the casing and tubing are controlled, then nipple up the blowout preventers (BOPs).
7. Pull out of the hole and lay down tubing, packer, cable, and sensors.

   Contingency: If unable to release the tubing and retrieve the packer, rig up a lubricator and slickline and set a plug in the lower profile nipple below the packer. Rig up an electric line and make a cut on the tubing string just above the packer. The cut must be made at least 5–10 ft above the packer. Circulate with kill mud. Then pull the work string out of the hole and proceed recovering the packer with the work string. If problems are noted, update the cement remediation plan. A cement retainer will be used to force the cement in case the packer cannot be removed.
8. Pick up the work string and trip in hole with the bit to condition the wellbore.
9. Pull out of the hole and rig up the logging unit. Confirm external mechanical integrity by running one of the tests listed below:
   a. Pulse neutron log
   b. Noise log

c. Temperature log
d. DTS/DAS temperature survey (no need for logging unit)

Rig down the logging unit.

10. Set cast iron bridge plug (CIBP) at 7,580 ft.
11. Trip in hole with the work string and cement retainer to the top of plug #4 at 7,080 ft (plugs #1, #2, and #3 were set during recompletions). Circulate the well, set the retainer, and perform an injectivity test. Rig up equipment for cementing operations.
12. Plug #4 and #5: Mix and pump 14.8-15.5 ppg CO_2-resistant slurry to squeeze and seal the perforations in the injection zone of the Frio formation from 7,080-7,580 ft. Disconnect from the retainer and check the flow. Spot 14.8-15.5 ppg CO_2-resistant slurry on top of the cement retainer from 6,455-7,080 ft to cover the Frio formations. Pull up above the plug and circulate heavy mud 9.5-10.5 ppg. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull up out of the hole. Pressure test plug to 500 psi for 30 minutes.
13. Plug #6: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Anahuac injection zones (5,830-6,455 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.
14. Plug #7: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Lower Miocene and ANAH1 (4,790-5,650 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.
15. Plug #8: Set a balanced plug with 15-15.5 ppg Class G cement slurry to cover the two-stage cement tool, surface casing shoe and the base of the USDW (3,080-4,200 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes.
16. Plug #9: Set a balanced plug with 15-15.5 ppg Class G cement slurry to isolate the top of the surface casing (0-100 ft).
17. Lay down the work string. Rig down all equipment and move out. Cut the casing 5 ft below the ground. Clean the cellar and install a ½-inch steel plate across all casings with the well's serial number, date of P&A, and any additional information requested by the commissioner.

The procedures described above are subject to modification during execution as necessary to ensure a successful plugging operation. Any significant modifications due to unforeseen circumstances will require C&E approval and will be described in the plugging report.

5.5 Pelican CCS 4 Plugging Procedure

1. Move the rig onto the Pelican CCS 4 site and rig up. All CO_2 pipelines will be marked and noted by the rig supervisor prior to moving in.
2. Conduct and document a safety meeting.

3. Record the BHP from the downhole gauge, perform a DTS survey through the fiber optic cable installed alongside the casing, and calculate the kill fluid density. If the fiber optic cables are not functioning, skip this step and proceed with the methods described above for mechanical integrity evaluation after the tubing is pulled.
4. Test the pump and surface lines to 5,000 psi. Fill the tubing and flush the well with at least three times the tubing volume of kill/buffer fluid with the density determined using the BHP measurement. It may be necessary to bleed off occasionally to remove all air from the system. Monitor the tubing and annular pressure continuously.
5. Test the casing annulus to 500 psi and monitor for 30 minutes. If the pressure decreases more than 5% in 30 minutes, bleed the pressure, check the surface lines and connections, and repeat the test. Then release the pressure.

   Note: If a failure in the long-string casing is identified, the Pelican Sequestration Project will prepare a plan to repair the well before it is plugged and abandoned.
6. If both the casing and tubing are controlled, then nipple up the blowout preventers (BOPs).
7. Pull out of the hole and lay down tubing, packer, cable, and sensors.

   Contingency: If unable to release the tubing and retrieve the packer, rig up a lubricator and slickline and set a plug in the lower profile nipple below the packer. Rig up an electric line and make a cut on the tubing string just above the packer. The cut must be made at least 5–10 ft above the packer. Circulate with kill mud. Then pull the work string out of the hole and proceed recovering the packer with the work string. If problems are noted, update the cement remediation plan. A cement retainer will be used to force the cement in case the packer cannot be removed.
8. Pick up the work string and trip in hole with the bit to condition the wellbore.
9. Pull out of the hole and rig up the logging unit. Confirm external mechanical integrity by running one of the tests listed below:

   a. Pulse neutron log
   b. Noise log
   c. Temperature log
   d. DTS/DAS temperature survey (no need for logging unit)

   Rig down the logging unit.
10. Set cast iron bridge plug (CIBP) at 6,895 ft.
11. Trip in hole with the work string and cement retainer to the top of plug #4 at 6,550 ft (plugs #1, #2, and #3 were set during the recompletions). Circulate the well, set the retainer, and perform an injectivity test. Rig up equipment for cementing operations.
12. Plug #4 and #5: Mix and pump 14.8-15.5 ppg CO_2-resistant slurry to squeeze and seal the perforations in the injection zone of the Frio formation from 6,550-6,895 ft. Disconnect from the retainer and check the flow. Spot 14.8-15.5 ppg CO_2-resistant slurry on top of the cement retainer from 5,750-6,550 ft to cover the Frio and Anahuac formations. Pull up above the plug and circulate heavy mud 9.5-10.5 ppg. Wait for the cement to develop 500 psi compressive

strength according to the laboratory test and tag the top of the plug. Pull up out of the hole. Pressure test plug to 500 psi for 30 minutes.

13. Plug #6: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Lower Miocene and ANAH1 (4,755-5,575 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.
14. Plug #7: Set a balanced plug with 15-15.5 ppg Class G cement slurry to cover the two-stage cement tool, surface casing shoe and the base of the USDW (3,000-4,200 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes.
15. Plug #8: Set a balanced plug with 15-15.5 ppg Class G cement slurry to isolate the top of the surface casing (0-100 ft)..
16. Lay down the work string. Rig down all equipment and move out. Cut the casing 5 ft below the ground. Clean the cellar and install a ½-inch steel plate across all casings with the well's serial number, date of P&A, and any additional information requested by the commissioner.

The procedures described above are subject to modification during execution as necessary to ensure a successful plugging operation. Any significant modifications due to unforeseen circumstances will require C&E approval and will be described in the plugging report.

5.2 Pelican CCS 5 Plugging Procedure

1. Move the rig onto the Pelican CCS 5 site and rig up (RU). All CO_2 pipelines will be marked and noted by the rig supervisor prior to moving in.
2. Conduct and document a safety meeting.
3. Record the BHP from the downhole gauge, perform a DTS survey through the fiber optic cable installed alongside the casing, and calculate the kill fluid density. If the fiber optic cables are not functioning, skip this step and proceed with the methods described above for mechanical integrity evaluation after the tubing is pulled.
4. Test the pump and surface lines to 5,000 psi. Fill the tubing and flush the well with at least three times the tubing volume of kill/buffer fluid with the density determined using the BHP measurement. It may be necessary to bleed off occasionally to remove all air from the system. Monitor the tubing and annular pressure continuously.
5. Test the casing annulus to 500 psi and monitor for 30 minutes. If the pressure decreases more than 5% in 30 minutes, bleed the pressure, check the surface lines and connections, and repeat the test. Then release the pressure.

   Note: If a failure in the long-string casing is identified, the Pelican Sequestration Project will prepare a plan to repair the well before it is plugged and abandoned.
6. If both the casing and tubing are controlled, then nipple up the blowout preventers (BOPs).
7. Pull out of the hole and lay down tubing, packer, cable, and sensors.

Contingency: If unable to release the tubing and retrieve the packer, rig up a lubricator and slickline and set a plug in the lower profile nipple below the packer. Rig up an electric line and make a cut on the tubing string just above the packer. The cut must be made at least 5–10 ft above the packer. Circulate with kill mud. Then pull the work string out of the hole and proceed recovering the packer with the work string. If problems are noted, update the cement remediation plan. A cement retainer will be used to force the cement in case the packer cannot be removed.

8. Pick up the work string and trip in hole with the bit to condition the wellbore.
9. Pull out of the hole and rig up the logging unit. Confirm external mechanical integrity by running one of the tests listed below:
    e. Pulse neutron log
    f. Noise log
    g. Temperature log
    h. DTS/DAS temperature survey (no need for logging unit)

    Rig down the logging unit.
10. Set cast iron cement retainer (CIBP) at 7,410 ft
11. Trip in hole with the work string and cement retainer to the top of plug #3 at 6,750 ft (plugs #1 and #2 were set during recompletions). Circulate the well, set the retainer, and perform an injectivity test. Rig up equipment for cementing operations.
12. Plugs #3 and #4: Mix and pump 14.8-15.5 ppg CO_2-resistant slurry to squeeze and seal the perforations in the injection zone of the Frio formation from 6,750-7,410 ft. Disconnect from the retainer and check the flow. Spot 14.8-15.5 ppg CO_2-resistant slurry on top of the cement retainer from 6,190-6,750 ft to cover the Frio and Anahuac formations. Pull up above the plug and circulate heavy mud 9.5-10.5 ppg. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull up out of the hole. Pressure test plug to 500 psi for 30 minutes.
13. Plug #5: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Anahuac formations (5,630-6,190 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.
14. Plug #6: Set a balanced plug with 14.8-15.5 ppg CO_2-resistant slurry to cover the Lower Miocene and ANAH1 (4,660-5,475 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pull the string to the next plug stage. Pressure test plug to 500 psi for 30 minutes.
15. Plug #7: Set a balanced plug with 15-15.5 ppg Class G cement slurry to cover the two-stage cement tool, surface casing shoe and base of the USDW (3,050-4,100 ft). Pull up above the plug and circulate. Wait for the cement to develop 500 psi compressive strength according to the laboratory test and tag the top of the plug. Pressure test plug to 500 psi for 30 minutes.
16. Plug #8: Set a balanced plug with 15-15.5 ppg Class G cement slurry to isolate the top of the surface casing (0-100 ft).

17. Lay down the work string. Rig down all equipment and move out. Cut the casing 5 ft below the ground. Clean the cellar and install a ½-inch steel plate across all casings with the well's serial number, date of P&A, and any additional information requested by the commissioner.

The procedures described above are subject to modification during execution as necessary to ensure a successful plugging operation. Any significant modifications due to unforeseen circumstances will require C&E approval and will be described in the plugging report.

The proposed plugging and abandonment procedures and schematics for the monitoring wells, Pelican MLR 4, Pelican AZC 1, Pelican USDW 1, and Pelican USDW 2 are included in the Injection Well Plugging Plan Appendix A.