APPENDIX H

EMERGENCY AND REMEDIAL RESPONSE PLAN
40 CFR 146.82(a)(19); 146.94(a)

Jasper County Storage Facility

1. FACILITY INFORMATION

Facility Name: Jasper County Storage Facility

Facility Contact: [redacted]
501 Westlake Park Blvd., Houston, Texas 77079
[redacted]

Well Location: Jasper County, TX

[redacted]

2. EMERGENCY AND REMEDIAL RESPONSE PLAN REPORTING PROCEDURES

This Emergency and Remedial Response Plan (ERRP) describes actions that BP Carbon Solutions LLC (BP) will take to address movement of the injection fluid or formation fluid in a manner that may endanger an Underground Source of Drinking Water (USDW) during the construction, operation, or post-injection site care periods for the Jasper County Storage Facility (Site). These actions will meet the requirements of 40 Code of Federal Regulations (CFR) 146.94 for emergency and remedial response.

If BP obtains evidence that the injected carbon dioxide (CO_2) stream and/or associated pressure front may cause an endangerment to a USDW, BP will perform the following actions:

1. Take steps reasonably necessary to identify and characterize a release;
2. Initiate shutdown plan for the injection well, if necessary;
3. Notify the permitting agency (Underground Injection Control [UIC] Program Director) of the emergency event within 24 hours; and
4. Implement applicable portions of the approved ERRP.

Where the phrase "initiate shutdown plan" is used, BP will immediately cease injection. However, in some circumstances BP will, in consultation with the UIC Program Director,

determine whether gradual cessation of injection (using the parameters set forth in **Appendix A - Summary of Requirements** of the Class VI permit) is appropriate.

3. LOCAL RESOURCES AND INFRASTRUCTURE

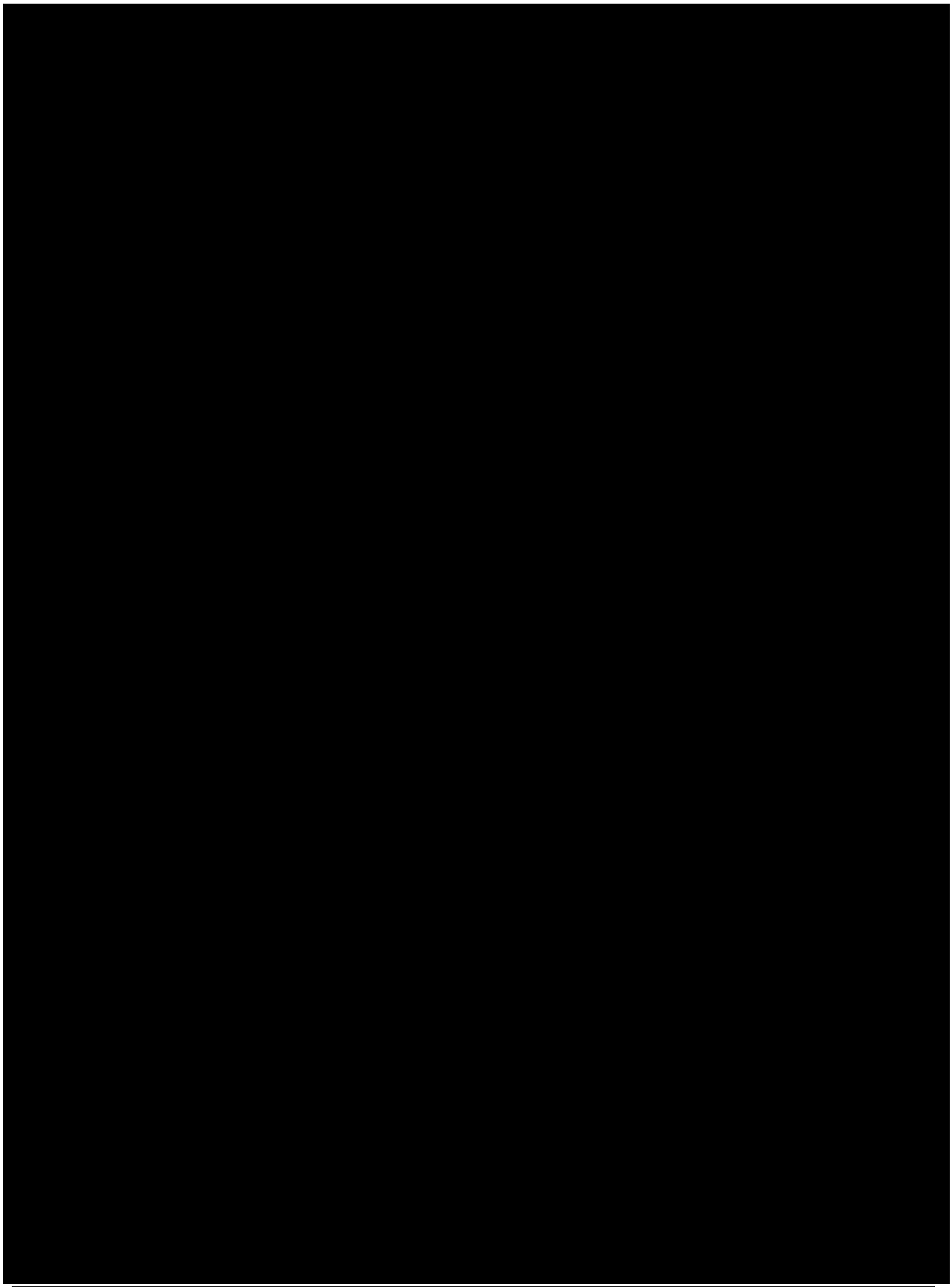
The general area in close proximity to the Site is primarily forested undeveloped land with historical oil and gas wells. The resources in the vicinity of the Site that may be impacted as a result of an emergency event at the Site include:

- Historical oil and gas wells located within the Area of Review (AoR) and further discussed in the AoR and Corrective Action Plan (**Appendix B**);

- Residences within the AoR that appear to be associated with agricultural purposes;
- Commercial properties located near [redacted] and outside the AoR;
- Potable water wells;
- Adjacent wetland areas; and
- USDWs.

Infrastructure in the vicinity of the Site that may be affected because of an emergency include: wellhead(s), BP-operated surface facilities and infrastructure, and pipelines used for transport of CO_2.

The locations of the above, in relation to the proposed injection wells, are shown in **Figure 1** below.



4. POTENTIAL RISK SCENARIOS

The following events related to the Site that could potentially result in an emergency response include:

1. Injection or monitoring (verification) well integrity failure;
2. Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.);
3. Fluid (e.g., brine) or CO_2 leakage to a USDW or the surface;
4. A natural disaster (e.g., earthquake, tornado, hurricane, lightning strike); or
5. Induced or natural seismic event.

Response actions will depend on the severity of the event(s) triggering an emergency response. "Emergency events" are categorized as shown in **Table 1** in accordance with 40 CFR 146.94(a).

Table 1. Degrees of Risk for Emergency Events

Emergency Condition	Definition
Tier 3 (Large)	Tier 3 incidents have the potential to cause widespread impact affecting many people and overwhelming the capabilities of local and regional/state resources, and would involve additional resources from the state, multiple contractors, and federal agencies. Tier 3 incidents usually call for the mobilization of very substantial response capabilities, expertise, and resources, and could require movement across international borders and integration into a coordinated response.
Tier 2 (Medium)	Tier 2 incidents are generally greater than Tier 1 in their scale and involve a broader range of impacts and stakeholders. Tier 2 response capabilities, expertise and resources are available regionally and commonly provided by contractors or through mutual agreements between operators and/or other organizations. Tier 2 incidents generally involve state resources or have an impact that would involve state agencies.
Tier 1 (Small)	Tier 1 incidents are likely to be relatively small and/or affect a localized area and can be dealt with using local response capabilities and resources.

5. EMERGENCY IDENTIFICATION AND RESPONSE ACTIONS

Each emergency event discussed includes a specific event, severity, timing (i.e., phase of injection), avoidance measure, detection method, potential response action, responsible personnel, and equipment. The Quality Assurance and Surveillance Plan (QASP) outlines both the thresholds for triggering response action as well as the associated severity of each emergency event. Steps to identify, characterize, and respond to an incident will be dependent on the specific issue identified and the severity of the event. The potential risk scenarios identified in **Section 4** are detailed below.

In the event of an emergency, the BP Site Manager will call the relevant response personnel listed in the ERRP **Table 3**. If unable to reach those BP staff directly, the BP Site Manager will contact the BP Notification Center or Intelligence and Response Operations Center (IROC). IROC will notify the global response duty manager to begin notifications and incident response.

5.1 Well Integrity Failure

A loss of integrity at an injection or monitoring well may endanger USDWs at the Site. Integrity loss may be indicated by one or more of the following events:

- Automatic shutdown devices are activated:
    a. Wellhead pressure exceeds the specified shutdown pressure specified in the permit.
    b. Annulus pressure indicates a loss of external or internal well containment.
    c. Pursuant to 40 CFR 146.91(c)(3), the Site will notify the UIC Program Director within 24 hours of any triggering of a shut-off system (i.e., down-hole or at the service).
- Mechanical Integrity Test (MIT) results identify a loss of mechanical integrity.
    a. Pursuant to 40 CFR 146.91(c)(4), the Site will notify the UIC Program Director within 24 hours of a loss of mechanical integrity that could lead to endangerment of USDW.

5.1.1 Well Integrity Failure - Severity

BP Response Personnel will determine the severity of the potential emergency event, based on the information available, within 24 hours, if possible. The potential severities identified are as follows:

- Tier 1 incident – malfunctions triggered by mechanical or electrical issues that does not involve loss of CO_2 or a failed MIT;
- Tier 2 or Tier 3 incident – loss of CO_2 or a failed MIT.

5.1.2 Well Integrity Failure - Timing of Potential Emergency Event

Potential emergency event could occur during injection and/or post-injection phases.

5.1.3 Well Integrity Failure - Avoidance Measures

- Design wells with sufficient barriers to ensure wellbore and surface equipment integrity throughout the life of the well, as described in more detail in the Construction Details (**Appendix J)**.
- Ensure the maximum injection pressure is below the fracture gradient of the confining formation.
- Adhere to the Testing and Monitoring Plan (**Appendix E**).
- Ensure injection pressure, rates, and volumes are within permitted limits.

5.1.4 Well Integrity Failure - Detection Methods

Monitoring data or visual inspections that identify anomalies in operating conditions and are further described in the Testing and Monitoring Plan (**Appendix E**).

5.1.5 Well Integrity Failure - Potential Response Actions

1. Notify BP Site Manager and other site personnel.
2. BP Site Manager will respond to the scenario, make the initial assessment of the situation, including if there has been a loss of mechanical integrity, and determine which other personnel to notify.
3. BP Response Personnel will determine the severity of the event, based on the information available.
4. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).
5. For a Tier 1 incident:
    a. If there has been a loss of mechanical integrity:
        i. Shut-in well by closing flow valve, if applicable.
        ii. Vent CO_2 from surface facilities, if applicable.
        iii. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure.
        iv. Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Director).
6. For a Tier 2 or Tier 3 incident:
    a. Initiate shutdown plan.
    b. Shut-in well by closing flow valve.
    c. Vent CO_2 from surface facilities, if appropriate.
    d. Only authorized personnel should be allowed to access wellhead area and well site during this period.
    e. Engage responsible BP personnel and notify local authorities; local authorities will initiate evacuation plans, if necessary.
    f. Monitor well pressure, temperature, and annulus pressure to determine the cause and extent of failure.
    g. Identify and, if necessary, implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director), including response actions identified in **Section 5.3**, below, if USDW or surface contamination is detected.

5.1.6 Well Integrity Failure - Response Personnel

BP Site Manager and other responsible site personnel will respond to the scenario. Contact information is provided in **Table 3.** The injection sites will have emergency placards with detailed contact information for communication of emergency events.

5.1.7 Well Integrity Failure - Equipment

Required equipment will be determined based on the identified failure. Equipment may include surface or downhole control safety valves, wireline equipment, workover rig, casing, and cement equipment.

5.2 Injection Well Monitoring Equipment Failure

The failure of monitoring equipment for wellhead pressure, temperature, and/or annulus pressure may indicate a problem with the injection well that could endanger USDWs. Integrity loss may have occurred if the following events arise:

- Automatic shutdown devices are activated:
    - Wellhead pressure exceeds the specified shutdown pressure specified in the permit.
    - Annulus pressure indicates a loss of external or internal well containment.
    - Pursuant to 40 CFR 146.91(c)(3), the Site must notify the UIC Program Director within 24 hours of any triggering of a shut-off system (i.e., down-hole or at the service).
- MIT results identify a loss of mechanical integrity.

5.2.1 Injection Well Monitoring Equipment Failure - Severity

BP Response Personnel will determine the severity of the event based on the information available, within 24 hours of notification. The potential severities identified are as follows:

- Tier 1 incident - failure of monitoring equipment with data that supports integrity of the well; and
- Tier 2 or Tier 3 incident - failure of monitoring equipment with data that indicates potential loss of mechanical integrity.

5.2.2 Injection Well Monitoring Equipment Failure - Timing of Potential Emergency Event

Potential emergency event could occur during injection and/or post-injection phases.

5.2.3 Injection Well Monitoring Equipment Failure - Avoidance Measures

- Design wells with sufficient barriers to ensure wellbore and surface equipment integrity throughout the life of the well, as described in more detail in the Construction Details (**Appendix J**).
- Ensure the maximum injection pressure is below the fracture gradient of the confining formation.
- Ensure injection pressure, rates, and volumes are within permitted limits.
- Complete routine inspections and maintenance on all monitoring equipment as outlined in the Testing and Monitoring Plan (**Appendix E**).

5.2.4 Injection Well Monitoring Equipment Failure - Detection Methods

Monitoring data or visual inspections that identify anomalies in operating conditions or equipment and are further described in the Testing and Monitoring Plan (**Appendix E**).

5.2.5 Injection Well Monitoring Equipment Failure - Potential Response Actions

1. Notify BP Site Manager and other responsible site personnel.
2. BP Site Manager will respond to the scenario, make the initial assessment of the situation, and determine which other personnel to notify.
3. BP Response Personnel will determine the severity of the event, based on the information available.
4. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).
5. For a Tier 1 incident:
    a. Conduct assessment to determine whether there has been a loss of mechanical integrity of the well associated with the failure of a piece of monitoring equipment.
    b. If a loss of mechanical integrity is not present, assess the impact the loss of monitoring equipment could have on operations.
    c. If there has been a loss of mechanical integrity;
        i. Shut-in well by closing flow valve, if applicable.
        ii. Vent CO_2 from surface facilities, if applicable.
        iii. Reset and ensure functionality of automatic shutdown device.
        iv. Monitor well pressure, temperature, and annulus pressure to determine the cause and extent of failure.
        v. Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Director).
6. For a Tier 2 or Tier 3 incident:

a. Initiate shutdown plan.

b. Shut-in well by closing flow valve.

c. Vent CO_2 from surface facilities, if applicable.

d. Only authorized personnel should be allowed to access wellhead area and wellsite during this period.

e. Engage responsible BP personnel and notify local authorities; local authorities will initiate evacuation plans, if necessary.

f. Monitor well pressure, temperature, and annulus pressure to determine the cause and extent of failure.

g. Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Direction), including response actions identified in **Section 5.3,** below, if USDW or surface contamination is detected.

5.2.6 Injection Well Monitoring Equipment Failure - Response Personnel

BP Site Manager and other responsible site personnel will respond to the scenario. Contact information is provided in **Table 3**. The injection sites will have emergency placards with detailed contact information for communication of emergency events.

5.2.7 Injection Well Monitoring Equipment Failure - Equipment

Required equipment will be determined based on the identified failure. Equipment may include surface or downhole control safety valves, wireline equipment, workover rig, casing, and cement equipment.

5.3 Potential Brine or CO_2 Leakage to USDW or the Surface

In the event of elevated concentrations of indicator parameter(s) in groundwater sample(s) or other evidence of fluid (brine) or CO_2 leakage into a USDW or surface, BP will take the following actions in accordance with 40 CFR 146.91(c).

5.3.1 Potential Brine or CO_2 Leakage to USDW or the Surface - Severity

BP Response Personnel will determine the severity of the event, based on the information available, within 24 hours of notification, if possible. The potential severities identified are as follows:

- Tier 1 incident – CO_2 has migrated into areas not anticipated based on AoR modeling but is not identified as impacting a USDW or human health; and
- Tier 2 or Tier 3 incident – CO_2 is identified migrating into a USDW.

5.3.2 Potential Brine or CO_2 Leakage to USDW or the Surface - Timing of Potential Emergency Event

Potential emergency event could occur during injection and/or post-injection phases.

5.3.3 Potential Brine or CO_2 Leakage to USDW or the Surface - Avoidance Measures

- Design wells with sufficient barriers to ensure wellbore and surface equipment integrity throughout the life of the well, as described in more detail in the Construction Details (**Appendix J**).
- The site design will be in accordance with the requirements discussed in the AoR and Corrective Action Plan (**Appendix B**). Adherence to the requirements in the Corrective Action Plan and re-evaluation of the AoR will reduce the potential for leakage of CO_2 or brine into a USDW.
- Ensure the maximum injection pressure is below the fracture gradient of the confining-formation.
- Adhere to the requirements outlined in the Testing and Monitoring Plan (**Appendix E**).
- Ensure injection pressure, rates, and volumes are within permitted limits.

5.3.4 Potential Brine or CO_2 Leakage to USDW or the Surface - Detection Methods

Detection methods are outlined in the Testing and Monitoring Plan (**Appendix E**) and the Post-Injection Site Care (PISC) and Site Closure Plan (**Appendix G**).

5.3.5 Potential Brine or CO_2 Leakage to USDW or the Surface – Potential Response Actions

1. Notify BP Site Manager and other responsible site personnel.
2. BP Site Manager will respond to the scenario, make the initial assessment of the situation, and determine which other personnel to notify.
3. BP Response Personnel will determine the severity of the event, based on the information available.
4. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).
5. For all incidents (Tier 1, Tier 2, or Tier 3):
    a. Conduct assessment to determine whether there has been a loss of mechanical integrity.
    b. If there has been a loss of mechanical integrity:
        i. Initiate shutdown plan.
        ii. Shut-in well by closing flow valve, if applicable.
        iii. Vent CO_2 from surface facilities, if applicable.
        iv. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and, if necessary, implement appropriate remedial actions.
        v. Collect confirmation sample(s) of groundwater and analyze indicator parameters.

vi. Communicate with BP personnel and contact local authorities to inform them of the incident and provide relevant information.

vii. Implement appropriate remedial actions to repair damage to the well.

viii. If the presence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to:

1. Install additional groundwater monitoring points near the impacted groundwater well(s) to delineate the extent of impact.
2. Remediate unacceptable impacts to the impacted USDW.
3. Arrange for an alternate potable water supply, if the USDW was being utilized to supply drinking water and the event caused an exceedance of drinking water standards.
4. Proceed with efforts to remediate USDWs to mitigate any unsafe conditions (e.g., install system to intercept/extract brine or CO_2 or "pump and treat" to aerate CO_2-laden water).
5. Continue groundwater remediation and monitoring frequently (frequency determined by BP and the UIC Program Director) until unacceptable adverse USDW impact is fully addressed.

5.3.6 Potential Brine or CO_2 Leakage to USDW or the Surface – Response Personnel

BP Site Manager and other responsible site personnel will respond to the scenario. Contact information is provided in **Table 3**. The injection sites will have emergency placards with detailed contact information for communication of emergency events.

5.3.7 Potential Brine or CO_2 Leakage to USDW or the Surface - Equipment

Required equipment will be determined based on the identified failure. Equipment may include surface or downhole control safety valves, wireline equipment, workover rig, casing, and cement equipment.

5.4 Natural Disaster

Well problems (integrity loss, leakage, or malfunction) may arise because of a natural disaster affecting the normal operation of the injection well. An earthquake may disturb surface and/or subsurface facilities; and weather-related disasters (e.g., tornado, hurricane, or lightning strike) may impact surface facilities.

5.4.1 Natural Disaster - Severity

BP Response Personnel will determine the severity of the event, based on the information available, within 24 hours of notification. The potential severities identified are as follows:

- Tier 1 incident – Equipment and integrity of the wellhead and well are not impacted. May include localized fire or non-integrity related impacts to equipment; and

- Tier 2 or Tier 3 incident – Equipment and integrity of wellhead and well are impacted by natural disasters. May result in fire/explosion and equipment damage that results in a leak of CO_2.

5.4.2 Natural Disaster - Timing of Potential Emergency Event

Potential emergency event could occur during construction, pre-injection, injection, and/or post-injection phases.

5.4.3 Natural Disaster - Avoidance Measures

- Design wells with sufficient barriers to ensure wellbore and surface equipment integrity throughout the life of the well, as described in more detail in Construction Details (**Appendix J)**.
- Adhere to the Testing and Monitoring Plan (**Appendix E**).
- Monitor weather-related hazards frequently.
- Install lightning protection system for reduced impact via lightning strikes.

5.4.4 Natural Disaster - Detection Methods

Visual inspections of the Site, data observations that may indicate an impact at the Site and triggering of automatic shutoff valves and alarms.

5.4.5 Natural Disaster - Potential Response Actions

1. Notify BP Site Manager and other responsible site personnel.
2. BP Site Manager will respond to the scenario, make the initial assessment of the situation, including if there has been a loss of mechanical integrity, and determine which other personnel to notify.
3. BP Response Personnel will determine the severity of the event, based on the information available.
4. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).
5. For a Tier 1 incident:
    a. If there has been a loss of mechanical integrity:
        i. Shut-in well by closing flow valve, if applicable.
        ii. Vent CO_2 from surface facilities, if applicable.
        iii. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure.
        iv. Identify and, if necessary, implement appropriate remedial actions (in consultation with the UIC Program Director).
6. For a Tier 2 or Tier 3 incident:

a. Initiate shutdown plan.
b. Shut-in well by closing flow valve.
c. Vent CO_2 from surface facilities, if applicable.
d. Only authorized personnel should be allowed to access wellhead area and well site during this period.
e. Engage responsible BP personnel and notify local authorities; local authorities will initiate evacuation plans, if necessary.
f. Monitor well pressure, temperature, and annulus pressure to determine the cause and extent of failure.
g. Identify and, if necessary, implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director), including implementation of response actions identified in **Section 5.3,** above, if USDW or surface contamination is detected.

5.4.6 Natural Disaster - Response Personnel

BP Site Manager and other responsible site personnel will respond to the scenario. Contact information is provided in **Table 3**. The injection sites will have emergency placards with detailed contact information for communication of emergency events.

5.4.7 Natural Disaster - Equipment

Required equipment will be determined based on the identified failure. Equipment may include surface or downhole control safety valves, wireline equipment, workover rig, casing, and cement equipment.

5.5 Induced or Natural Seismic Event

Although highly unlikely, induced seismic events could potentially occur at the Site and/or within the vicinity of the Site. Induced seismic events or induced earthquakes typically refer to Tier 1 incidents caused by human activity, which alter the stresses and pressures in the earth's crust, usually near faults. Due to the subsurface geology in the area of the Site, an induced seismic event is highly improbable. Natural seismic events typically refer to a natural release of energy in the earth's crust and are similarly highly unlikely to occur within the vicinity of the Site. See the **Permit Application Narrative Section 2.6.2** "Risk of Induced Seismic Activity" for a technical backing of the probability of induced and natural seismic occurrences.

BP will utilize technology developed with the University of Texas's TexNet program to monitor seismic events during injection operations. See **Section 10** "CO_2 Plume and Pressure Front Tracking" in the Testing and Monitoring Plan (**Appendix E**) for additional details on how seismicity will be monitored. Operating states will be used as a staged approach and will be based on the proximity to the injection site and magnitude of the seismic activity. Following the identification of a seismic event, an operating state must be determined to gauge the response necessary, or whether a response is required at all. The framework developed for location and magnitude is automated and will result in an alert system notification to BP personnel. Based on

the operating conditions, it is not likely that injection operations would induce a seismic event of any size outside of the AoR. Therefore, this portion of the response plan is developed for any seismic event with an epicenter within the AoR.

5.5.1 Induced or Natural Seismic Event – Severity

The severity of a seismic event is described in **Table 2**.

5.5.2 Induced or Natural Seismic Event – Timing of Potential Emergency Event

Potential emergency event could occur during construction, pre-injection, injection, and/or post-injection phases.

5.5.3 Induced or Natural Seismic Event – Avoidance Measures

A fault stability analysis and the planned operating conditions are described in the **Permit Application Narrative**. The permitted injection rates and volumes have been developed to reduce potential to induce a seismic event. Passive seismic monitoring will also be performed within the AoR to indirectly detect pressure anomalies impacting the subsurface that may trigger micro-seismicity. This process is outlined in the Testing and Monitoring Plan (**Appendix E**).

5.5.4 Induced or Natural Seismic Event – Detection Methods

A desktop study will be performed prior to Site construction to determine the optimal combination of borehole and surface seismic stations to detect local events over moment magnitude (M) 1.0 within the AoR. Seismic monitoring data will then be collected and analyzed as follows:

1. Seismic data can be recorded live at the injection site and in-zone monitoring wells.
2. Data is transferred to a centralized system. Here the raw data can be processed to determine the magnitude of any seismic events.
3. If a M1.0 or greater is recorded, required site personnel are notified via email.
4. If the site operation state exceeds yellow, additional data from any affected injection and in-zone monitoring wells is collected.
5. The data will then be analyzed by a Subject Matter Expert (SME), and a report with findings and recommendations will be compiled.

Seismic data from the United States Geological Survey (USGS) will be reviewed periodically for indications of close proximity seismic events greater than M1.0.

5.5.5 Induced or Natural Seismic Event - Potential Response Actions

Based on the periodic analysis of the monitoring data, observed level of seismic activity, and local reporting of felt events, the Site will be assigned an operating state. The operating state is determined using threshold criteria which correspond to the Site's potential risk and level of seismic activity. The operating state provides operating personnel information about the potential risk of further seismic activity and guides them through a series of response actions. The seismic

monitoring system structure is presented in **Table 2** (40 CFR 146.94(a)) and corresponds to each level of operating state with the threshold conditions and operational response actions.

Table 2. Seismic Monitoring System, for Seismic Events > M1.0 with an Epicenter within the AoR

Operating State	Threshold Condition[1,2]	Response Action[3]
Green	Seismic events less than or equal to M1.5	1. Continue normal operation within permitted levels.
Yellow	Five or more seismic events within a 30-day period having a magnitude greater than M1.5 but less than or equal to M2.0	1. Continue normal operation within permitted levels. 2. If there is a well integrity failure, injection well monitoring equipment failure, or potential brine or CO_2 leakage to USDW or to the surface, the steps outlined in **Sections 5.1, 5.2, and 5.3**, respectively, must be followed. 3. Review seismic and operational data. Review micro seismic monitoring data to identify correlating seismic events. 4. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well. 5. Determine when normal operations can be initiated for the site, if possible.
Orange	Seismic event greater than M1.5 and local observation or felt report Seismic event greater than M2.0 and no felt report	1. Continue normal operation within permitted levels. 2. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well. 3. If there is a well integrity failure, injection well monitoring equipment failure, or potential brine or CO_2 leakage to USDW or to the surface, the steps outlined in **Sections 5.1, 5.2, and 5.3**, respectively, must be followed. 4. Review seismic and operational data. Review micro seismic monitoring data to identify correlating seismic events. 5. Report findings to the UIC Program Director and issue corrective actions. 6. Determine when normal operations can be initiated for the site, if possible.

[1] Specified magnitudes refer to magnitudes determined by local USGS seismic monitoring stations or reported by the USGS National Earthquake Information Center using the national seismic network.

[2] "Felt report" and "local observation and report" refer to events confirmed by local reports of felt ground motion or reported on the USGS "Did You Feel It?" reporting system.

[3] Reporting findings to the UIC Program Director and issuing corrective action will occur within 25 business days (five weeks) of change in operating state.

Operating State	Threshold Condition[1,2]	Response Action[3]
Magenta	Seismic event greater than M2.0 and local observation or report	1. Initiate rate reduction plan. 2. Vent CO_2 from surface facilities. 3. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well. 4. Limit access to wellhead to authorized personnel only. 5. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary. 6. If there is a well integrity failure or injection well monitoring equipment failure, the steps outlined in **Sections 5.1 and 5.2**, respectively, must be followed. 7. Review seismic and operational data. Review micro-seismic monitoring data to identify correlating seismic events. 8. Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director). 9. Determine if leaks to ground water or surface water occurred. 10. If USDW contamination is detected: a. Notify the UIC Program Director within 24 hours of the determination. b. Follow the steps outlined in **Section 5.3.** 11. Review seismic and operational data. 12. Report findings to the UIC Program Director and issue corrective actions. 13. Determine when normal operations can be initiated for the site, if possible.
Red	Seismic event greater than M2.0, and local observation or report, and local report and confirmation of damage[4]	1. Initiate shutdown plan. 2. Vent CO_2 from surface facilities. 3. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well.

[4] Onset of damage is defined as cosmetic damage to structures, such as bricks dislodged from chimneys and parapet walls, broken windows, and fallen objects from walls, shelves, and cabinets.

Operating State	Threshold Condition[1,2]	Response Action[3]
	Seismic event >M3.5	4. Limit access to wellhead to authorized personnel only. 5. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary. 6. Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director). 7. Determine if leaks to ground water or surface water occurred. 8. If USDW contamination is detected: a. Notify the UIC Program Director within 24 hours of the determination. b. Follow the steps outlined in **Section 5.3.** 9. Review seismic and operational data. 10. Report findings to the UIC Program Director and issue corrective actions. 11. Determine when normal operations can be initiated for the site, if possible.

5.5.6 Induced or Natural Seismic Event – Response Personnel

BP Site Manager and other responsible site personnel will respond to the scenario. Contact information is provided in **Table 3**. The injection sites will have emergency placards with detailed contact information for communication of emergency events.

5.5.7 Induced or Natural Seismic Event – Equipment

Required equipment will be determined based on the identified failure. Equipment may include surface or downhole control safety valves, wireline equipment, workover rig, casing, and cement equipment.

6. RESPONSE PERSONNEL AND EQUIPMENT

BP personnel, contractors, and local authorities will be relied upon to implement this ERRP and will be dispatched in case of emergency. During an emergency event, applicable city, county, and state emergency responders and agencies may be notified based upon BP's assessment of the situation and risk posed to stakeholders. Contact information of emergency responders can be found in **Table 4**.

The following response personnel will be dispatched in case of emergency (not listed in order of notification):

- BP Site Manager
- BP Crisis & Continuity Manager (C&CM)
- BP Carbon Capture and Storage (CCS) Program Manager
- BP Health, Safety, Environmental, and Carbon (HSE&C) Manager
- BP Communications and External Affairs (C&EA)

A site-specific emergency contact list will be developed and maintained. BP will provide the current site-specific emergency contact list to the UIC Program Director. A proposed list is provided in **Table 3**.

Table 3. Contact Information for BP Emergency Authorities

Agency	Contact Information
BP Site Manager	To be updated after drilling of injection well.
BP Crisis & Continuity Manager	To be updated after drilling of injection well.
BP CCS Program Manager	To be updated after drilling of injection well.
BP HSE&C Manager	To be updated after drilling of injection well.
BP C&EA	To be updated after drilling of injection well.

Agency	Contact Information
BP Notification Centre	Direct phone: +1 630-961-6200 or +1 281-366-3444 Toll Free: +1 800-321-8642 E-Mail: ercemco2@bp.com
Intelligence and Response Operations Centre (IROC)	Direct phone: +44 207-496-5555 E-Mail: IROC@bp.com

Table 4 below presents the contact information for key local, state, and other authorities.

Table 4. Contact Information for Key Local, State, and Other Authorities

Agency	Phone Number
Jasper County Emergency Management	409-383-9067
Jasper County Sheriff's Office	409-383-5417
[redacted]	911
[redacted]	911
Jasper County Fire Marshal's Office	409-383-6103
Texas Emergency Management – State Emergency Operations Center (EOC)	512-424-2208
Railroad Commission of Texas (RRC) 24-Hour Emergency Numbers	Toll free: 844-773-0305 512-463-6788
Texas Geological Survey (Bureau of Economic Geology)	512 471-1534
Texas Commission on Environmental Quality	512-239-1000
National Response Center (USCG/EPA)	800-424-8802
EPA Region 6	800-887-6063 / 214-665-2760
Marine Spill Response Corporation (MSRC)	800-645-7745 / 800-259-6772

Equipment needed in the event of an emergency and remedial response will vary, depending on the triggering emergency event. Response actions (cessation of injection, well shut-in, and evacuation) will generally not require specialized equipment to implement. Where specialized equipment (such as a drilling rig or logging equipment) is required, the designated BP Program Manager shall be responsible for its procurement.

7. EMERGENCY COMMUNICATIONS PLAN

BP will communicate to the relevant public authorities about any event that requires an emergency response to ensure that the public understands the nature of the event and whether or

not there are any environmental or safety implications. Additionally, BP may conduct outreach to stakeholders based upon the type and severity of an emergency event.

Based on the nature of the emergency event, BP will determine the amount of information, timing, and communications method(s) appropriate to the event. Information may include its severity, whether impacts to drinking water or other environmental resources occurred and impacts to the surrounding community.

BP will also communicate with entities who may need to be informed about or act in response to the event, including local water systems, CO_2 source(s) and pipeline operators, landowners, and Regional Response Teams (as part of the National Response Team).

In the event of an emergency requiring outside assistance, the BP Incident Commander (IC) or representative will request additional support through the BP Crisis & Continuity Management (C&CM) organization.

If any Tier 1, 2 or 3 incidents occur, emergency communications with the public will be handled by BP C&EA personnel.

During an emergency event:

1. The BP Site Manager, BP C&CM Manager, or the BP CCS Program Manager will notify BP C&EA of an event and begin crisis communications as appropriate.
2. BP will determine the method, frequency, and extent of public communications needed based upon the emergency event's severity and the potential impact to stakeholders.
3. BP will inform the UIC Program Director of the event (as previously listed) and inform the Director of the communications plan.
4. Based upon the emergency event type, severity, and potential impact to stakeholders, BP will:
    a. Describe the nature of the emergency event.
    b. Verify potential impacts to the environment or other local resources.
    c. Describe response actions, including investigative actions, if applicable.
    d. Describe the status of the response. For responses that occur over the long-term (e.g., ongoing cleanups), BP will provide periodic updates on the progress of the response action(s).
5. BP C&EA and BP Legal will manage all media communications with the public (through either interview, press release, website posting, or other) in the event of an emergency.
6. Responses to the media will be dealt with ONLY by personnel designated by BP C&EA.
7. In the event that anyone else is contacted to comment on any situation deemed an "emergency event," the media contact should be directed as follows:
    a. BP Switchboard +44 207-496-4000;
    b. Direct Press Line Telephone: +44 207-496-4076;

c. uspress@bp.com; or

d. The BP C&EA representative supporting the Jasper Storage Site.

8. PLAN REVIEW

This ERRP shall be reviewed:

- At least once every five years following its approval by the permitting agency;
- Within one year of an AoR re-evaluation;
- Within 30 days following significant changes to the injection process or the injection facility, or an emergency event; or
- As required by the permitting agency.

If the review indicates that no amendments to the ERRP are necessary, BP will provide the permitting agency with the documentation supporting the "no amendment necessary" determination.

If the review indicates that amendments to the ERRP are necessary, amendments shall be made and submitted to the permitting agency within six months following an event that initiates the ERRP review procedure.

9. STAFF TRAINING AND EXERCISE PROCEDURES

BP utilizes the Incident Command System (ICS) to respond to incidents, which will be used to manage events or incidents under this ERRP. The ICS allows BP to respond to a dynamic, changing scenario in a deliberate and decisive fashion. BP will use pre-planned incident scenarios and select, adapt, and vary the response options to an optimal level that reduces the consequences of the event and mitigates environmental damage, specific to the conditions at the time.

In accordance with BP's practice covering Crisis and Continuity Management, incident response personnel are trained at the individual and collective/team levels. This includes the following for select individuals:

- ICS 100
- ICS 200
- ICS 300
- ICS 700

The Incident Management Team (IMT) members must also conduct ICS annual refresher training thereafter.

BP also requires business entities to validate response plans and team capabilities through periodic exercises. For the Site, BP will conduct a notification exercise every 6 months, a table-top exercise annually, and a limited incident exercise once every two years.

Training is conducted in relation to the specific risks, incident scenarios, and planned responses for the Site. This information will be outlined in the Jasper/Gulf Coast Incident Management Plan (IMP), which will be developed prior to injection operations. Required training will be communicated and records of training and compliance will be readily available.