CLASS VI PERMIT EMERGENCY AND REMEDIAL RESPONSE PLAN

LAC 43:XVII §3623 &

LCFS Protocol Subsection C.6(a)

STRATEGIC BIOFUELS
LOUISIANA GREEN FUELS PORT OF COLUMBIA FACILITY

Prepared By:
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Revision No. 2
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1.0 FACILITY INFORMATION

Facility Name: Louisiana Green Fuels, Port of Columbia Facility
Three Class VI Injection Wells

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Well Locations: Port of Columbia,
Caldwell Parish, Louisiana

Name:	Latitude / Longitude
Well 1 (W-N1):	32.18812141510 / -92.10986101060
Well 2 (W-N2):	32.18686691570 / -92.05915551900
Well 3 (W-S2):	32.16393759770 / -92.08754320370

This Emergency and Remedial Response Plan (ERRP) describes actions that Strategic Biofuels shall take to address movement of the injection fluid or formation fluid in a manner that could endanger the underground source of drinking water (USDW) during the construction, operation, or post-injection site care periods. It was prepared to meet the requirements of Statewide Order No. 29-N-6 [LAC 43:XVII §3623].

If Strategic Biofuels obtains evidence that the injected CO_2 stream and/or associated pressure front may cause an endangerment to the USDW, Strategic Biofuels will perform the following actions per LAC 43:XVII §3623 (A)(2):

1. Initiate shutdown plan for the injection well(s).
2. Take all steps reasonably necessary to identify and characterize the nature of any release.
3. Notify the permitting agency (Commissioner) of the emergency event within 24 hours.
4. Implement applicable portions of the approved ERRP.

Where the phrase "initiate shutdown plan" is used, the following protocol will be employed: Strategic Biofuels will immediately cease injection. However, in some circumstances, Strategic

Biofuels will, in consultation with the Commissioner, determine whether gradual cessation of injection (using the parameters set forth in the Summary of Requirements of the Class VI permit) is safe and appropriate.

2.0 LOCAL RESOURCES AND INFRASTRUCTURE

The Strategic Biofuels - Louisiana Green Fuels Port of Columbia Facility is located along the eastern bank of the Ouachita River in Caldwell Parish, Louisiana. According to the most recent Census data in 2020, Caldwell Parish had a population of 9,645 people. It is one of the least populated parishes in Louisiana. Caldwell Parish encompasses 529 square miles, with the Ouachita River bisecting the parish, running north to south. The local economy is driven by farming and forestry, with approximately 250,000 acres currently utilized for commercial forestry.

Resources in the vicinity of the Strategic Biofuels Louisiana Green Fuels Port of Columbia Facility that may be affected as a result of an emergency event at the project site include:

- Local USDW impacts from groundwater wells.
- Surficial water bodies:
  - Ouachita River
  - Riverton Lake
  - Horseshoe Lake

These freshwater resources, which have been identified as being located within or proximal to the project site, have been determined to be at least 4,000 feet above the proposed subterranean injection reservoir targets. Although there is little likelihood that facility operations at the project site would negatively impact any of these freshwater resources at any point in time during the lifetime of those operations, the protection of these important resources is still considered of paramount importance and will be discussed throughout this ERRP.

Infrastructure in the vicinity of the Strategic Biofuels - Louisiana Green Fuels Port of Columbia Facility that that may be affected as a result of an emergency at the project site include:

- Port of Columbia - barge/rail pass-through with associated loading docks and material transportation systems down the Ouachita River.
- Union Pacific Railroad – freight train rail line.
- Route 165– main public road for traffic in the area next to the facility.

Resources and infrastructure addressed in this plan are shown in Figure 1.

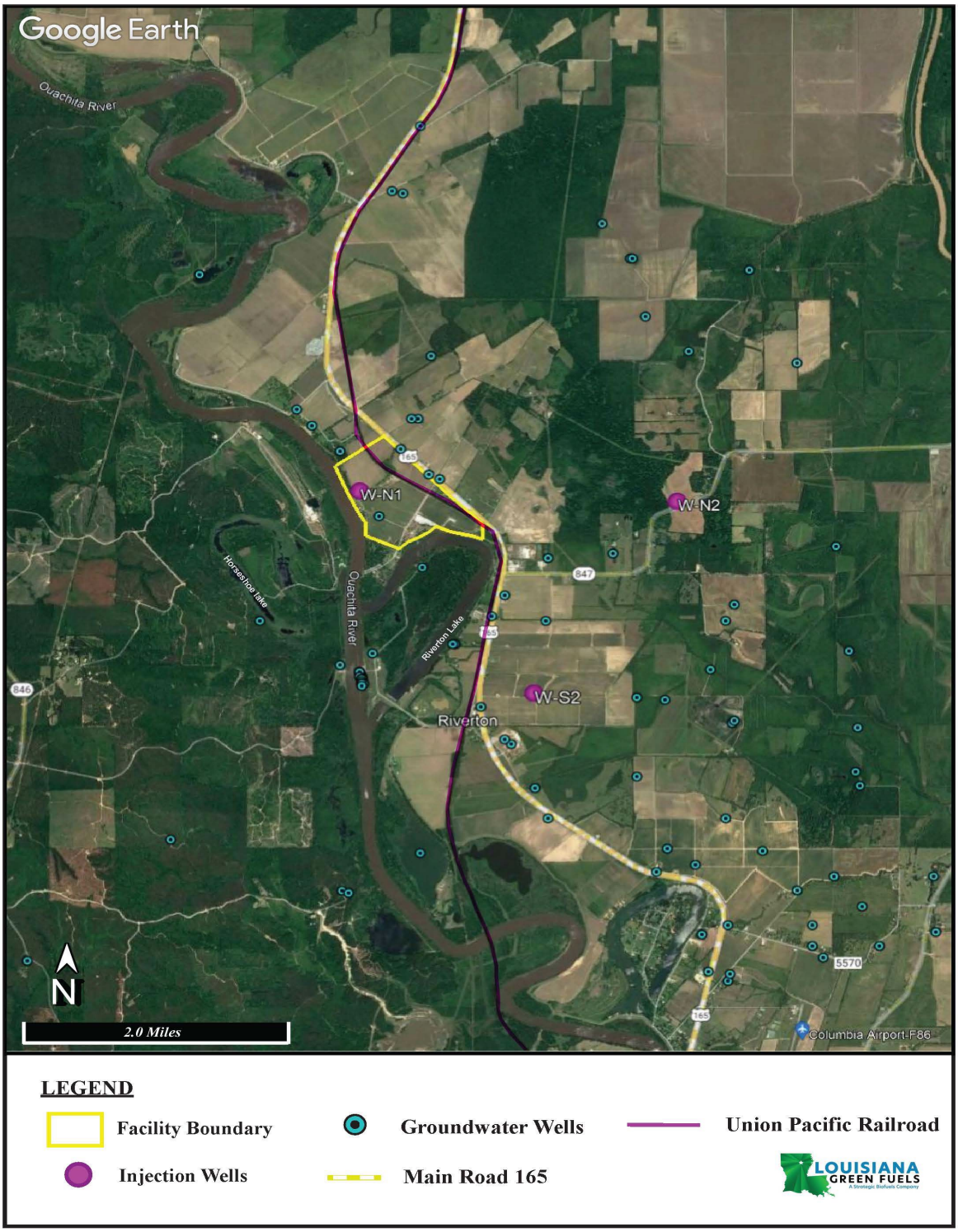

Figure 1 - Locations of Resources and Infrastructure near the Louisiana Green Fuels Port of Columbia Facility

3.0 POTENTIAL RISK SCENARIOS

The following sections of this ERRP address events that could potentially result in an emergency response by Strategic Biofuels. Risks have been identified for incidents that could occur:

- During the construction (drilling and completion) phase of the injection and monitor wells;
- During the injection operation phase of the facility; and
- During the post-closure and site closure operations phase.

During each such phase, all on-site personnel will be required to wear the appropriate personal protective equipment (PPE) for any potential hazardous materials and risks associated with that operational phase of the Louisiana Green Fuels project.

3.1 CONSTRUCTION PHASE

Risks associated with the drilling and completion of the injection and monitor wells are:

- Potential well control events
- Potential migration of fluids between formations

Safety programs and training will be in place during the drilling and completion of injection and monitoring wells. A detailed Health, Safety, and Environmental (HSE) plan will be developed, along with selected vendors, to meet Occupational Safety and Health Act (OSHA) standards to safely perform the initial phase of project development. Every operator and contractor will have the right, obligation, authority, and responsibility to stop work or any action that is deemed unsafe or could negatively impact the environment. It should be noted that all subterranean strata that will be drilled into or through by the proposed injection and monitor wells are known to be normally pressured strata (*i.e.,* not abnormally pressured or geopressured).

3.2 INJECTION OPERATION PHASE

Risks associated with the injection operation phase of the project have been identified as follows:

- Mechanical integrity of the injection and monitor wells
- Injection well monitoring equipment failure (*e.g.*, shut-off valve or pressure gauge, *etc*.)
- Potential vertical migration of CO_2 injectate to a USDW (via defective casing or cement bond in an injection or monitor well, or a currently unknown geological defect)
- Potential lateral migration of CO_2 outside the defined Sequestration Complex and Area of Review
- A natural disaster (*e.g.,* earthquake, tornado, hurricane, lightning strike) (*very low risk*)
- Induced seismic event (*very low risk*)

3.3 POST INJECTION SITE CARE AND CLOSURE PHASE

Risks associated with the Post Injection Site Closure (PISC) care, which consists of the monitoring of the CO_2 for a duration period set by the permit parameters have been identified as follows:

- Mechanical integrity of monitor wells
- Monitoring equipment failure
- Potential vertical migration of CO_2 to a USDW (through natural or manmade conduits)
- Potential lateral migration of injected CO_2 outside the defined Sequestration Complex or Area of Review (AoR)
- A natural disaster (*e.g.,* earthquake, tornado, hurricane, lightning strike) (*very low risk*)

3.4 DEGREES OF RISK

Response actions will depend on the severity of the event(s) triggering an emergency response. “Emergency events” are categorized as shown in Table 1.

Table 1: Degrees of Risk for Emergency Events

Emergency Condition	Definition
Major emergency	Event poses immediate substantial risk to human health, resources, or infrastructure. Emergency actions involving local authorities (evacuation or isolation of areas) should be initiated immediately.
Serious emergency	Event poses potential serious (or significant) near term risk to human health, resources, or infrastructure if conditions worsen or no response actions are taken.
Minor emergency	Event poses no immediate risk to human health, resources, or infrastructure.

Monitoring and alarm systems will provide notifications of a potential leak of CO_2 or formation fluids out of regulatory zones, from injection wells, monitoring well, or surface facilities (*i.e.* pipelines, storage systems, *etc*.). Alarms will also be set to monitor injection parameters, mechanical well integrity, and the injection system integrity and will be integrated with an automatic shutdown system [LAC 43:XVII §3621 (A)(7)(a)(iii)]. Strategic Biofuels will test all critical systems, including alarms and testing of the shutdown systems and validating the response times every six months. The testing of the systems will be documented and available for inspection by an agent of the Officer of Conservation [per LAC 43:XVII §3621 (A)(7)(c)].

If data shows that there is leakage from the sequestration reservoir system via a currently unknown geological defect or a mechanical well failure, Strategic Biofuels will follow the initial steps to assess the emergency risks as defined above. Secondly, Strategic Biofuels will follow the actions identified below:

1. The project will activate the emergency and remediation response protocol consistent with this ERRP and circumstances of the event.
2. The Environmental Protection Agency (EPA) Region 6 Underground Injection Control Program Director (Commissioner) will immediately be notified within 24 hours of the event being discovered; and
3. The Louisiana Department of Natural Resources (LaDNR) Underground Injection Control Program director (Commissioner) will immediately be notified within 24 hours of the event being discovered.

The acting Commissioner in authority at the Federal or State level may allow Strategic Biofuels to resume injection prior to remediation if it can demonstrate that the injection operation will not endanger the USDW.

4.0 EMERGENCY IDENTIFICATION AND RESPONSE ACTION

Steps to identify and characterize the event will be dependent on the specific issue identified, and the severity of the event. The potential risk scenarios are based upon construction, operation, and closure activities associated with the lifetime of the project. The potential risks are identified in Table 2 and discussed in the following Sections. Impact severity is based upon the definitions in Table 1. Risk likelihood is based upon experience in well drilling, operation, and maintenance in other classes of injection wells.

Table 2: Potential Risks and Detection

Potential Emergency Event	Location	Phase*	Impact Severity	Risk Likelihood	Detection
4.1 Contamination of USDW with Drilling Fluids	Wellbore	C	Minor	Very Unlikely	Loss of circulation while drilling
4.2 Well Control Event	Well	C	Serious to Major	Very Unlikely	Unexpected changes in well fluid levels occur while drilling; influx of hazardous gases from formations
4.3 Injection Well Integrity Failure	Casing, annulus, tubing, or packer	I	Minor	Unlikely	Loss in annular fluid pressure or tubing pressure; unusual injection rate changes
4.4 Injection Well Monitoring Equipment Failure	Wellhead	I	Minor to Serious	Unlikely	Failure of parameter-monitoring equipment
4.5 Potential Injectate Leakage to a USDW	Well or AoR	I, PI	Minor to Serious	Very Unlikely	Onset of elevated injectate concentrations in monitoring well. Temperature survey vertical profile anomalies.
4.6 Natural Disaster	Well or AoR	I, PI	Minor to Major	Very Unlikely	If flooding, encroachment of rising water near facility / well

Note: C = Construction Period, I = Injection Phase and PI = Post Injection Period

4.1 CONTAMINATION OF USDW WITH DRILLING FLUIDS

During the construction (drilling) phase, there is a low risk of potential drilling fluids contaminating a USDW due to crossflow and losses into the formation. Drilling fluid losses, if any, will be monitored during all phases of the drilling of the injection and monitor wells. Best practice drilling methods and procedures will be employed to limit a potential leakage event. Monitoring parameters such as tank levels, flow lines, and flow pressures will lead to a first detection response.

Additionally, the surface casing will be set into the Cane River Formation, which is an impermeable layer that will be encountered at depths greater than the USDW; the surface casing will then be cemented back to surface, with its cement integrity subsequently verified with the running of a cement bond log (CBL) in cased hole prior to proceeding to the next phase of drilling. This will protect the USDW from potential contamination during deeper drilling operations.

4.1.1 Impact Severity and Risk

The potential risk of contamination of the USDW as a consequence of drilling operations is considered low. This is based upon several factors. First, the volume of drilling fluid used to drill through the reservoirs that comprise the USDW is relatively small, and the time required to drill through that interval is very short (typically 24-48 hours). Second, the non-toxic gels and mud additives used to drill the interval usually seal off the wellbore (with wallcake) shortly after drilling. Finally, there is a long and established history of the successful and safe setting of surface casing in thousands of wells – typically oil and gas test wells - worldwide.

If there is a documented (localized) invasion / contamination of the USDW with the non-toxic drilling fluid, the impact would be considered a minor emergency event, since such a release would not constitute an immediate risk to human health, resources, or infrastructure. At the first detection of a potential event, drilling operations will cease, and the situation will be evaluated and mitigated. It should be noted, however, that the best mitigation of such an event would be the expeditious setting and cementing of the surface casing across the USDW, as originally contemplated. If such a release to the USDW occurs after the surface casing has been set and cemented, the leak will be sealed off in accordance with the following Potential Response Actions.

4.1.2 Potential Response Actions

In the very unlikely event of a release to the USDW during drilling operations conducted after the surface casing has been set and cemented, the following steps will be undertaken:

1. Cease all drilling operations and assess fluid levels in wellbore.
2. Evaluate the drilling parameters, tank levels, and flow lines.
3. Determine amount of potential fluid losses and at what specific depth.
4. Treat mud with lost circulation materials and adjust mud weight to allow for continuation of drilling operation continuation.
5. Check for leaks in casing and at the casing shoe. If any are detected, squeeze / patch the identified defect and re-test.
6. Verify integrity of cement with additional CBL run(s), if required.

If a leak is detected in the surface casing, it will be squeezed with additional cement or patched, and the post-repair cement integrity will then be reaffirmed prior to resuming drilling operations.

Drilling operations will only resume once the post-repair testing of the surface casing and its cement job confirms its integrity. The casing shoe of the surface casing will also be pressure-tested to verify its integrity prior to proceeding to the next phase of drilling.

4.1.3 Response Personnel and Equipment

During the drilling phase. the personnel responsible for monitoring and detection will be the rig crew and the “tool pusher” (rig chief), who will immediately report any indication of a release to the USDW to the company man. The company man will then notify the project supervisor and initiate the first step of the response plan, which is to immediately cease all drilling operations. The tank levels and pressure and flow meters will be checked and recalibrated if required.

4.2 WELL CONTROL EVENT

During the drilling phase, if a well control event occurs it could potentially lead to the influx and subsequent movement of formation fluid or formation gases from one zone to another. Such a well control event would be caused by the formation pressure of one zone being greater than the hydrostatic pressure of the drilling mud column that would otherwise maintain "overbalanced" mud weight conditions, leading to the sudden influx of fluids and/or gases (*i.e.*, a well "kick").

4.2.1 Impact Severity and Risk

The severity of this type of event is relatively low if the cause of the event is immediately and properly addressed. However, if not immediately mitigated, a well control event can become a highly severe and dangerous problem if it leads to a loss of control and presents an impact to human health and infrastructure. The risk of this type of severe event ever occurring at the Port of Columbia project site is considered very low and highly unlikely. Hundreds of oil and gas test wells of varying depths have been drilled within a four-mile radius of the project site without one single severe loss of control event having been recorded. The drilling records and other records filed with the State for those wells have been thoroughly reviewed and integrated into the well drilling and completion procedures that will be conducted for the injection and monitor wells. These records clearly indicate the top of any abnormally pressured (geopressured) strata is located at a depth well below the base of Sequestration Complex; accordingly, the threat of encountering a geopressured zone during the drilling of any injection or monitor well is highly unlikely.

It should be noted that Strategic Biofuels recently drilled the Whitetail Operating, LLC, Louisiana Green Fuels #1 stratigraphic / injection test well (SN975841) located approximately one mile southeast of the proposed injection wells, and that well was drilled to 6,203 feet without any issues and without encountering any geopressured strata. In addition, numerous formation pressure measurements were taken in that stratigraphic / injection test well, in both open hole (using the XPT wireline test tool) and in cased hole (during the extensive injection/flowback testing period). Taking the existing legacy well pressure database and the recent drilling of that stratigraphic / injection test well into account, the subsurface pressure regime (*i.e.,* the hydrostatic gradient) in the vicinity of the project site is well known. Therefore, "Best Practices" can be applied to the drilling methods and completion procedures for all project wells.

During the drilling of the injection and monitoring wells, parameters such as flow, volume, and pressure of the drilling fluid, will be closely monitored, as will be all tank fluid levels and fluid circulation rates. Mudweight control will also be utilized to prevent the influx or movement of fluid or gases across zones and to reduce the potential for a loss of well control (kick or blowout) event to occur. Instruments and procedures used for monitoring during drilling will include:

1. Flow sensor
2. Pressure sensor
3. Tank level indicator
4. "Tripping" (replacement of the bottom-hole assembly) displacement practices (pursuant to industry drilling operational procedures)
5. Mudweight control

Controls in place to remediate such an event include the following:

1. Blowout prevention (BOP) equipment
2. "Kill" (high-density) fluid or drilling mud additives onsite
3. Well control training (as per the drilling company practices and protocols)
4. BOP testing protocol (per manufacture specifications and state requirements)

These project controls have been historically demonstrated to be effective for well control during the drilling of wells in the project site area.

4.2.2 Response Actions

If a Well Control event occurs, the following response actions will be taken:

1. Cease all drilling operations and assess fluid levels in wellbore.
2. Close the blow out preventor (BOP).
3. Secure the rig floor and surrounding rig area.
4. Initiate the Well Control Procedures.

5. Evaluate the drilling parameters that may have led to the Well Control event or may be used to mitigate the event.
6. Verify the cause of the problem and ascertain the risk to human health, if any.
7. Adjust mud weight to suppress the influx or movement of formation fluids or gases.

4.2.3 Response Personnel and Equipment

In addition to the above steps, if a severe well control event does occur, the site will be evacuated, and the appropriate emergency response personnel (identified in Section 5.0) will be contacted. The emergency communication plan set forth in Section 6.0 will also be enacted. The cause of the well control event will only be evaluated after the site has been secured and poses no immediate threat to human health and life.

The initial personnel responsible for monitoring and detection will be the rig crew and tool pusher, who will immediately report any indication of a well control event to the company man. The company man will then notify the project supervisor and initiate the first step of the response plan, which is to immediately cease all drilling operations. All tank levels and pressure and flow meters will be checked and recalibrated if required.

4.3 INJECTION WELL INTEGRITY FAILURE

The loss of casing integrity in an injection well during active injection could lead to a well failure and potentially endanger the USDW. A loss of integrity and/or well failure may be determined to have occurred based upon the observance of one of the following events:

1. The wellhead pressure deviates significantly from specified / anticipated pressures as set forth in the permits filed for said well;
2. The casing annulus pressure indicates a loss of external or internal well integrity; or
3. An annual MIT indicates a loss of mechanical integrity.

Well failure can be a result of either a casing, tubing or packer failure, or cement degradation from corrosion/erosion due to long-term CO_2 exposure. Automatic alarm and automatic shutoff systems will be installed to trigger digital notification and audible alarms if an injection well loses integrity during operation per LAC 43:XVII §3621 (7)(a) & LCFS Protocol Subsection C.3.3(f).

Pursuant to LAC 43:XVII §3623 (A)(2) and LCFS Protocol Subsection C.3.3(f)(3), Strategic Biofuels will cease injection immediately, take steps to determine if the shut-down has indicated a release, and will notify the Commissioner within 24 hours of any triggering of a shut-off system (*i.e.*, downhole or at the surface).

4.3.1 Impact Severity and Risk

The potential risk of well integrity failure is low. The mechanical integrity of the well will be demonstrated annually using annulus pressure tests (APT), mechanical integrity tests (MIT), and/or approved cased-hole wireline logging tools (differential temperature survey). Additionally, the annulus system will be continuously monitored to detect for the potential loss of integrity. Such monitoring would also result in the immediate, "real-time" detection of any substantive changes in injection pressures or the rate of flow of injectates into the well. Automatic alarm and shutoff systems will be set to trigger digital notification and audible alarms in the event of loss of integrity, notifying Strategic Biofuel's operations personnel immediately. Due to this robust system of monitoring and rapid leak detection, the severity and impact of such an incident is expected to be minor. Therefore, it is expected that a loss in injection well integrity will not provide an imminent risk to human health, resources, or infrastructure.

4.3.2 Response Actions

If it is determined that an injection well has suffered a loss of mechanical integrity, either by unexplained deviations observed during continuous monitoring or during annual mechanical integrity testing, Strategic Biofuels will:

1. Immediately cease injection operations (if not already triggered by automatic shut-off).
2. Notify the Commissioner within 24 hours of the emergency event, LAC 43:XVII §3623 (A)(2)(c) and LCFS Protocol Subsection C.3.3(f)(3).
3. Determine the severity of the event, based on the information available, within 24 hours of notification.

If a loss of mechanical integrity is determined to have occurred, Strategic Biofuels will initiate the additional steps identified below:

1. Initiate the shutdown plan, which will cut off injection operations to the affected well.
2. If contamination is detected, the facility will identify and implement appropriate remedial actions (in consultation with the Commissioner).
3. Run well diagnostics to determine the physical location of leak(s) in the wellbore.
4. Perform remedial workover operations on the well to reestablish mechanical integrity (in consultation with the Commissioner).

Once a solution, remedy, or course of action has been determined, the Strategic Biofuels will:

1. Notify the Commissioner regarding when injection can be expected to resume.
2. Will restore and demonstrate the mechanical integrity of the affected injection well to the satisfaction of the Commissioner,
3. Injection operations will resume with the written notification from the Commissioner that Strategic Biofuels has demonstrated mechanical integrity [per LAC 43:XVII §3609 (P)]

4.3.3 Response Personnel and Equipment

The initial personnel responsible for monitoring well integrity will be site personnel involved with the well operations, the Plant Manager, and the facility's Environmental Health and Safety Manager. If well integrity has been lost, additional personnel such as engineering and remediation specialists, will be consulted to determine the extent of the problem and establish a path/solution. The equipment involved in such remediation would likely range from the use of wireline investigative tools, pressure testing gauges, and other remedial equipment, to the potential replacement of the failed surface or downhole equipment, as deemed necessary.

4.4 INJECTION WELL MONITORING EQUIPMENT FAILURE

Strategic Biofuels will install and use continuous recording devices to monitor injection pressure, rate, and volume; the pressure on the annulus between the tubing and the long string casing; the annulus fluid volume added; and the temperature of the CO_2 stream, as required at per LAC 43:XVII §3625 (A)(2) and LCFS Protocol Subsection C.4.1(a)(2). The failure of installed equipment designed to continuously monitor wellhead pressure, temperature, and/or annular pressure may indicate a mechanical problem has developed in the injection well that could

endanger the USDW. All such monitoring equipment will integrate automatic alarms that, in addition to immediately notifying the appropriate personnel, may trigger an automatic shutdown of injection operations if a serious mechanical problem is detected.

4.4.1 Impact Severity and Risk

The likelihood of failure of one or more of the monitoring components is dependent on the routine maintenance and calibration of such equipment. Strategic Biofuels will implement a routine inspection and calibration schedule designed for all equipment, including monitoring equipment, that will be utilized in ongoing facility operations. The risk of such equipment failure would thus be low. The impact severity would also be low since the failure of any one component of the monitoring system will not constitute or lead to an immediate risk to human health or infrastructure. Instead, such a failure would simply and temporarily halt injection operations at the facility until the equipment that has failed has been repaired or replaced.

4.4.2 Response Actions

If a component of the monitoring system fails, the following response actions will be performed:

1. Notify the Commissioner within 24 hours of the emergency event, per LAC 43:XVII §3623 (A)(2)(c) and LCFS Protocol Subsection C.3.3(f)(3).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.

After the initial assessment, Strategic Biofuels will:

1. Initiate shutdown plan and cease injection to the affected well(s).
2. Identify the monitoring equipment that either failed or alerted the system to the occurrence of such a failure.
3. Verify that the failure that occurred is only associated with the failure of a component of the monitoring system. If it is determined that the failure is also attributable to a loss of well integrity, follow procedures in Section 4.3 of this plan as well.

4. Check the calibration and run a diagnostic analysis of the equipment that is indicated to have failed per manufacturers specifications.
5. If possible, repair and recalibrate the equipment that failed. Otherwise, replace the equipment that failed with new equipment of a similar or better design.
6. Validate and demonstrate that the repaired or replaced equipment has been successfully brought back online and has continuous monitoring capabilities.
7. Resume injection operations once the complete monitoring system has been restored to full capability and is fully online.

4.4.3 Response Personnel and Equipment

The personnel responsible for response will be those involved with the well operations, the Plant Manager, and the facility's Environmental Health and Safety Manager. The equipment involved in such remediation would likely range from the use of pressure testing gauges and other remedial equipment to the potential replacement of the failed monitoring equipment, as deemed necessary.

4.5 POTENTIAL INJECTATE LEAKAGE TO A USDW DURING OPERATIONS

Elevated concentrations of an indicator parameter detected in water samples or other evidence of fluid (brine) or CO_2 leakage into the USDW may be detected during routine sampling. The vertical migration of CO_2 injectate could potentially occur in an injection well, an In-Zone (IZ) or Above-Confining-Zone Monitoring Interval (ACZMI) monitor well, through natural geological defects in the confining zone, or in a pre-existing artificial penetration (*i.e.,* a legacy well) which may act as a vertical conduit to the USDW within the AoR.

The detection of vertical injectate leakage above the Austin Chalk / Eagleford Equivalent Primary Upper Confining Zone in the Annona Sand that will be monitored in the four proposed Above-Confining-Zone Monitor Wells (Bradford-Brown #1 Shipp (SN57466); Magnolia Odie N. Reynolds No. S-1 (SN57466); the new ACZ drill well drilled adjacent to Injection Well W-N2; and the Whitetail #1 Louisiana Green Fuels (SN975841) will be facilitated by the real-time monitoring of reservoir pressure as well as quarterly sampling of the native brine geochemical composition in the Annona Sand that will be directly monitored with downhole instruments installed in the those monitor wells.

Any substantive changes in pressure or native brine composition would trigger additional Annona Sand native brine sampling as well as adaptive water sampling (see *"E.1 - Testing and Monitoring Plan*" submitted in Module E for detection specifics). Adaptive sampling (frequency and spatial distribution) of the Annona Sand native brine in the Annona Sand ACZMI wells and of the groundwater produced from public water supply wells completed in the MRVA and/or Cockfield Aquifers (*i.e.,* the sources of local drinking water) will also be performed following any substantive changes in pressure or brine composition in the Annona Sand ACZMI wells.

4.5.1 Impact Severity and Risk

Significant mechanical barriers to CO_2 leakage and robust monitoring controls will be put in place to reduce the potential risk of vertical CO_2 leakage to the USDW. In the injection wells, all casing strings will be cemented to surface with the surface casing set into the shales of the upper Cane River Formation, well below the base of the USDW. The cement used across the Upper Tuscaloosa / Paluxy Primary Injection Zone will be comprised of a CO_2 resistant cement. No known faults or fractures that could act as conduits have been identified with either the existing well data or the extensive 2D seismic data that has been acquired by Strategic Biofuels across the AoR. Additionally, for the most part, the offset legacy wells (pre-existing artificial penetrations) that penetrated the entirety of the Midway Shale, the Secondary Upper Confining Zone, are located more than three miles from the Port of Columbia Facility. The only exceptions are the Bradford-Brown Trust Shipp No. 1 (SN137738) well, which will be plugged back and converted into an Above-Confining-Zone monitoring well; the Bass J. Keahey No. 1 (SN165305) well, located approximately 13,875 feet to the northeast, which will be re-entered and recompleted as an In-Zone monitoring well; the Whitetail Louisiana Green Fuels No. 1 (SN975841) stratigraphic test well, which will be converted to an In-Zone monitoring well; and the Magnolia Odie N. Reynolds No. S-1 (SN57466) well, which will be converted to an Annona Sand ACZMI monitoring well. The other legacy wells (APs) that penetrated the Primary and/or Secondary Upper Confining Zones are located further away and are thus even less likely to constitute risks of CO_2 leakage.

Should an unlikely leakage event occur in one of the legacy wells, depending on the amount of CO_2 or brine leakage and the time that might have elapsed between the onset and subsequent discovery of such a leak, the severity of such leakage event could range from minor to serious.

4.5.2 Response Actions

If the vertical leakage of brine or CO_2 has been detected, the following initial steps will be performed:

1. Notify the Commissioner within 24 hours of the emergency event, per LAC 43:XVII §3623 (A)(2)(c).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.

After the initial assessment, Strategic Biofuels will:

1. Initiate a shutdown plan and cease injection operations.
2. Identify the point of potential leakage. Potential sources to be checked are:
    a. Injection wells
    b. Monitor wells
    c. Legacy wells located within the Area of Review
3. Initiate adaptive sampling in the Above Confining Zone Monitoring wells (the ACZMI wells).
4. Initiate adaptive sampling of groundwater from the USDW.
5. If the presence of indicator parameters in the groundwater is confirmed, Strategic Biofuels will develop (in consultation with the Commissioner) a case-specific work plan to:
    - Install additional groundwater monitoring points near the affected groundwater well(s) to delineate the extent of impact; and
    - Remediate unacceptable impacts to the affected USDW.
6. Within 24 hours of a release into the USDW, Strategic Biofuels will notify the local healthy authority, place a notice in a newspaper of general circulation, and notify adjacent landowners.

7. Arrange for an alternate potable water supply if the contaminated USDW was being utilized and evidence indicates that injectate constituents introduced to the aquifer exceed drinking water standards.

8. Proceed with efforts to remediate the contaminated USDW 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).

9. Continue groundwater remediation and monitoring on an adaptive basis (frequency to be determined by Strategic Biofuels and the Commissioner) until the adverse impact on the USDW has been fully addressed.

4.5.3 Response Personnel and Equipment

The responsible parties will be the site personnel involved with the well operations, the Plant Manager, and the facility's Environmental Health and Safety Manager. Additionally, the project manager, technical consultants, remediation experts, and local health authority will be engaged.

The type of equipment involved in remediation would be dependent on the type and severity of the leak. Such equipment would likely range from the use of workover rigs, additional cement, and other remedial equipment to the potential installation of downhole remediation equipment (pumps, filters, *etc*.), as deemed necessary.

4.6 NATURAL DISASTER

Well problems (integrity loss, leakage, or malfunction) may arise because of a natural disaster affecting the normal operation of the injection well. A moderate to severe earthquake could disturb surface and/or subsurface facilities; and weather-related disasters (*e.g.,* tornado, hurricane, forest fire, or lightning strike) could temporarily affect operations of the surface and monitoring facilities. Note that the Louisiana Green Fuels Port of Columbia Facility is located in one of the lowest seismicity risk areas for the United States and there no known major faults or fractures within the AoR that could be reactivated due to injection activities. Additionally, routine sequestration operations will be performed at relatively low injection rates and pressures that would be well below the formation fracture gradients known to exist in the general area. Therefore, neither a natural nor an induced seismic event is even remotely likely. Detailed information on the

seismicity of Louisiana and the lack of seismicity within the Area of Review the surrounding Caldwell Parish area is contained within the "*Project Narrative Report"* – Section 2.5 - Seismicity" contained within Module A – Project Information tracking".

A potential natural disaster related to severe weather (lighting, tornadoes, flooding, freezing, forest fire, *etc.)* could temporarily impact the AoR and impede the normal operation of the facility as well as access to the injection and monitor wells.

Caldwell Parish is in the northernmost point of the Mississippi River flood control system. Flood control is provided by the Ouachita River levee system. Low-level flooding occasionally occurs within the AoR as a result of heavy rainfall. However, the plant site and the injection wellsite locations were selected because of their higher surface elevations (Figure 2), which further lessens the impact of flooding on facility operations.

4.6.1 Impact Severity and Risk

The impact severity could range from a minor to a major event. The event severity would be dependent upon the type and cause of natural disaster. A severe natural disaster could temporarily limit safe access to the injection and monitor wells. However, historical weather and climate patterns of the region indicate a low level of risk for a serious event caused by a natural disaster. Regardless, the threat of any and all potentially severe event occurrences is being considered.

4.6.2 Response Actions

Regardless of the level of severity, the following initial responses will be taken:

1. Notify the Commissioner within 24 hours of the emergency event, per LAC 43:XVII §3623 (A)(2)(c) and LCFS Protocol Subsection C.6 (b)(3).
2. Determine the severity of the event (minor, serious, or major), based on the information available, within 24 hours of notification.
3. Evaluate and determine if attempted access to the injection or monitor wells immediately following the occurrence of such an event would constitute a risk to personnel safety.

Once a severity level has been determined, additional response actions will be taken. See the following subsections.

4.6.2.1 Major or Serious Emergency

1. Initiate the shutdown plan and cease injection.
2. Check for additional hazardous conditions that may have resulted from the natural disaster.
3. Determine the accessibility to the injection and monitor wells.
4. Perform safety checks for all personnel regarding hazards.
    a. If the site poses an immediate threat to human life or safety, evacuate the site to pre-determined muster points. Contact emergency personnel if warranted (911). Wait until the immediate threat has passed to evaluate damage and develop remedial procedures with UIC Director and local response personnel.
    b. If the site can be safely accessed, secure the injection and monitor wells and the surrounding area. Evaluate the damage to the wells, the surface facilities, and to the environment and develop a procedure to remediate with the UIC Director.
    c. If contamination or the potential for endangerment is detected, identify and implement appropriate remedial actions (in consultation with the Commissioner), if the site conditions are safe for personnel.
5. Notify local health authority and first responders if the event and conditions pose a threat to the safety of the community.

Once a solution, remedy, or course of action has been determined, the Strategic Biofuels will

1. Notify the Commissioner regarding when injection can be expected to resume.
2. Will restore operational capability to and demonstrate the mechanical integrity of all injection and monitor wells to the satisfaction of the Commissioner prior to resuming injection operations.

4.6.2.2 Minor Emergency

1. Conduct assessment to determine whether there has been a loss of mechanical integrity because of the natural disaster.
2. If there has been a loss of mechanical integrity, initiate shutdown plan and follow the steps outlined in Section 4.3.1 of this plan.

Once a solution, remedy, or course of action has been determined, the Strategic Biofuels will

1. Notify the Commissioner regarding when injection can be expected to resume.
2. Will restore operational capability to and demonstrate mechanical integrity of all injection and monitor wells to the satisfaction of the Commissioner prior to resuming injection operations.

4.6.3 Response Personnel and Equipment

The response personnel that would be contacted or deployed immediately following the occurrence of a natural disaster will be dependent on severity of the event. At a minimum (minor event) level, the following personnel will be contacted:

- Injection well operator on duty
- Facility Manager
- All facility personnel
- Project Manager
- Remediation contractors

If the event is serious to major, the response personnel that would be contacted may also include:

- Local/State police
- Fire Department
- Federal Response Personnel
- Disaster-specific response teams.

A listing of all potential response personnel for the public is contained in the following section.

5.0 OVERALL RESPONSE PERSONNEL AND EQUIPMENT

Site personnel, project personnel, and local authorities will be relied upon to implement this ERRP. Site personnel to be notified (not listed in order of notification):

1. Project Engineer(s)
2. Plant Safety Manager(s)
3. Environmental Manager(s)
4. Plant Manager
5. Plant Superintendent

A site-specific emergency contact list will be developed and maintained during the life of the project. Strategic Biofuels will provide the current site-specific emergency contact list in Table 3 to the Commissioner.

Table 3: Contact Information for Key Local, State, and Other Authorities

Agency	Authority or Location	Phone Number
Local Police	Columbia Police Department	911 or (318) 649-2345
Local Fire	Columbia Volunteer Fire Department	911 or (318) 649-6174
Local Hospital	Citizens Medical Center	911 or (318) 649-6106
Local Hospital	Caldwell Memorial Hospital	911 or (318) 649-6111
Sheriff	Caldwell Parish Sheriff's Office	911 or (318) 649-2345
State Police	Louisiana State Police (Troop F)	911 or (318) 345-0000
State Emergency Management Agency	GOHSEP (Governor's Office of Homeland Security and Emergency Management)	(225) 925-7525
Environmental Services Contractor	Vendor to be determined	--
LaDNR Commissioner	Baton Rouge, Louisiana	(225) 342-5569
EPA Region 6 UIC Class VI Director	Dallas, Texas	(214) 665-7150
EPA National Response Center (24 hours)	--	(800) 424-8802
Louisiana State Geological Survey	Baton Rouge, Louisiana	(225) 578-5320

Equipment needed in the event of an emergency and remedial response will vary, depending on the triggering of the emergency event. Response actions (cessation of injection, well shut-in, and

evacuation) will generally not require specialized equipment to implement. When additional specialized equipment (such as a drilling rig or logging equipment) is required, Strategic Biofuels Louisiana Green Fuels Port of Columbia Facility shall be responsible for its procurement.

6.0 EMERGENCY COMMUNICATIONS PLAN

At the earliest possible opportunity, Strategic Biofuels will promptly communicate to the public about any event that requires an emergency response. This will ensure that the public understands what happened and whether there are any environmental or safety implications. The amount of information, timing, and communications method(s) will be appropriate to the event, its severity, whether any impacts to drinking water or other environmental resources occurred, any impacts to the surrounding community, and their awareness of the event.

Strategic Biofuels will describe what happened, any impacts to the environment or other local resources, how the event was investigated, what responses were taken, and the status of the response. For responses that occur over the long-term (*e.g.*, ongoing cleanups), Strategic Biofuels will provide periodic updates on the progress of the response action(s).

Strategic Biofuels will also communicate with entities that may need to be informed about or act in response to the event, including local water systems, pipeline operators, landowners, and Regional Response Teams (as part of the National Response Team). Additional agencies will be contacted if affected.

An emergency contact list will be maintained during the lifetime of the project (Construction, Operation, and Closure). The emergency contact list will be comprised of all facility management and essential personnel that would be notified, activated and/or deployed in the case of an event. One person will be designated by the facility to handle all points of communication with the public.

Prior to the commencement of CO_2 injection operations, Strategic Biofuels will notify the adjacent landowners to the Louisiana Green Fuels Port of Columbia Facility. The notification will provide information regarding the nature of operations, potential risks, and the potential response plans. The notification will also contain the emergency contact list for the Louisiana Green Fuels project.

7.0 PLAN REVIEW PROCESS

This ERRP shall be reviewed:

- At least once every five (5) years following its approval by the permitting agency [per LAC 43:XVII §3623 (A)(4)];
- Within one (1) year of any Area of Review (AOR) re-evaluation [per LAC 43:XVII §3623 (A)(4)(a)];
- Following any significant changes to the injection process or the injection facility, or an emergency event [per LAC 43:XVII §3623 (A)(4)(b)]; or
- As required by the commission [per LAC 43:XVII §3623 (A)(4)(c)].

If the review indicates that no amendments to the ERRP are necessary, Strategic Biofuels 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 a reasonable timeframe to be agreed upon with all affected parties and authorized regulatory bodies following an event that initiates the ERRP review procedure.

8.0 STAFF TRAINING AND EXERCISE PROCEDURES

Strategic Biofuels will develop a training plan (with accompanying manual) for all facility employees. The manual will be developed in alignment with standards set forth by the Occupational Safety and Health Administration (OSHA). Training will be provided to all personnel that will be involved with the injection and monitor wells, the monitoring systems, and the surface facility systems. Training will be periodic and completed an annual basis (at a minimum).

All personnel will be required to wear personal protective equipment (PPE) while they are working at the project site. The minimum PPE that will be required while onsite will apply to all personnel, contractors, and visitors: It will consist of the following:

- Hard hats
- Safety glasses
- Protective footwear (safety-toed boots)

The specific training, required PPE, and exercise plan will be finalized once the project is ready to go online. All personnel will be trained prior to the commencement of operations at the Louisiana Green Fuels Port of Columbia Facility. Personnel will also participate in routine retraining and skill-specific "refresher" courses over the life of the project. Some roles will require annual, or semi-annual, updates to their training program (to be identified once those roles are established).