SECTION 5 – TESTING AND MONITORING

Ground Water Quality Monitoring

Hackberry Carbon Sequestration, LLC will conduct ground-water quality and geochemical monitoring above the confining zone to meet the requirements of SWO 29-N-6 ***§625.A.3*** [*40 CFR* ***§146.90(c)***]. The purpose of the ground water monitoring is to detect potential changes that may result from fluid leakage out of the injection zone. [redacted]

[redacted]

[redacted]

SECTION 6 – INJECTION WELL PLUGGING PLAN

Monitor Well Plugging and Abandonment

Once monitoring of ground water is no longer needed, the monitoring wells will be plugged and abandoned following Louisiana state guidelines. The details regarding the use of the monitoring wells are discussed in Section 5. Ensuring the protection of the USDW is of paramount importance in this project. The plugging of the monitoring wells will ensure that existing pathways and exposure to the USDW is restricted. The plugging process for these wells is as follows:

[redacted]

SECTION 7 – PISC

Plugging Activities

The Hackberry Carbon Sequestration Well No. 001 and the ground water monitoring wells, HCS Monitor Well Nos. 001-003, will be plugged as discussed in Section 6. The Plug and Abandonment procedures are designed to prevent migration of CO2 or formation fluids in the injection interval from migrating to the USDW. Prior to plugging the wells, the mechanical integrity of these wells will be determined by an Annulus Pressure Test, casing inspection log, temperature log as well as a pressure fall-off test as described in Section 5. Plugging schematics and procedures are provided in Appendix J.

SECTION 8 – EMERGENCY AND REMEDIAL RESPONSE PLAN

Event Description – CO_2 Migration

This event could occur if the plume reaches faults or fractures that allow CO_2 migration into another zone, including the USDW, or to the surface. Failure of the confining zone could also cause CO_2 to migrate.

Risk Level: Medium

Prevention and Detection: The CO_2 plume will be monitored as described in the Testing and Monitoring Section.

Potential Response Actions:

- Cease injection immediately and notify the UIC Program Director within 24 hours.
- Use Ambient Reservoir Monitoring system and/or Vertical Seismic Profile system to assess location and degree of CO_2 movement, as described in the Testing and Monitoring Plan.
- Resume injection, if able, at a reduced rate.
- Continue monitoring of plume at a more frequent interval to determine if migration continues.
- If groundwater/USDW is impacted:
    - Pump carbon dioxide-contaminated groundwater to the surface and aerate it to remove carbon dioxide.
    - Apply “pump and treat” methods to remove trace elements.
    - Drill wells that intersect the accumulations in groundwater and extract carbon dioxide.
    - Provide an alternative water supply if ground water-based public water supplies are contaminated.
- If CO_2 plume is detected above the Upper Confining Interval but below the base of the USDW:
    - Cease injection immediately and notify Director within 24 hours.

- Conduct investigation to determine the most probable source of the leak.
- Repair source of leak if possible.
- Conduct a revised area of review for artificial penetrations that could be impacted by the CO_2 plume at the newly detected depth.
- If required, develop a corrective action plan to address any artificial penetrations identified.
- If leak has been repaired, notify Director when injection can be expected to resume.

- If surface water is impacted:
  - Shallow lakes will quickly release dissolved carbon dioxide back into the atmosphere.
  - Create a hydraulic barrier by increasing reservoir pressure upstream of the leak.
- If the plume continues to migrate out of the zone or beyond the expected plume extent, recomplete up hole into the next planned injection interval.

Accidents/Unplanned Events (Typical Insurable Events)

Unforeseen events may occur while operating the Hackberry Storage Project, such as surface infrastructure damage, pipeline leak, compressor failure, animal damage, and weather-related events. [redacted]

Risk Level: Medium

Prevention and Detection:
Equipment will be maintained regularly to prevent or minimize damage. Damage prevention infrastructure will be installed, and markers will be placed to alert the public of potential hazards. The markers will include the name of the operator and telephone number. Barricades will be installed to prevent accidental damage to equipment or animals from entering the facility. Weather will be continuously monitored, and during a possibility of an adverse event, precautions will be taken to limit the potential impact.

Potential Response Actions:
- Stop the injection and notify the Program Director within 24 hours.
- Activate the downhole safety valve if necessary.
- Determine the cause and severity of the failure and initiate repairs.
- Demonstrate mechanical integrity per the methods discussed in *Section 5.*
- Notify the Director when injection can be expected to resume.

SECTION 10 – FINANCIAL INSURANCE

Post-Injection Monitoring

[redacted]

Financial Assurance

A surety bond will be secured and used to provide sufficient funding for any corrective action, injection well plugging, post injection site care & site closure, and emergency & remedial response. In compliance with SWO 29-N-6 **§609.C.4.c** [40 CFR **§146.85(a)(4)]**, this instrument may not be terminated except due to failure to make payment and may not be final until 120 days after receipt. [redacted]

[redacted]

[redacted]