

Plan revision number: 1.0  
Plan revision date: July 4, 2022

**For assistance with 508 Accessibility,  
please reach out to Janette Hansen  
Email: Hansen.Janette@epa.gov  
Phone: 312-886-0241**

**ATTACHMENT 10: EMERGENCY AND REMEDIAL RESPONSE PLAN  
40 CFR 146.94(a)  
PROJECT HOOSIER #1**

**Facility Information**

Project Name: Hoosier #1

Facility Name: Cardinal Ethanol

Facility Contact: Jeremey Herlyn, Project Manager  
Cardinal Ethanol

Well Location: 1554 N. 600 E.  
Union City, IN 47390  
CO<sub>2</sub> Injection Well Location for Cardinal CCS1  
Latitude 40.186587°  
Longitude -84.864284°

Operator: One Carbon Partnership, LP  
1554 N. 600 E.  
Union City, IN 47390

## Table of Contents

1	Introduction .....	5
2	Local Resources and Infrastructure .....	6
3	Potential Risk Scenarios .....	8
4	Emergency Identification and Response Actions .....	9
4.1	Well Integrity Failure (CCS1 or OBS1).....	9
4.2	Well Monitoring Equipment Failure (CCS1 or OBS1).....	11
4.3	Natural Disaster .....	12
4.4	Non CO <sub>2</sub> Fluid Leakage into USDW .....	14
4.5	CO <sub>2</sub> Leakage into USDW .....	15
4.6	Induced Seismic Event .....	15
5	Response Personnel and Equipment.....	19
6	Emergency Communications Plan.....	20
7	Plan Review .....	21
8	Staff Training and Exercise Procedures .....	22
9	References .....	23

## List of Figures

Figure 1. Map of the site resources and infrastructure..... 7

## List of Tables

Table 1. Degrees of risk for emergency events..... 8  
Table 2. Seismic monitoring system, for seismic events > M1.0 with an epicenter within an 8 mile radius of the injection well..... 17  
Table 3. Contact information for key local, state, and other authorities..... 19

## **List of Acronyms**

AoR	Area of Review
CCS1	Proposed Injection Well
CO <sub>2</sub>	Carbon Dioxide
ERRP	Emergency and Remedial Response Plan
OBS1	Deep Observation Well
OCP	One Carbon Partnership, LP
SOP	Standard Operating Procedure
USDW	Underground Source of Drinking Water

## 1 Introduction

This section of the permit application addresses the Emergency Remedial and Response Plan (ERRP) that One Carbon Partnership, LP (hereafter referred to as OCP) will implement for the Hoosier #1 Project. This ERRP describes the actions that OCP shall take to address and remediate mechanical integrity issues, seismic events, and other events that could allow for the movement of the injected fluid or formation brine in a manner that may endanger an underground source of drinking water (USDW) during the construction, operation, or post-injection site care periods.

The following events are identified as potential risk scenarios. These scenarios are discussed further in Section 2. These scenarios were identified and discussed as part of the Risk Assessment performed for the project.

1. Proposed Injection Well (CCS1)/Deep Observation Well (OBS1) well integrity failure,
2. CCS1/OBS1 monitoring equipment failure,
3. Natural Disaster,
4. Fluid (non-CO<sub>2</sub>) leakage into a USDW or surface,
5. CO<sub>2</sub> leakage into USDW or surface,
6. Induced seismic event.

In accordance with 40 CFR 146.94 (b), should OCP obtain evidence that the injected CO<sub>2</sub> stream and/or associated pressure front may cause an endangerment to a USDW, OCP must perform the following actions:

1. Initiate shutdown plan for the injection well.
2. Take all steps reasonably necessary to identify and characterize any release.
3. Notify the permitting agency (UIC Program Director) 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: OCP will immediately cease injection. However, in some circumstances, OCP will, in consultation with the UIC Program Director, determine whether gradual cessation of injection is appropriate.

## 2 Local Resources and Infrastructure

Resources in the Area of Review (AoR) of the project that may be affected as a result of an emergency event at the project site include the shallow and lowermost USDWs as discussed in (Attachment 1: Project Narrative, 2022).

These include:

- Unconsolidated glacial till
  - New Castle Till Aquifer
  - Bluffton Till Aquifer
- Maquoketa Shale

In addition to these local aquifers, several surface bodies of water are also located within the AoR. These include:

- Shelley Ditch,
- Shelly Ditch,
- Price Ditch,
- Little Ditch,
- White River,
- Owl Creek,
- Little Mississinewa River,
- Several small unnamed reservoirs.

Population centers and towns in the vicinity of the project that that may be affected as a result of an emergency at the project site include:

- Harrisville
- Portions of Union City
- Wayne Township

The Union City Water Treatment facilities lie outside of the AoR (approximately 0.75 and 0.80 miles to the East). Major public infrastructure (parks, cemeteries, etc.) within the AoR includes:

- Harter Park
- Union City Swimming Pool
- Union City Cemetery
- Conklin Cemetery

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



**Figure 1. Map of the site resources and infrastructure.**

### 3 Potential Risk Scenarios

The following events related to the project, as listed in Section 1, could potentially result in an emergency response:

- CCS1/OBS1 well integrity failure,
- Natural Disaster,
- Fluid (non-CO<sub>2</sub>) leakage into a USDW
- CO<sub>2</sub> leakage into USDW,
- Induced 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.

Additional events have also been considered, but were accounted for in other sections, are not anticipated to occur, or will be accounted for without a formal plan.

- Unanticipated emergency corrective action(s) needed on a well within the AoR
  - The ramifications of this have been addressed in the Financial Assurance section (Attachment 3: Financial Responsibility, 2022).
  - Corrective action will be performed on an as needed basis. These actions will likely vary by situation. Response actions, prior to corrective action, will likely be the same as those applied to a CO<sub>2</sub> or non-CO<sub>2</sub> leak into an aquifer.
- CO<sub>2</sub> exposure in capture or sequestration facility
  - Air quality monitors will be installed in enclosed spaces. Fans meant to remove the CO<sub>2</sub> from these spaces will be activated if the CO<sub>2</sub> rises above permissible exposure limits.
- Metal leaching due to prolonged wetted CO<sub>2</sub> exposure
  - Materials of construction confirmed to be suitable for long term corrosive loading will be utilized for this project

**Table 1. Degrees of risk for emergency events.**

<b>Emergency Condition</b>	<b>Definition</b>
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.
Serious emergency	Event poses potential serious (or significant) near term risk to human health, resources, or infrastructure if conditions worsen or no response actions taken.
Minor emergency	Event poses no immediate risk to human health, resources, or infrastructure.

In addition to these scenarios, CCS1/OBS1 monitoring equipment failure has also been identified as a risk that is planned for, but may not require anything more than a remedial response.



#### 4 Emergency Identification and Response Actions

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 identified in Part 2 are detailed below.

Once equipment placement and location is finalized, a figure will be provided that displays the following:

- Major facility components,
- Project wells,
- Monitoring equipment,
- Emergency shut-down equipment, and
- Flowlines.

It is important to note that in major or serious events, certain actions may be taken to minimize the impact of such events before they are listed in the following action plans. Additionally, as part of the minimization of these events, emergency services may be contacted prior to any other actions taking place.

Within this section, several mentions are made to evacuation plans. A formal evacuation plan will be provided as part of the final ERRP. Different evacuation plans will be provided for each of the following groups:

- Non-key site personnel
- Key site personnel
- Offsite personnel

In addition, primary and secondary muster points will be provided for each of these groups. This plan will be integrated with the current Cardinal facility evacuation plan. These plans will be provided as part of operator training and dispersed throughout the facility.

In the event an emergency requires evacuating a separate part of the Cardinal facility, the well will be shut-in and secured as quickly and as safely possible.

##### 4.1 Well Integrity Failure (CCS1 or OBS1)

Integrity loss of the injection well and/or verification well may endanger USDWs. Integrity loss may have occurred if the following events occur (note, this is not an exhaustive list):

- Automatic shutdown devices are activated:
  - *Wellhead pressure* exceeds the maximum allowed injection pressure.
    - Note: high-high pressure limit will be set to 5% less than the maximum allowed injection pressure in the permit.
  - *Bottomhole flowing pressure* exceeds the maximum allowable bottom hole flowing pressure as calculated from the wellhead pressure.
    - Note: high-high pressure limit will be 5% less than the maximum allowed bottomhole pressure detailed in the permit.
  - *Annulus pressure* indicates a loss of external or internal well containment
    - The emergency shutdown points (as discussed in the Testing and Monitoring Section and Well Operations Section of this application) of -5 or 1,500 psi are exceeded.

- Note: pursuant to 40 CFR 146.94(b)(3), OCP must notify the UIC Program Director within 24 hours of any triggering of an emergency shutdown system.
- Mechanical integrity test results identify a loss of mechanical integrity.
  - Note: pursuant to 40 CFR 146.94(b)(3), OCP must notify the UIC Program Director within 24 hours of a loss of mechanical integrity that could lead to endangerment of the USDW.

Response actions:

1. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.94(b)(3).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.
  - a. For a Major or Serious emergency:
    - i. Initiate shutdown plan.
      1. Shut-in the well
        - a. All necessary valves closed and locked out
      2. Vent CO<sub>2</sub> from surface lines and facility as necessary
      3. Limit access to wellhead and surface facilities to only those authorized
        - a. Caution tape and/or rope may be used to limit access to the well and facility
      4. Initiate evacuation plans (if necessary)
        - a. Communicate at all times with Cardinal personnel and local authorities if evacuation is necessary
      5. Monitor wellhead pressure (tubing and annulus) and temperature as is feasible.
        - a. This information should be used to assess the nature and extent of the mechanical integrity failure
      6. Identify appropriate remedial actions to repair damage to the well
    - ii. If contamination is detected, identify and implement appropriate remedial actions.
      1. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
    - iii. Perform mechanical integrity test prior to bringing the well back online.
  - b. For a Minor emergency:
    - i. Assess the well to determine whether there has been a loss of mechanical integrity.
    - ii. If a loss of mechanical integrity is present, initiate the shutdown plan.
      1. Shut-in the well
        - a. All necessary valves closed and locked out
      2. Vent CO<sub>2</sub> from surface lines and facility as necessary
      3. Limit access to wellhead and surface facilities to only those authorized

- a. Caution tape and/or rope may be used to limit access to the well and facility
  4. Reset automatic shutdown devices
  5. Monitor wellhead pressure (tubing and annulus) and temperature as is feasible.
    - a. This information should be used to assess the nature and extent of the mechanical integrity failure
  6. Identify appropriate remedial actions to repair damage to the well.
- iii. If contamination is detected, identify and implement appropriate remedial actions.
  1. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
- iv. Perform mechanical integrity test prior to bringing the well back online.

#### **4.2 Well Monitoring Equipment Failure (CCS1 or OBS1)**

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.

This subsection covers the remedial response and procedures to be followed should one (or more) of the following monitoring sensors fail:

- Injection Well (CCS1)
  - Wellhead injection pressure
  - Wellhead injection temperature
  - Annulus pressure
  - Annulus fluid volume
  - Injection flowrate
- Deep Observation Well (OBS1)
  - Annulus pressure
  - Annulus fluid volume

Response actions:

1. Determine the impact of the event, based on the information available, within 24 hours of the event occurring. At this time, the impact of the loss of monitoring equipment should be assessed, and a viable alternative method should be determined and implemented.
  - a. Assess the well to determine whether there has been a loss of mechanical integrity 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.
    - i. If the impact is negligible, implement the viable alternative method of monitoring determined during the initial assessment.
    - ii. Plans to replace the equipment should consider replacing the equipment as soon as is feasible based on operational conditions and suitability of the alternative method of monitoring.

- iii. Provide details of the equipment failure, the alternative method of monitoring, and impact to continuous data collection to the UIC Program Director as part of the routine operational reporting.
- c. If a loss of mechanical integrity is present, initiate the shutdown plan.
  - i. Notify the UIC Program Director within 24 hours of the event, per 40 CFR 146.94(b)(3)
  - ii. Shut-in the well
    1. All necessary valves closed and locked out
  - iii. Vent CO<sub>2</sub> from surface lines and facility as necessary
  - iv. Limit access to wellhead and surface facilities to only those authorized
    1. Caution tape and/or rope may be used to limit access to the well and facility
  - v. Reset automatic shutdown devices
  - vi. Monitor wellhead pressure (tubing and annulus) and temperature as is feasible.
    1. This information should be used to assess the nature and extent of the mechanical integrity failure
    2. Note that alternative methods of monitoring may need to be implemented at this time.
  - vii. Identify appropriate remedial actions to repair damage to the well.
  - viii. If contamination is detected, identify and implement appropriate remedial actions.
    1. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
  - ix. Perform mechanical integrity test prior to bringing the well back online.

### 4.3 Natural Disaster

Disturbance or damage as a result of a natural disaster may impact the normal operation of the project. A non-exhaustive list of examples of such potential events and the impact to the project they may cause are:

- An earthquake damages compression equipment and causes an integrity issue with the CO<sub>2</sub> flowline,
- Lightning strikes the wellhead and damages all surface monitoring equipment,
- Severe flooding (i.e., 100-year flood) limits access to the well or injection facility.

These events may impact or damage the ability to properly operate the well or utilize the facility for the intended purposes of the project.

If a natural disaster occurs that affects normal operation of the injection well, perform the following:

Response actions:

1. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.94(b)(3).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.
  - a. For a Major or Serious emergency:
    - i. Initiate shutdown plan.
      1. Shut-in the well
        - a. All necessary valves closed and locked out
      2. Vent CO<sub>2</sub> from surface lines and facility as necessary
      3. Limit access to wellhead and surface facilities to only those authorized
        - a. Caution tape and/or rope may be used to limit access to the well and facility
      4. Initiate evacuation plans (if necessary)
        - a. Communicate at all times with Cardinal personnel and local authorities if evacuation is necessary
      5. Monitor wellhead pressure (tubing and annulus) and temperature as is feasible.
        - a. This information should be used to assess the nature and extent of the mechanical integrity failure
      6. Identify appropriate remedial actions to repair damage to the well
    - ii. Determine if any leaks of fluid have occurred due to the natural disaster
      1. If contamination is detected, identify and implement appropriate remedial actions.
      2. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
    - iii. Perform mechanical integrity test prior to bringing the well back online.
  - b. For a Minor emergency:
    - i. Assess the well to determine whether there has been a loss of mechanical integrity.
    - ii. If a loss of mechanical integrity is present, initiate the shutdown plan.
      1. Shut-in the well
        - a. All necessary valves closed and locked out
      2. Vent CO<sub>2</sub> from surface lines and facility as necessary
      3. Limit access to wellhead and surface facilities to only those authorized
        - a. Caution tape and/or rope may be used to limit access to the well and facility
      4. Reset automatic shutdown devices
      5. Monitor wellhead pressure (tubing and annulus) and temperature as is feasible.
        - a. This information should be used to assess the nature and extent of the mechanical integrity failure

6. Identify appropriate remedial actions to repair damage to the well.
- iii. Determine if any leaks of fluid have occurred due to the natural disaster
  1. If contamination is detected, identify and implement appropriate remedial actions.
  2. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
- iv. Perform mechanical integrity test prior to bringing the well back online.

#### **4.4 Non CO<sub>2</sub> (Brine) Fluid Leakage into USDW or Surface**

Elevated concentrations of indicator parameter(s) in groundwater sample(s) or other evidence of fluid (brine) leakage into a USDW.

Response actions:

1. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.94(b)(3).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.
3. For all emergencies (Major, Serious, or Minor):
  - a. Shut-in the well
    - i. All necessary valves closed and locked out
  - b. Vent CO<sub>2</sub> from surface lines and facility as necessary
  - c. Collect confirmation sample(s) of groundwater and perform groundwater constituent analysis to determine elevated parameters
    - i. The parameters to be tested are provided in the testing and monitoring plan (Attachment 7: Testing And Monitoring, 2022).
    - ii. If the presence of indicator parameters are confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to:
      1. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
  - d. The following plan of action may be initiated should drinking water be negatively impacted:
    - i. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
  - e. Continue groundwater remediation and monitoring on a frequent basis (frequency to be determined by OCP and the UIC Program Director) until unacceptable adverse USDW impact has been fully addressed.

#### **4.5 CO<sub>2</sub> Leakage into USDW or Surface**

Elevated concentrations of indicator parameter(s) in groundwater sample(s) or other evidence of CO<sub>2</sub> leakage into a USDW.

Response actions:

1. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.94(b)(3).
2. Determine the severity of the event, based on the information available, within 24 hours of notification.
3. For all emergencies (Major, Serious, or Minor):
  - a. Shut-in the well
    - i. All ball valves closed and locked out
  - b. Vent CO<sub>2</sub> from surface lines and facility as necessary
  - c. Collect confirmation sample(s) of groundwater and perform routine analysis to determine elevated parameters
    - i. The parameters to be tested are provided in the testing and monitoring plan.
    - ii. If the presence of indicator parameters are confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to:
      1. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
  - d. The following plan of action may be initiated should drinking water be negatively impacted:
    - i. Potential actions are listed in the ERR portion Financial Assurance section of this application, and are dependent on the magnitude of any potential contamination (Attachment 3: Financial Responsibility, 2022).
  - e. Continue groundwater remediation and monitoring on a frequent basis (frequency to be determined by OCP and the UIC Program Director) until unacceptable adverse USDW impact has been fully addressed.

#### **4.6 Induced Seismic Event**

Induced seismic events typically refer to minor seismic events that are caused by human activity. These events are typically caused when activity alters the stresses or fluid pressures in subsurface formations. This alteration of fluid pressures and stresses could potentially be caused by the injection of fluids. This change in stress can cause fault movement and energy release. This energy release results in seismic events.

It is not expected that natural seismicity will affect the project. The Illinois Basin – Decatur Project (IBDP) injected CO<sub>2</sub> into the basal section of the Mt. Simon Sandstone, and generated microseismic events throughout the injection phase of the project despite injecting CO<sub>2</sub> below fracture pressure (Bauer, 2016). This project plans to inject above the basal section of the Mt.

Simon Sandstone and will monitor related microseismic activity to assist in managing project risks (Attachment 12: Confidential Business Information: Risk Register, 2022). The microseismic monitoring will be used to accurately determine the locations and magnitudes of injection-induced seismic events with the primary goals of:

- Addressing public and stakeholder concerns related to induced seismicity
- Monitoring the spatial extent of the pressure front from the distribution of seismic events
- Identifying activity that may indicate failure of the confining zone and possible containment loss

A surface-based microseismic monitoring array will be designed with microseismic monitoring stations at a range of azimuths to optimize the accuracy of the event locations and magnitudes. This network can easily be expanded in response to monitoring results or future AoR re-evaluations, if necessary.

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 with 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. The table corresponds 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 an 8 mile radius of the injection well.**

Operating State	Threshold Condition <sup>1,2</sup>	Response Action <sup>3</sup>
Green	Seismic events less than or equal to M1.5	1. Continue normal operation within permitted levels.
Yellow	Five (5) 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. Within 24 hours of the event, notify the UIC Program Director of the operating status of the well.
Orange	Seismic event greater than M1.5 and local observation or 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.
	Seismic event greater than M2.0 and no felt report	3. Review seismic and operational data. 4. Report findings to the UIC Program Director and issue corrective actions, if necessary.
Magenta	Seismic event greater than M2.0 and local observation or report	1. Initiate rate reduction plan. 2. Within 24 hours of the incident, notify the UIC Program Director, of the operating status of the well. 3. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary. 4. 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). 5. Determine if leaks to ground water or surface water occurred (CO <sub>2</sub> or brine). 6. If USDW contamination is detected: a. Notify the UIC Program Director within 24 hours of the determination. b. Follow plan of action as detailed in Sections 4.4 and 4.5. 7. Review seismic and operational data. 8. Report findings to the UIC Program Director and issue corrective actions, if necessary.

<sup>1</sup> Specified magnitudes refer to magnitudes determined by local seismic monitoring stations or reported by the USGS National Earthquake Information Center using the national seismic network.

<sup>2</sup> “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.

<sup>3</sup> 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 <sup>1,2</sup>	Response Action <sup>3</sup>
<b>Red</b>	Seismic event greater than M2.0, and local observation or report, and local report and confirmation of damage <sup>4</sup>	<ol style="list-style-type: none"> <li>1. Initiate shutdown plan.</li> <li>2. Within 24 hours of the incident, notify the UIC Program Director of the operating status of the well.</li> <li>3. Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary.</li> <li>4. 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).</li> <li>5. Determine if leaks to groundwater or surface water occurred.</li> <li>6. If USDW contamination is detected:                             <ol style="list-style-type: none"> <li>a. Notify the UIC Program Director within 24 hours of the determination.</li> <li>b. Follow plan of action as detailed in Section 4.4 and 4.5.</li> </ol> </li> <li>7. Review seismic and operational data.</li> <li>8. Report findings to the UIC Program Director and issue corrective actions, if necessary.</li> </ol>
	Seismic event >M3.5	

#### 4.7 Unforeseen Events

Should unforeseen events occur (i.e., meteor strike, global pandemic, etc.) that could impact the operations and integrity of the program, response steps will be provided to the UIC Program Director and implemented once approved.

---

<sup>1</sup> Specified magnitudes refer to magnitudes determined by local seismic monitoring stations or reported by the USGS National Earthquake Information Center using the national seismic network.

<sup>2</sup> “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.

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

<sup>4</sup> 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.

## 5 Response Personnel, Authorities, and Equipment

Site personnel, project personnel, and local authorities will be relied upon to implement this ERRP. The injection well and non-shallow aquifer monitoring wells are located on Cardinal property. Offsite monitoring of shallow groundwater will occur at various points throughout the cities listed in Section 2. As such, local responders for these places will be utilized for emergency contacts and will be notified of an incident as necessary. In addition, state agencies may need to be notified as well.

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

All staff will be trained in the methods prescribed in Section 8 of this document.

A site-specific emergency contact list will be developed, maintained and periodically updated during the life of the project. The list will include phone numbers and email addresses for facility emergency 24-hour contacts. OCP will provide the current site-specific emergency contact list to the UIC Program Director prior to commencement of injection operations.

**Table 3. Contact information for key local, state, and other authorities.**

Agency	Phone Number
Union City Police Department	765-964-5353
Union City Fire & EMS	765-964-4488 (Indiana) 937-968-5605 (Ohio)
Randolph County Sheriff	765-584-1721
Indiana State Police	765-778-2121
Indiana Emergency Management and Preparedness Division	765-584-1721 (Local)
Environmental services contractor	516-333-4526 (RTP – Environmental Consultant) 260-489-7062 (ERS – Emergency Spill Response)
UIC Program Director (Region 5)	312-353-7648
EPA National Response Center (24 hours)	800-424-8802
Indiana DNR	317-232-4200

Equipment needed in the event of an emergency and remedial response will vary, depending upon 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 workover rig or logging equipment) is required, OPC shall be responsible for its procurement.

## 6 Emergency Communications Plan

The order of contact when an emergency occurs is the following:

1. Plant Manager,
2. Necessary emergency authorities,
3. Impact landowners (if any),
4. OCP Management Teams,
5. OCP Public Response Personnel (as listed in Section 5 of this document).

Within 24 hours, following contact with the public response personnel, incidents will be reported to the Region 5 office staff assigned to the project.

Based on the appropriate level of emergency response and the magnitude of the event, a crisis event center will be established. For minor emergencies, this will be held on Cardinal property. For major or serious emergencies, a crisis event center will be established at a safe location. This will serve as the headquarters for communication on the emergency. OPC will establish a liaison to communicate with the public and impacted landowners.

This liaison will then communicate to the public and impacted landowners about any event that requires an emergency response to 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.

OPC 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), OPC will provide periodic updates on the progress of the response action(s).

OPC will also communicate with entities who may need to be informed about or take action in response to the event, including local water systems, CO<sub>2</sub> source(s) and pipeline operators, landowners, and Regional Response Teams (as part of the National Response Team). A detailed list of these people will be developed and updated periodically.

## 7 Plan Review

In accordance with 40 CFR 146.94(d), this ERRP shall be reviewed:

- At least once every five (5) years following its approval by the permitting agency,
- Within one (1) year of an area of review (AOR) reevaluation,
- Within a time to be determined as part of the permit following any 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, OCP will provide the permitting agency with 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.

## **8 Staff Training and Exercise Procedures**

OCP will develop a Standard Operating Procedure (SOP) in tandem with the contractors that provide the surface capture and compression equipment, the surface monitoring system, and among other contractors that detail the operational procedures to be followed in the event of an emergency.

Included in this SOP will be specific details that can be used to train the project operators regarding the ERRP. Based on these SOPs, annual training and testing will be provided to all those involved with the project as well as those identified in Section 5 of this document.

All personnel identified and assigned as responding personnel in the document will complete initial training prior to the commencement of operations. Documentation of this initial training as well as annual certifications will be documented and retained.

## 9 References

- (2022). *Attachment 1: Narrative*. Class VI Permit Application Narrative; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 10: ERRP*. Emergency And Remedial Response Plan; Hoosier#1 Project, Vault 4401.
- (2022). *Attachment 11: QASP*. Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 12: Confidential Business Information: Risk Register*. Risk Register; Project Hoosier#1, Vault 4401.
- (2022). *Attachment 2: AoR and Corrective Action*. Area Of Review And Corrective Action Plan; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 3: Financial Responsibility*. Financial Responsibility; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 4: Well Construction*. Injection Well Construction Plan; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 5: Pre-Op Testing Program*. Pre-Operational Formation Testing Program; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 6: Well Operations*. Well Operation Plan; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 7: Testing And Monitoring*. Testing And Monitoring Plan; Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 8: Well Plugging*. Hoosier #1 Project, Vault 4401.
- (2022). *Attachment 9: Post-Injection Site Care*. Post-Injection Site Care And Site Closure Plan; Hoosier #1 Project, Vault 4401.