

Petroleum Remediation Program Guide



Office of Land Quality

Petroleum Branch

Disclaimer

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PART I INTRODUCTION

I.1.0 What is in the Petroleum Remediation Program Guide that is not in the Risk-based Closure Guide

This nonrule policy document (NPD) provides information about the administrative processes involved in the investigation, remedy selection, and closure of petroleum releases in the Petroleum Remediation Section (<https://www.in.gov/idem/tanks/underground-storage-tanks/leaking-underground-storage-tanks/>) of the Office of Land Quality (OLQ) Petroleum Branch. It serves as a supplement to the [Risk-based Closure Guide \(Waste-0046-R2\)](#) (R2) by providing guidance specific to petroleum remediation programs in OLQ. This NPD exists to facilitate consistent application of [Indiana Code \(IC\) 13-23](#), [IC 13-24](#), and [Indiana Administrative Code 329 IAC 9](#) as it relates to petroleum releases.

This NPD outlines processes and regulatory requirements of the Leaking Underground Storage Tank (LUST) and Certain Other Petroleum Releases (Petro) Programs. Prior to 2020, the State Cleanup Section (SCP) oversaw the cleanup of petroleum releases that were subject to [IC 13-24](#), while the LUST Section oversaw the cleanup of petroleum releases subject to [IC 13-23](#). In 2020, the LUST Section was renamed the Petroleum Remediation Section and began providing oversight for releases subject to [IC 13-24](#) in addition to [IC 13-23](#). The SCP continues to have jurisdiction over the cleanup of some petroleum releases at sites where there are also releases of hazardous substances.

The Petro Program is administered by the State, with no federal involvement or funding. Funding for the Petro Program comes from the Hazardous Substances Response Trust Fund ([IC 13-25-4](#)), which primarily receives its revenue from taxes on disposal of hazardous wastes and recovery of IDEM oversight costs for sites in the Petro Program.

This NPD also includes information of general use. It discusses the following:

- Document submittal process
- The structure of the LUST and Petro Programs
- How projects flow through each program
- Some program-specific technical guidance
- Enforcement processes

The general closure process begins when IDEM learns of a release that requires characterization and continues through risk evaluation and, where necessary, remedy selection and implementation. Some of the tasks described below do not necessarily need to occur in the order listed. For example, it may prove necessary or useful to implement an interim remedy prior to complete characterization. Refer to the R2 for additional guidance on these tasks:

- Characterization Tasks (Section 2)

- Task 1 (Section 2.1): Identify the source(s)
- Task 2 (Section 2.2): Identify and quantify release-related chemical(s)
- Task 3 (Section 2.3): Determine the extents of release-related chemical(s)
- Risk Evaluation Tasks (Section 3)
 - Task 4 (Section 3.1): Specify decision unit(s)
 - Task 5 (Section 3.2): Determine representative concentrations
 - Task 6 (Section 3.3): Specify remediation objectives
 - Task 7 (Section 3.4): Determine whether a remedy is necessary
- Remedy Selection and Implementation Tasks (Section 4)
 - Task 8 (Section 4.1): Select a remedy that is likely to be adequate
 - Task 9 (Section 4.2): Implement a remedy and show that it is adequate

I.2.0 Purpose and Scope

The Petroleum Remediation Section (PRS) oversees the LUST and Petro Programs. This NPD is separated into three parts; Part I, an introduction to PRS, Part II, laws and processes under the LUST Program and Part III, laws and processes under the Petro Program.

I.2.1 Program Responsibilities

The laws and regulations for releases from regulated UST facilities (LUST), versus certain other petroleum sources (Petro), are different; however, the process for conducting risk-based closure is generally the same. The LUST and Petro Programs are responsible for the following:

- Receiving UST system release, petroleum release, spill, and overfill reports
- Reviewing and commenting on reports and plans including but not limited to:
 - Spill Recovery and Overfill Response Report\Abatement and Free Product Recovery Report
 - Initial Site Characterization Report
 - Initial Investigation Report
 - Investigation Work Plan
 - Further Site Investigation Report
 - Pilot Study Work Plan
 - Corrective Action Plan and Amendments
 - Quarterly Monitoring Report
 - Independent Closure Completion Form
 - No Further Action request including environmental restrictive covenant, etc.
- Ensuring public participation for affected parties regarding corrective action decisions
- Proposing rule changes based on program needs

The LUST and Petro process generally includes the following (see Figure II.1.2 for the LUST Program process flow chart and Figure III.1 for the Petro Program process flow chart):

1. Release confirmation and reporting
2. Characterization tasks
3. Risk evaluation tasks
4. Remedy selection and implementation tasks (if necessary)
5. Closure
6. Conditions subsequent (if necessary)

I.2.2 Related Programs

Underground Storage Tank (UST) Program—The UST Program is managed under two Sections. The UST Compliance Section is responsible for UST compliance inspections and UST system records management. The UST Operations Section is responsible for UST registration (notification), fee assessment, closure oversight of regulated USTs, and the Excess Liability Trust Fund (ELTF) Program. The LUST Program often works closely with the UST Programs regarding suspected release investigations and response.

Excess Liability Trust Fund (ELTF) Program—The ELTF Program oversees a financial assurance mechanism required under state and federal law for underground storage tank (UST) owners and operators (O/O) utilized to pay for corrective action costs associated with an eligible release from regulated petroleum USTs. Reimbursement from the ELTF is governed by 329 IAC.

Emergency Response (ER) Program—The ER Program may respond to spill and overfill reports from UST systems, dispensers, and petroleum facilities and document and respond to a release when emergency conditions exist (such as fire and explosion exposure hazards, conditions that necessitate evacuations, and releases to surface water). Once emergency conditions are mitigated, ER refers the release to the PRS.

State Cleanup Program (SCP)—The SCP Program oversees the investigation and remediation of hazardous substance releases. The SCP also has jurisdiction over some petroleum releases at sites where there are also releases of hazardous substances. Contamination consisting of substances other than petroleum that is discovered at regulated UST facilities, or during the investigation of petroleum releases are generally referred to the SCP if program management is necessary. Examples of remediation projects managed under the SCP include dry cleaning facilities, manufacturing facilities, metal plating facilities, auto salvage yards, abandoned landfills and other industrial sites.

Voluntary Remediation Program (VRP)—Upon completion of a release report from a regulated UST or other petroleum source, an applicant (generally the O/O) may apply to enter the VRP. The VRP may consider the following criteria to determine eligibility:

- Current or pending enforcement actions related to the release.

- Imminent and substantial threat to public health or the environment due to the release.

Since VRP is a voluntary program, ELTF will not reimburse IDEM’s VRP oversight costs for document review, field oversight, and sampling.

I.2.3 Document Submittal Guidelines

IDEM is currently requesting PRS correspondence, reports, and related documents under 15-megabytes (Mb) be submitted electronically to LeakingUST@idem.in.gov. Electronic submittal directly to the PRS email inbox will streamline the document distribution and help facilitate quicker document review times. Paper copies and CDs are no longer necessary as previously required in OLQ Document Submittal Guidelines.

Please label the email and attached documents as directed below:

- Email Subject Line: REPORT NAME (ie: 1Q 2020 QMR, ISC, FSI, etc.) FID (insert number)_LUST(insert number)_DATE (yyyymmdd)
- Document/File Name: REPORT NAME (ie: 1Q 2020 QMR, ISC, FSI, etc.) FID (insert number)_LUST(insert number)_DATE (yyyymmdd)

Part II THE LUST PROGRAM

This part is applicable if a UST is the source of the petroleum release at issue. If the source is not a UST, please go to Part III.

II.1.0 Rules and Laws

Federal Regulatory Authority

- 40 CFR 280.50-280.52: Technical Standards and Corrective Action Requirements for Owners and Operators of USTs. Release Reporting and Release Confirmation Steps.
- 40 CFR 280.62: Initial Abatement Measures and Site Check

Indiana Statutory Authority

- [IC 13-23](#) Underground Storage Tanks. Statutory authority for UST, LUST, and ELTF Programs.
- [IC 13-23-1-2](#) IDEM authority to develop UST and LUST rules.
- [IC 13-23-8](#) Administration and use of the ELTF including corrective action plans, reimbursement caps and deductibles, as well as authority to develop ELTF rules.
- [IC 13-23-9](#) ELTF eligibility and payment.
- [IC 13-23-13](#) Authorizes IDEM to issue orders for corrective actions and

conduct corrective actions. Authorizes contribution actions between private parties for corrective action costs.

Indiana Administrative Code (IAC)

- [328 IAC 1](#) Payment of Corrective Action and Third Party Liability Claims from the Excess Liability Trust Fund.
- [329 IAC 9](#) Underground Storage Tanks.
- [329 IAC 9-5](#) Requirements for initial response and abatement, free product removal, initial site characterization, further site investigation, corrective action, and public participation.

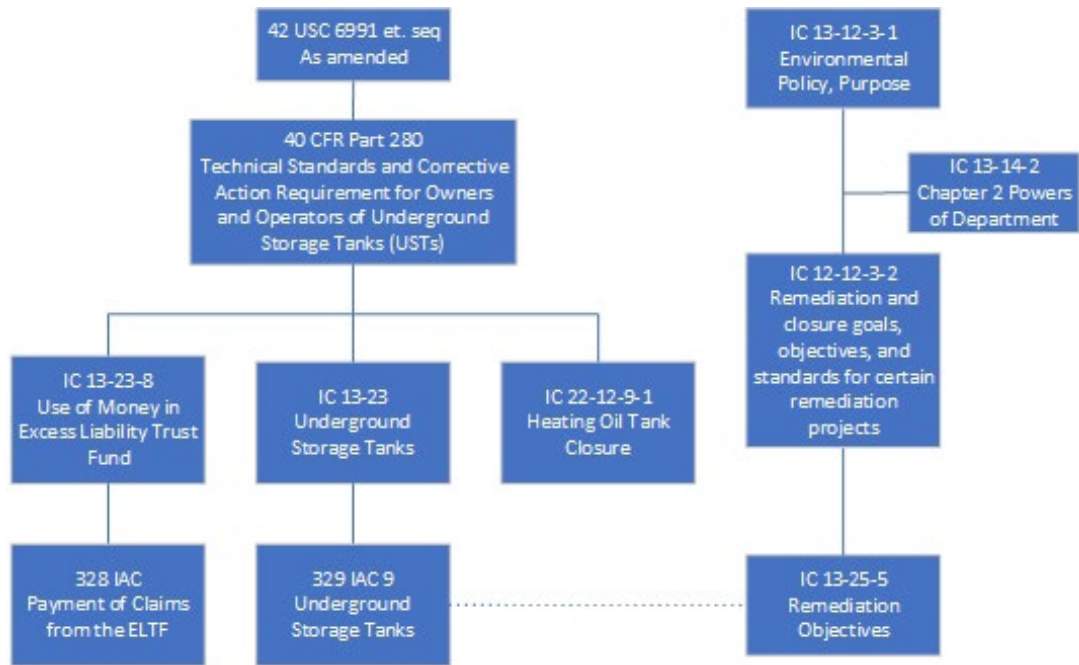
NonRule Policy Documents (NPDs)

- [Community Involvement Plan \(Waste-0070-NPD\)](#) Provides a systematic approach to community involvement.
- [Compliance and Enforcement Response Policy \(MP-005-R1-NPD\)](#) IDEM's policy on identification of and enforcement for violations by regulated entities.
- [Drilling Procedures and Monitoring Well Construction Guidelines \(Waste-0053-NPD\)](#) Provides guidance about installing soil borings and monitoring wells in compliance with 312 IAC 12 and 312 IAC 13.
- [Excess Liability Trust Fund Cost Guidance \(Waste-0078-NPD\)](#) Provides a process for expedited payment for certain claims submitted to the ELTF.
- [IDEM's policy for determining penalties for Violations of the 1998 UST Upgrade Requirements which go into effect December 23, 1998 \(Enf-001\)](#) IDEM's policy for determining penalties for violations of UST statutes and rules.
- [Procedures for Gaining Access to Third Party Properties by Responsible Parties Performing Remediation \(Waste-0065-NPD\)](#) Describes the adequate steps to be taken and documentation to be provided by a responsible party or program participant who is attempting to access third party properties for the investigation or remediation of contamination in soil, groundwater, surface water, sediment and/or indoor air.
- [Risk-based Closure Guide \(Waste-0046-R2\)](#) Sets a framework for characterizing releases, evaluating resulting risk and when necessary, selecting and implementing appropriate remedies that allow for closure.
- [Supplemental Characterization Guidance \(Waste-0072-NPD\)](#) Identifies information on how to better organize a procedure for investigating specific geological environments and specific types of source facility.

Other Relevant Documents

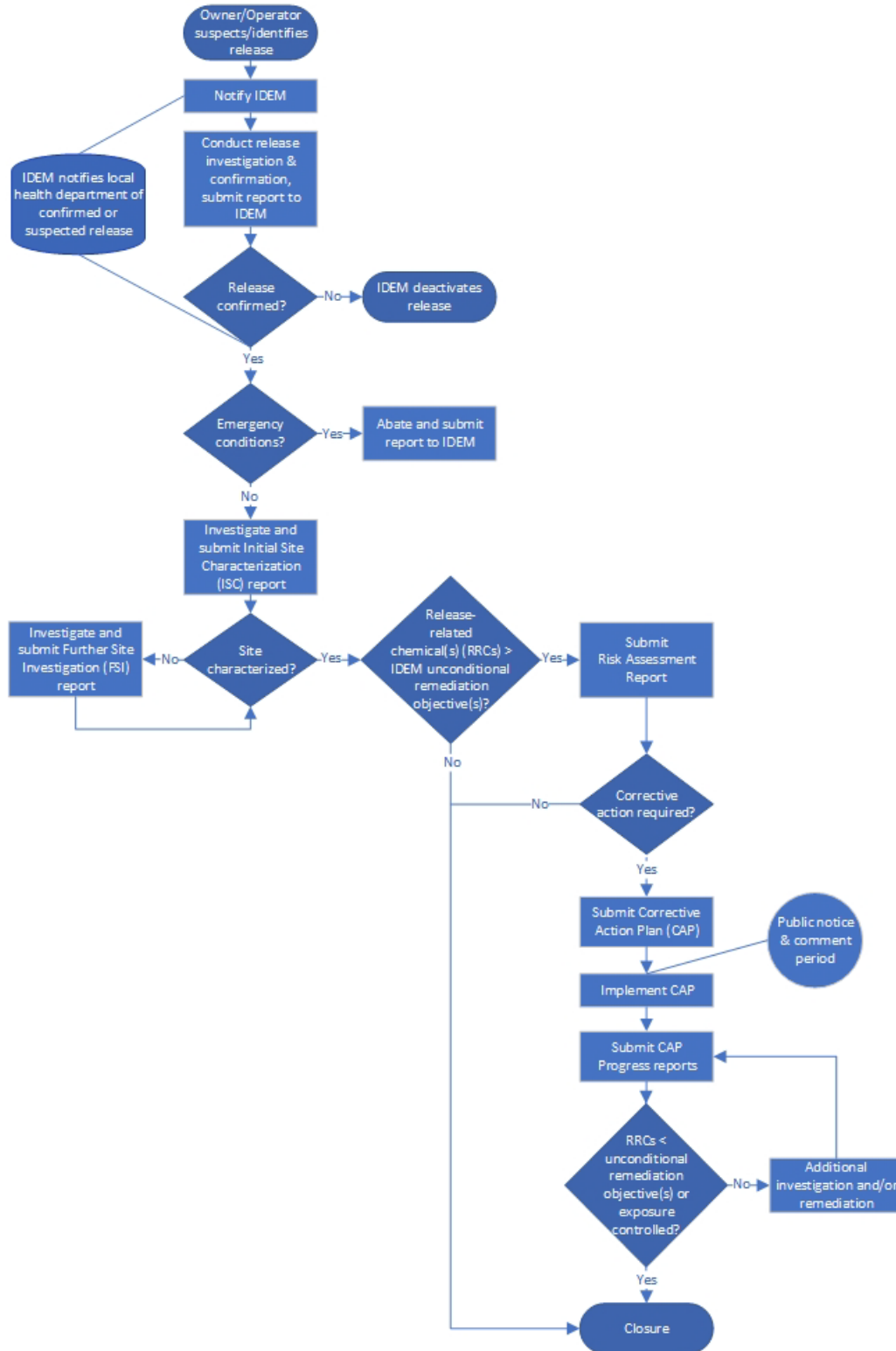
- *The Underground Storage Tank Branch Guidance Manual*: The December 1994 Underground Storage Tank Branch Guidance Manual (USTBGM) addresses site characterization, corrective action plans, and cleanup objectives.
- *Investigation of Underground Storage Tank Releases [Quality Assurance Program Plan](#)* (QAPP) Outlines requirements for collection of environmental data used to support investigation, corrective action, monitoring, and closure of sites with releases, spills, and overfills of regulated substances from regulated UST systems.

Laws and Rules Related to Underground Storage Tanks
 Figure II. 1.1



LUST Process Overview

Figure II.1.2 Leaking Underground Storage Tank (LUST) Program Process Overview



II.2.0 How a LUST site enters the Petroleum Remediation Section

II.2.1 Releases

A “Release” ([IC 13-11-2-184\(a\)](#)) is any spilling, leaking, emitting, discharging, escaping, leaching or disposing from an underground storage tank (UST) into groundwater, surface water, subsurface soils or surface soils. Additionally, any spilling, or overfilling during the transfer of product to and from the UST system or during any upgrade or maintenance activities is considered a release or spill. The LUST program now addresses all releases, including those from above the shear valve.

II.2.2 Suspected LUST Release and Release Confirmation and Investigation

A suspected release occurs when at least one of the following happens (40 CFR 280.50) :

- Unusual operating conditions including erratic behavior of dispensers, sudden loss of product, unexplained presence of water in the UST, or liquid in the interstitial space of secondarily contained system.
- Monitoring results from release detection indicates a release.
- Discovery by UST owners, operators, or others of a regulated substance at or near the UST system as free product, dissolved product or vapor in backfill, soil, groundwater, surface water, basements, sewers, or utility lines. This includes the presence of visual staining, odors, or field screening results indicating the presence of a regulated substance.

For any of the situations described above, the O/O must report the suspected release within 24 hours (40 CFR 280.50) and investigate to determine if a release has occurred (40 CFR 280.52).

For the situations described in the first and second bullets above, the O/O must conduct a UST system check. Generally, IDEM requires tank and/or line tightness testing , monitoring results from a release detection, and any other necessary maintenance or testing.

For the situations described in the third bullet above, the O/O must perform a site check by collecting and analyzing soil and/or groundwater in the area of the suspected release. Generally, IDEM requires sampling based on the discovery of a regulated substance outside the UST system (*on- or off-site*).

The site check must assess:

- Presence of free product greater than one millimeter thick.
- Presence of oil sheen on surface water.
- Presence of petroleum vapors in utility conduits.
- Presence of petroleum vapors in habitable buildings.

- Contamination of a drinking water source at levels that exceed residential maximum contaminant levels (MCLs).
- Other conditions related to the migration of the release and determined by IDEM to require mitigation.

In all cases, a written report must be submitted within thirty days of discovery outlining the actions taken and results used to determine if a release from the UST system has occurred. If additional time is required, the O/O must contact PRS to explain:

- Why the report will not be submitted on time.
- What work remains to be completed.
- When the report will be submitted.

If results of the investigation show that no release occurred and IDEM concurs, IDEM will issue a “Deactivation” correspondence. If the results of the investigation confirm a release, the O/O must report the confirmed release within 24 hours, perform an initial response, and begin corrective action (*by characterizing the release*).

II.2.3 Confirmed UST Release

A release is confirmed when either:

- Product is seen leaking from any part of the UST system including the tank and connected piping (*not the dispenser*) into areas not equipped with secondary containment.
- Laboratory analytical results identify any release-related chemical (RRC) above the laboratory detection limits in soil or groundwater samples.

II.2.4 Sources and Causes of Releases

IDEM provides the [Energy Policy Act Public Record Summary](#) on USTs regarding the number of confirmed releases, as required by the Energy Policy Act of 2005. Table 1.1 lists common sources and causes.

Table 1.1 Common Sources and Causes of Confirmed UST Releases

| | |
|----------------|-------------------------------|
| Sources | Tank |
| | Piping |
| | Dispenser |
| | Submersible Turbine Pump |
| | Delivery Problem |
| | Other / Unknown |
| Causes | Spill |
| | Overfill |
| | Physical or Mechanical Damage |
| | Corrosion |
| | Installation Problems |
| | Other / Unknown |

Most releases are found during a UST closure or while performing a Phase II Environmental Site Assessment (subsurface investigation) prior to a property transaction. In those situations, the source and cause of the release may not be known but must be investigated and determined based on the UST records, field observations and laboratory results.

IDEM assigns a separate incident number for each release. Scenarios such as the following suggest that there is more than one release:

- Any RRC is found at two locations horizontally, for example, at a large retail refueling facility with separate fueling areas for automobiles and semitrucks.
- Laboratory analysis shows the presence of higher RRCs than last recorded in an area previously closed from a historical release

An O/O who believes they have identified the source(s) of the contamination should provide an explanation in the release report and demonstrate the validity of this interpretation during the subsequent investigation.

If it is believed that a suspected release could be historical in nature, O/Os must provide lines of evidence (LOE) to support their claim that the contamination is from a previous release at the facility. The LOE must include a brief description of previous investigations or corrective action activities, supporting sampling data, maps and a detailed discussion leading to the conclusion.

II.2.5 Reporting Releases from the UST System

Reporting requirements differ under the UST Rule ([329 IAC 9](#)) and the Spill Rule ([327 IAC 2-6.1](#)). Suspected and confirmed releases from the UST System must be reported to IDEM within 24 hours of discovery (40 CFR 280.50, 280.52 and [329 IAC 9-5-2](#)) in one of three ways. Each reporting mechanism must have an accompanying Initial Incident Report (IIR) ([State Form 54487](#)) submitted with as much detail as possible.

- Telephone:
 - During normal business hours call LUST Program staff at (317)232-8900 or toll free at (800) 451-6027 ext. 28900.
 - After hours and weekends call the Emergency Response (ER) Program at (317)233-7745 or toll free at (888)233-7745. Releases subject to reporting requirements under the Spill Rule ([327 IAC 2-6.1](#)) must be reported by telephone to the ER Program within two hours.
- Fax the completed IIR to (317)234-0428.
- Email the completed IIR to LeakingUST@idem.in.gov.

The PRS prefers that non-emergency release reports be submitted via e-mail.

The following sections *Reporting Subject to the Spill Rule* ([327 IAC 2-6.1](#)) and *Reporting Spills and Overfills at UST Facilities* ([329 IAC 9-4-4](#)) clarify when spills and overfills must be reported within 24 hours per the UST Rule, and when spills must be reported as soon as possible, but not later than 2 hours per the Spill Rule.

II.2.6 Reporting Subject to the Spill Rule (327 IAC 2-6.1)

Reportable spills ([327 IAC 2-6.1-5](#), [327 IAC 2-6.1-6](#)) must be reported immediately, but no later than within two hours of discovery to ER via telephone at (317)233-7745 or (888)233-7745. There are many types of spills subject to reporting under the Spill Rule and this NPD will not address the majority of those spills. Petroleum related reportable spills include, but may not be limited to:

- Spills of petroleum in excess of 55 gallons or that cause sheen on waters.
- Spills that damage the waters of the state and that: 1) cause death or acute injury or illness to humans or animals; or 2) are located in certain specified areas.
- Any spill for which a spill response has not been done.

The ER may document a spill and refer it to the LUST Program. PRS staff will contact the O/O or their environmental consultant with follow up questions.

To document that the spill report was made in substantial compliance with IDEM requirements, the O/O should retain a record of the report. Examples of information to retain include:

- RM incident number assigned by IDEM.
- E-mail record.
- Fax record.
- Telephone report notes with date, time and name of the IDEM person who took the report.

II.2.7 Reporting Spills and Overfills at UST Facilities

Types of spills and overfills that must be reported, investigated, and cleaned up include, but may not be limited to:

- Overfills at the UST fill port or into a vehicle (*overflow*).
- Overfills from dispenser (*spill*), such as a “drive off” with dispenser hose attached to vehicle.
- Any leak from a dispenser above the shear valve (*spill*).
- Spills from the delivery truck during filling of the UST (*spill*).
- Spills from the UST system that occur during maintenance, repair or replacement of any part of a system (*spill*).

The UST rule requires that the O/O report the following spills and overfills within 24 hours:

- Spills and overfills of petroleum equal to or greater than 25 gallons.
- Spills and overfills of petroleum that cause sheen on surface water (*subject to the more stringent reporting of within two hours per the Spill Rule at [327 IAC 2-6.1-7](#)*).

II.2.8 Release Classification

Following release reporting via the IIR form, the PRS will evaluate the release description and assign a category of Low, Medium, or High Priority. A High Priority release is any release with unacceptable exposure to RRCs in soil, drinking water or irrigation wells, surface water, and/or vapors in inhabitable structures.

A Medium Priority release is any release with the potential for unacceptable exposure because soil, groundwater, and/or vapor RRC(s) extend beyond the source facility (and are not contained within the adjacent Right of Way (ROW)). A release is classified as Low Priority if no free product is present and the soil, groundwater and/or vapor RRC(s) are confined to the source facility and/or within the adjacent ROW(s).

When high priority conditions exist, an O/O needs to meet with IDEM staff within 7 days of release discovery to discuss the conceptual site model (CSM) and IDEM expectations throughout a release’s lifecycle.

The O/O or property owner should notify PRS within 24 hours if high priority conditions are discovered at any time. The PRS Section should be notified of any changes in environmental conditions that warrant a classification change.

II.3.0 Emergency or Immediate Actions

II.3.1 Initial Response

In addition to reporting a release, spill, or overfill to IDEM the O/O must:

- Take immediate action to prevent any further release of a regulated substance to the environment, regardless of eligibility for the ELTF Program; typically, this includes one or more of the following:
 - Repair or replace the leaking part of the UST system
 - Empty the UST system to ensure that further releases do not occur.
- Identify and mitigate fire, explosion, and vapor hazards.
- Mitigate to the extent practicable adverse effects to human health and the environment. These actions may be on going.
- Initiate corrective action ([329 IAC 9-5](#)).

II.3.2 Emergency Conditions

The IDEM ER Program will respond when emergency conditions exist and are reported due to a spill, overfill or release. **Once mitigated, ER will refer the release to the PRS Section for follow-up.**

II.3.2.1 LUST Spill Response Follow Up

The O/O should submit a Surface Spill and Overfill Response Request (SSORR) report within 30 days when a reportable spill or overfill event occurs. An SSOR report should contain the following:

- Facility and Owner Information:
 - UST Facility Identification Number.
 - Name and address of facility.
 - Name and address of facility owner.
 - Name(s) and address(es) of contractors performing work.
- Spill or incident description, including the following:
 - A detailed description of the spill incident including the time, date, and duration.
 - Date reported to IDEM.
 - A release incident number given by the agency at the time of the initial incident.
 - A listing of the area(s) affected such as pavement, surface soils, subsurface soils, groundwater, surface water and subsequent conduits.
 - A detailed description of actions taken to mitigate, contain, investigate, and clean up the spill.

- The amount of product recovered and documentation of proper disposal of contaminated soil, water, or product waste.
- A scaled site map indicating the location of the spill, location of all sampling performed, neighboring properties, and property improvements (including locations of underground utility main and lateral lines).

If IDEM believes that additional investigation or cleanup is necessary, IDEM will require corrective action ([329 IAC 9-5](#)). Sampling and laboratory analysis will be required for sites that have impacted surface soils, subsurface soils, surface water or groundwater. Samples for laboratory analysis must be taken in the areas most likely to be contaminated. Adequate delineation of the RRCs must be demonstrated.

II.3.2.2 Abatement

In addition to release reporting via the IIR, if one or more of the following conditions exist, the O/O must submit a 20-Day Abatement Report to IDEM within 20 days from the date the release is confirmed. ([329 IAC 9-5-3.2](#)):

- Drinking water is affected.
- Free product is present.
- Petroleum vapors present in storm sewers, sanitary sewers, utility lines, inhabitable buildings with a basement, crawlspace, or underground conduits.

The 20-Day Abatement Report must summarize the abatement measures taken and any resulting information or data. Free product discovery and abatement activities performed and documented on the 20-Day Abatement Report will satisfy the free product abatement and reporting requirements of [329 IAC 9-5-4.2](#).

II.4.0 Public Involvement and Notification

II.4.1 Release Notification

As of July 1, 2007, the following notifications are required for LUST releases:

- The LUST Program must notify the County Health Officer of each county in which the release, spill, or overfill occurred within seven calendar days of receiving the release report.
- The County Health Officer must publish notice in a newspaper of general circulation in the County Health Officer's county and provide any other notice that County Health Officer considers necessary or appropriate within seven calendar days of receiving the notice from IDEM.

II.4.2 Administrative Record

IDEM maintains the administrative records for all releases from regulated USTs. These records are available in:

- *IDEM's [Virtual File Cabinet \(VFC\)](#)* The VFC contains the public records for Petroleum Remediation Programs. New records are added daily, so please check the site frequently. The VFC features a simple, fill-in-the-blanks interface, much like any basic search engine. Search the VFC by facility information or document information, or by using the enhanced search feature. The results can then be sorted to allow the searcher to locate the records more easily.
- *The [Energy Policy Act Public Record Summary](#)* Information on Underground Storage Tanks (USTs) The document contains information about all suspected and confirmed releases from registered UST facilities including facility identification numbers, incident numbers, name, address, disposition (status of release), and affected areas.
- *[Institutional Controls Registry](#)* When activity/land use restrictions or engineering controls are necessary to prevent unacceptable exposure as part of a remedy, an institutional control may be needed. This registry lists all sites where the remedy employs some type of risk-based closure with some type of land use restriction or engineering control. The PRS sites with institutional controls are listed in the Institutional Controls Registry.

The IDEM Office of Records Management manages IDEM's public records. Visit or contact the IDEM Office of Records Management at:

Indiana Government Center North
MC 50-07 Room 1201
100 North Senate Avenue
Indianapolis, IN 46204
Phone (317)234-0965 or (800) 451-6027; Fax (317) 232-8659

II.4.3 Public Participation and Notification

The LUST Program must notify the public in a manner designed to reach those members of the public directly affected by the release and the planned corrective action. This notice may include:

- Public notice in local newspapers.
- Block advertisements.
- Public service announcements.
- Publication in the Indiana Register.
- Letters to individual households.
- Publication on the IDEM website.
- Personal contacts by field staff.

Personal contacts by field staff are the most common method used to provide direct notification. IDEM decides on a site-by-site basis if another method is needed.

OLQ's [Community Involvement Plan \(Waste-0070-NPD\)](#) Provides a systematic/tiered approach to community involvement. The NPD also provides methods for identifying those persons and organizations that may be most affected by the release and at the same time, providing a staged approach to community involvement to those identified persons based on scope and impact.

Environmental Restrictive Ordinance (ERO): When a remedy will include the use of an ERO as an institutional control, it is important that the person seeking to use the ERO for closure initiate contact with local officials early in the process because input from the water utility and from the local government unit that has enacted (or that has proposed adoption of) the ERO will be required by IDEM. Consultants are encouraged to work directly with the local government unit because IDEM does not take a position as to whether the local government should or should not enact an ERO. Because IDEM must rely on local governments to enforce EROs, municipal involvement throughout the review process will help IDEM evaluate the effectiveness of proposed EROs and determine whether an ERO effectively manages risk. Local governments should be contacted for information including:

- Current and future local water resource planning.
- Procedures for granting exceptions and variances to the ERO.
- Local point of contact for ERO monitoring and compliance.
- Notification provisions for EROs.

II.5.0 Characterization

Sites generally follow the process outlined in Figure II.2. IDEM requires that all detections of contamination be reported as releases. The reason for this is that IDEM must verify that sampling was performed correctly and that the laboratory results are validated. In some cases, such as UST Closure, or a Phase II Investigation, minimal contamination is present and poses a low threat to human health and/or the environment.

IDEM reviews the results to determine which of the following is appropriate:

- Perform a complete Initial Site Characterization, or similar investigation, that provides substantially equal protection for human health and the environment as described in 329 IAC 9-5-5.1(a) and (b).
- Perform a risk assessment to evaluate pathways and need for Institutional Controls, such as an Environmental Restrictive Covenant (ERC).
- Grant a No Further Action determination based on the information that is already available.

II.5.1 Conceptual Site Model

IDEM's evaluation of the adequacy of characterization, risk evaluation, and remedy-related activities relies on submission of supporting documentation by the O/O or its consultant. One product of project-related activities and document submissions is the development of a conceptual site model (CSM) – a comprehensive understanding of the release. A CSM should be developed and updated, as needed, as described in the R2, Section 2.

High-resolution site characterization (HRSC) data can rapidly and efficiently improve a CSM and guide project decisions throughout investigation, risk evaluation, and when necessary, remedy selection while saving time and costs needed to complete traditional investigations.

If you believe a release would benefit by using HRSC technology, contact the PRS Project Manager (PM) assigned to your incident. If appropriate, the PRS PM can assist with sampling locations and logistics.

II.5.2 Initial Site Characterization (329 IAC 9-5-5.1)

Following confirmed release reporting via an IIR, or when a spill or overfill cannot be adequately cleaned up during the spill response, the O/O must submit investigation information collected about the release to the agency in a format acceptable to the agency within 60 days of release confirmation. IDEM will not grant an extension.

Based on the information provided in the IIR, IDEM will request additional information. The request will be tailored to the site classification. An Initial Site Characterization report is always required for all High Priority LUST releases.

The purpose of the ISC is to timely gather and submit the following information (R2, Section 2):

- Site history.
- Source and cause of the release.
- Regulated substance(s) released.
- Soil lithology and bedrock.
- Minimum three soil borings with one soil and one groundwater sample from each boring.
- Groundwater flow direction.
- Preferential flow pathways (potential or actual, natural and manmade).
- Human and ecological receptors (potential or actual).
- FSI Work Plan for any additional work necessary to determine the full nature and extents of contamination.

The O/O must use the ISC Report and Checklist templates available at the [PRS website](#) (329 IAC 9-5-5.1(b)(2) and (3)).

For Medium and Low Priority releases, PRS may request a less comprehensive report in lieu of an ISC. When the information provided in the IIR and/or UST Closure Report shows that soil and/or groundwater RRCs are limited in nature and extents, and the threat of exposure risks is minimal, PRS may require specific activities (such as collection of soil or groundwater samples) or request a work plan for a limited subsurface investigation. The Limited Investigation Report must be submitted within 60 days of a confirmed release [329 IAC 9-5-5.1\(c\)](#) since this submittal qualifies as an ISC Report. Additionally, IDEM may not require an ISC where previously submitted ISCs in IDEM's file have sufficiently documented Site history, regional and Site-specific lithology, groundwater flow direction, etc. IDEM may not require an ISC where RRCs remain in place from a previous release, and exposure controls, such as an ERC, are utilized. IDEM will not approve an extension.

When access for sampling at properties not owned or controlled by the O/O or property owner is denied, refer to IDEM's [Procedures for Gaining Access to Third Party Properties by Responsible Parties Performing Remediation \(Waste 0065-NPD\)](#) to ensure adequate attempts are made to obtain access and document collection of adequate information. The PRS PM and IDEM legal counsel may assist in attempting to obtain access.

II.5.3 Further Site Investigation (FSI) Work Plans

A FSI Work Plan may be submitted prior to conducting an FSI when IDEM and the O/O agree that one is needed. This work plan should be included with the previous investigation report. Typically, the Work Plan will include:

- Narrative including:
 - Interpretation of known extents of the RRCs.
 - Interpretation of the unknown extents of the RRCs.
 - Estimate of what needs to be done to define the full nature and extents.
 - Estimate of number and location of sampling points.
 - Number of samples per location.
 - Sampling or investigation methodology.
 - Proposed sample analysis and laboratory methods.
- Map(s) showing proposed sample locations.
- Schedule for start and completion of proposed work (including any anticipated delays for gaining access).

II.5.4 Further Site Investigation (329 IAC 9-5-6)

The FSI is performed to determine the full nature (R2, Task 2) and extents (R2, Task 3) of RRC(s), and to evaluate actual or potential exposure to human and ecological receptors (using the CSM).

Most petroleum release characterizations should be complete within 365 days of release discovery. Although the process may take multiple sampling events, IDEM anticipates that a comprehensive FSI Report compiling documentation and analysis of multiple investigations will be submitted at the conclusion of characterization, unless otherwise directed by IDEM. To save time and effort, multiple investigation mobilizations should be limited to the extent practicable.

If needed, IDEM will provide dates for submittal of the FSI Report based on the proposed work and schedule. The O/O may request an extension of the FSI report. IDEM will grant extensions if it is warranted. Extension requests should be written, submitted timely by electronic mail or letter, provide an expected date for submittal of the FSI and include a justification for the request.

The FSI report must be submitted in a format required by the agency ([329 IAC 9-5-6\(c\)](#)). The FSI Report must include the following:

- Investigation results concerning
 - The full extent of the soil, and groundwater, and vapor RRCs.
 - Preferential pathways.
 - Surface water.
 - Human and ecological receptors.
- FSI Work Plan if any additional investigation is necessary to complete site characterization.
- Summary of the following (if applicable) for remediation and closure alternatives:
 - Overall effectiveness of the technology.
 - Ability to achieve remediation objectives.
 - Expected treatment duration.
 - Treatment reliability.
 - Pilot Study Proposal.
 - Permits required.

II.5.5 Investigation of Other Petro Releases discovered during LUST investigations

IDEM will require investigation of RRCs found as part of a LUST investigation that are not or may not be associated with the UST system(s), under:

- [IC 13-22-13](#) Hazardous Waste Management—Corrective Actions

- [329 IAC 3.1](#) Hazardous Waste Management Permit Program and Related Hazardous Waste Management.
- [IC 13-24-1](#) Petroleum Releases.
- [IC 13-25-4](#) Hazardous Substances Response Trust Fund.

If the source of the non-UST RRCs is found to be off-site, IDEM may require continued monitoring. The O/O should consider the off-site RRCs when evaluating corrective action alternatives for an on-site source. The O/O should select corrective actions that minimize the risk of causing further migration of, or exposure to, the RRCs from the off-site source.

If the source of the RRCs is found to be on-site, IDEM may require further investigation and cleanup. IDEM will determine the best management approach depending on the nature and extents of the non-UST RRCs. Options include:

- Investigate and cleanup of all sources as one site within the LUST Program.
- Refer entire site to another program.
- Refer non-UST release to another program and continue investigation and potential remedy for the UST release under the LUST Program.

II.5.6 Quarterly Monitoring During Site Characterization

When warranted, IDEM requires quarterly monitoring reports (QMRs) for groundwater sampling and other field activities during the site characterization and beyond. This provides information concerning any seasonal fluctuation in groundwater depth, groundwater flow direction, and RRC concentrations in groundwater that will enhance the development of the final remedy decision. Only quarterly monitoring results and relevant information (operation and maintenance activities, sampling results, etc.), should be included in the QMR. Investigation, mitigation, and corrective action activities must be submitted in a separate report as directed by PRS.

QMRs must be submitted four times per year (about every 90 days). QMRs must be submitted with a QMR Cover Sheet and in the format required in the QMR Cover Sheet and format ([329 IAC 9-5-7\(c\)](#)).

II.5.7 Quality Assurance Program Plan

When reviewing information submitted for releases from UST systems, or spill or overfills (that do not qualify for reporting under the Spill Rule), IDEM follows the *Investigation of Underground Storage Tank Releases* [Quality Assurance Program Plan](#) (QAPP). Documentation consistent with the Minimum Data Documentation Requirements (MDDR), as described in R2 Section 2.2.9 (Data Reporting), must be submitted for all sampling performed during release confirmation or sampling assessment during a UST closure. IDEM may specifically request the

full Quality Assurance/Quality Control (QA/QC) data package on a site-by-site basis, if necessary. Generally, IDEM will require some amount of soil confirmation sampling as well as a complete round of groundwater samples for No Further Action (NFA) approval.

The O/O should consult the PRS project manager regarding the requirement for a specific release. All plans should include the QAPP elements that identify data quality objectives for the proposed work.

II.6.0 Risk Evaluation

Risk evaluation, the process for determining whether a chemical release warrants a remedy, is necessary to fulfill statutory obligations under [IC 13-25-5-8.5\(c\)](#) to protect human health and the environment. Every chemical release that requires characterization also requires an evaluation of risk.

Risk evaluation complexity varies. The risk evaluation process may be fairly simple, involving a few numerical comparisons, or it may include complex tasks like statistical evaluation of large sample data sets, target cancer risk adjustments, development of site-specific remediation objectives, or evaluating the relevance and sufficiency of different lines of evidence in a remedy decision.

Section 3 of the R2 describes four broadly defined tasks that comprise a risk evaluation.

II.7.0 Remedy

IDEM will determine if remedy is necessary based on the CSM and completion of the risk evaluation. When IDEM requires corrective action, the O/O must submit a Corrective Action Plan (CAP) ([329 IAC 9-5-7](#)) along with other relevant information. If corrective action is not required, the O/O skips this step and proceeds to the closure process outlined in Section 8. Additional guidance on remedy selection and implementation is located in Section 4 of the R2.

II.7.1 Free Product Recovery

Free product recovery and reporting is required throughout site characterization and corrective action. The following documents may contain free product recovery information:

- 20 Day Abatement Report.
- Free Product Removal Report (when required by IDEM).
- Initial Site Characterization (ISC) Report.
- Further Site Investigation (FSI) Report.
- Quarterly Monitoring Report prior to and after Corrective Action Plan approval.

II.7.2 Pilot Study

A pilot study may be necessary prior to a remedy decision to determine the effectiveness and design of a selected remediation technology. An IDEM-approved Pilot Study Report may be submitted prior to or with the CAP as directed by the IDEM project manager. Typically, the Pilot Study Report is included with the CAP.

The O/O may request an extension for Pilot Study Report submittal. Extension requests should be timely, provide an expected date for submittal and include a justification for the request. IDEM may grant an extension if the request is acceptable and does not delay corrective action activities.

II.7.3 Corrective Action Plan Contents

The CAP Report contains detailed information about the proposed remedy including, but not limited to:

- Remediation Objectives.
- Alternative remediation technologies evaluated.
- Brief summary of each technology evaluated including estimated time and costs for implementation, monitoring, operations and maintenance (up to five potential technologies).
- Reason(s) for not selecting technology(s).
- Reason(s) for selecting technology.
- Narrative of selected remediation technology that may include:
 - Design information for an engineered system.
 - Volume or mass to be treated by chemical or biological treatment.
 - Location and mass of source to be excavated and disposed and/or monitored natural attenuation information.
- Sampling and Analysis Plan (SAP).
- Health and Safety Plan (HASP).
- Required federal, state, and local permits and approvals.
- Schedule of proposed activities.

A CAP must be submitted with a CAP Cover Sheet and in the format required in the CAP Cover Sheet and format ([LINK](#)). [329 IAC 9-5-7\(c\)](#). The O/O and their consultant should use published resources when evaluating remediation alternatives. The U.S. EPA OUST Remediation/Cleanup Technologies website is a good source of information. The IDEM Remediation Technology & Other Guidance website also has useful information.

Typically, CAPs must be submitted within 60 days of the CAP request, in a format required by the agency ([329 IAC 9-5-7\(a\)\(2\)](#) and [329 IAC 9-5-7\(f\)](#)). The O/O may request and IDEM may

grant an extension. Extension requests should be written, submitted by electronic mail or letter, timely, provide an expected date for submittal, and include a justification for the request.

II.7.4 Corrective Action Plan Approval

When IDEM determines that the remedy selected is acceptable and the plan is complete and accurate, IDEM sends a written approval to the O/O. The approval letter requires the O/O to implement the CAP immediately in accordance with the schedule in the CAP.

II.7.5 Corrective Action Plan Amendment

Modifications may be necessary during or after implementing the approved CAP when:

- Engineered system operation is deemed complete per the remediation closure objectives.
- Engineered system operation is modified.
- Engineered system design is modified.
- Sampling and Analysis plan is modified.
- Technology is determined to be ineffective.

Do not include these recommendations or modifications in Quarterly Monitoring Reports (QMRs). All changes must be submitted as a CAP Amendment. Consult the PM regarding the need for any CAP amendment.

II.7.6 Quarterly Monitoring During Corrective Action Implementation

Quarterly monitoring is often necessary to determine if an implemented remedy exhibits a rebound of dissolved RRC concentrations or free product in the groundwater once the remedy stabilizes. The results of corrective action monitoring must be submitted during CAP implementation. The duration of quarterly sampling depends on the RRC(s), remedy and site conditions.

If an engineered system is operating, additional operation and maintenance performance monitoring is required.

Quarterly monitoring reports (QMRs) must be submitted with a QMR Cover Sheet and in the format required in the QMR Cover Sheet and format (LINK). ([329 IAC 9-5-7\(c\)](#))

II.8.0 LUST Closure

II.8.1 Conceptual Site Model (CSM) at Closure

As with the determination of nature and extents of release-related chemicals, and CAP development and implementation, the CSM should be applied during the closure process. The

closure strategy must adequately demonstrate that the remedy (when required, which may include institutional controls) and site conditions adequately control current and future risk to human health and the environment.

II.8.2 Quarterly Monitoring During Closure

Closure monitoring begins after a mechanical, chemical, or biological remedy is stabilized. Following the CAP implementation, IDEM requires groundwater monitoring is performed to:

- Determine if groundwater rebound occurs after the shutdown of an engineered remediation system. Typically, this takes at least two quarters.
- Determine if groundwater rebound occurs after the application of materials for bio-augmentation such as an Oxygen Release Compound (ORC®). Typically, this takes two to four quarters following application or injection.
- Determine if the remaining RRC plume is stable or shrinking. Typically, this takes four quarters. IDEM may require more quarters to verify acceptable closure conditions depending on many factors. Common factors include:
 - RRC concentration(s).
 - Areal extents of RRC (s).
 - Whether the affected groundwater is being used or is likely to be used for drinking water.
 - Proximity to drinking water receptors.

Quarterly monitoring reports (QMRs) must be submitted with a QMR Cover Sheet and in the format required in the QMR Cover Sheet and Report Format (State Form 56087).

II.8.3 No Further Action Request

The No Further Action (NFA) Request Report was designed to be a standalone document that compiles data and summarizes the pathway evaluation needed to review for possible closure of a release and demonstrate that remediation objectives have been met in accordance with [IC 13-23](#). Most NFA approvals are in response to an NFA Request Report submitted by the O/O. IDEM acknowledges that a comprehensive NFA Request Report is not always needed to evaluate closure of a release. However, under the following circumstances, an NFA Request Report should be submitted when site conditions are appropriate for closure:

- Old releases where historical soil and groundwater data are not readily available.
- Releases with extensive or multiple corrective actions with data gaps where the CSM needs to be updated.
- High Priority releases with unacceptable exposures in indoor air, drinking water, or surface water.
- Releases using Institutional Controls, such as an ERC, off-site to control unacceptable exposure.

- Releases using LOE to demonstrate control of unacceptable exposures (not including Institutional Controls).
- Releases where significant data gaps exist.
- Releases with commingled plumes or multiple releases being closed at the same time.

If IDEM believes that a site may be eligible for an NFA approval, IDEM may request that the O/O submit an NFA Request Report. The NFA request may include a closure strategy based on existing conditions. A prepared NFA Request Report should include:

- NFA Request cover letter.
- Full Quality Assurance/Quality Control (QA/QC) documentation when required.
- Draft ERC when necessary (IDEM encourages the use of the [OLQ ERC template](#)).
- Local ERO.
- Any other information supporting the NFA request (such as notification to state or local government agency that RRCs remain under a roadway).

When reviewing NFA requests, IDEM follows the Investigation of Underground Storage Tank Releases, Quality Assurance Program Plan (QAPP). The QAPP requires the submittal of full QA/QC documentation, and data validation by IDEM, on a site-by-site basis, in order to approve the NFA request.

II.8.4 Institutional Controls

Environmental Restrictive Covenant (ERC)—An ERC is a legal and administrative measure to protect human health and the environment at properties where RRCs are left in place. The intent of the ERC is to limit human exposure by restricting activity, use, and access to properties with RRCs at concentrations exceeding the R2 unconditional remediation objectives unless convincing LOE demonstrate otherwise. Examples of convincing LOE are further identified in the R2, Sections 2 and 3. Controls may include administrative and engineering controls.

Administrative controls typically include restrictions on land use and groundwater. Engineering controls, on the other hand, typically include vapor mitigation systems and caps or covers that are designed to prevent direct contact or migration of RRCs to groundwater.

Environmental Restrictive Ordinance (ERO)—An ERO is a local ordinance that may be used to restrict groundwater use in lieu of, or in addition to, an ERC.

II.8.5 No Further Action (NFA) Approval

The LUST Program issues an NFA approval letter upon approval of the post-CAP release conditions. When an ERC is utilized as a component of the remediation, IDEM will issue the NFA approval letter upon receipt of the IDEM-reviewed, approved, and recorded ERC. The NFA

determination is based on information provided to and reviewed by IDEM. The NFA approval letter summarizes the information used to determine and implement the remediation, the use of any institutional controls, RRCs remaining at the time of closure, and the responsibilities that the O/O may have in maintaining the NFA approval status.

NFA approvals may be:

- Unconditional Closures—Closures that leave the site environmentally suitable for any future use.
- Conditional Closures—Closures that require some continued operation, maintenance, monitoring, and/or that require property use restrictions or exposure controls. Approval depends on one or more ongoing activities or restrictions that control exposure to levels of RRCs above the R2 unconditional remediation objectives or site-specific risk-based levels upon which the remediation objectives for a particular land use were based. Most LUST conditional closures utilize an ERC. The most common restrictions are:
 - Groundwater use.
 - Land use.
 - Buildings or pavement to be left in place to control exposure.

II.8.6 Conditions Subsequent

When the LUST Program approves a conditional closure, the No Further Action (NFA) letter may include conditions subsequent to closure that must be monitored or maintained to ensure the continued effectiveness of a remedy. An ERC may also detail any condition that requires monitoring or maintenance.

Engineering Controls

Often passive engineering controls such as pavement and buildings are used at LUST sites. Vapor mitigation may be required in current or future buildings within the Exposure Control Area. If there are any engineering controls, an ERC may specify the location of the controls, and requirements for compliance with the ERC.

Monitoring

If monitoring is required as a condition of closure, an ERC may specify the specific monitoring requirements. IDEM may conduct post-closure monitoring to verify compliance with the conditions of closure.

Reporting

If reporting is required as a condition of closure, an ERC may specify the specific reporting requirements for the site.

II.9.0 When Issues Arise

Sometimes issues arise as part of the normal course of business. These issues usually center on technical and policy decisions related to denials of work proposed or performed rather than regulatory requirements and deadlines. When these issues arise and the O/O, property owner, or environmental consultant is not satisfied with the resolution, IDEM recommends contacting the PRS Section Chief via telephone or email. If unsure which person at IDEM to contact, the O/O or consultant should ask the project manager or call (317)232-8900. If a satisfactory solution is not reached after speaking with the project manager and Section Chief, IDEM recommends that the O/O or consultant contact the Petroleum Remediation Branch Chief.

When significant violations are identified, typically the PRS Section issues a Violation Letter that identifies the violation(s), and timeframe for corrective measures. If the violations are not corrected in a timely and complete manner, the PRS Section may refer the violations for consideration of a formal enforcement action. Normally a Notice of Violation and draft Agreed Order (AO) are sent to the O/O or Property Owner for signature. An AO includes corrective measures, civil penalties for past violations, stipulated penalties for noncompliance, and procedures for Dispute Resolution.

II.10.0 Forms and Checklists

Current State Forms that can be completed electronically are posted on the [IDEM Forms webpage](#) as PDF-fillable forms, Microsoft Word documents, or Excel documents. Links to those forms and checklists as well as many other documents and websites have been provided where the document is discussed in the text.

Part III Certain Other Petroleum Releases (Petro) Program

III.1.0 Rules and Laws

The Petroleum Statute establishes liability ([IC 13-24-1-4](#)) for petroleum facility owners, operators and responsible persons to undertake response or remedial action related petroleum releases that do not originate from a regulated UST. In addition, [IC 13-24-1-4](#) authorizes IDEM to recover the costs of removal or remedial actions when it performs such actions pursuant to [IC 13-24-1-2](#). [IC 13-24-1-1](#) permits IDEM to enter into Agreed Orders (AOs) with RPs involved in releases of petroleum.

Indiana Statutes and Rules (<http://iga.in.gov>)

- [IC 4-21.5](#) Outlines administrative orders and procedures.
- [IC 13-12-3-2](#) Remediation and closure goals, objectives,

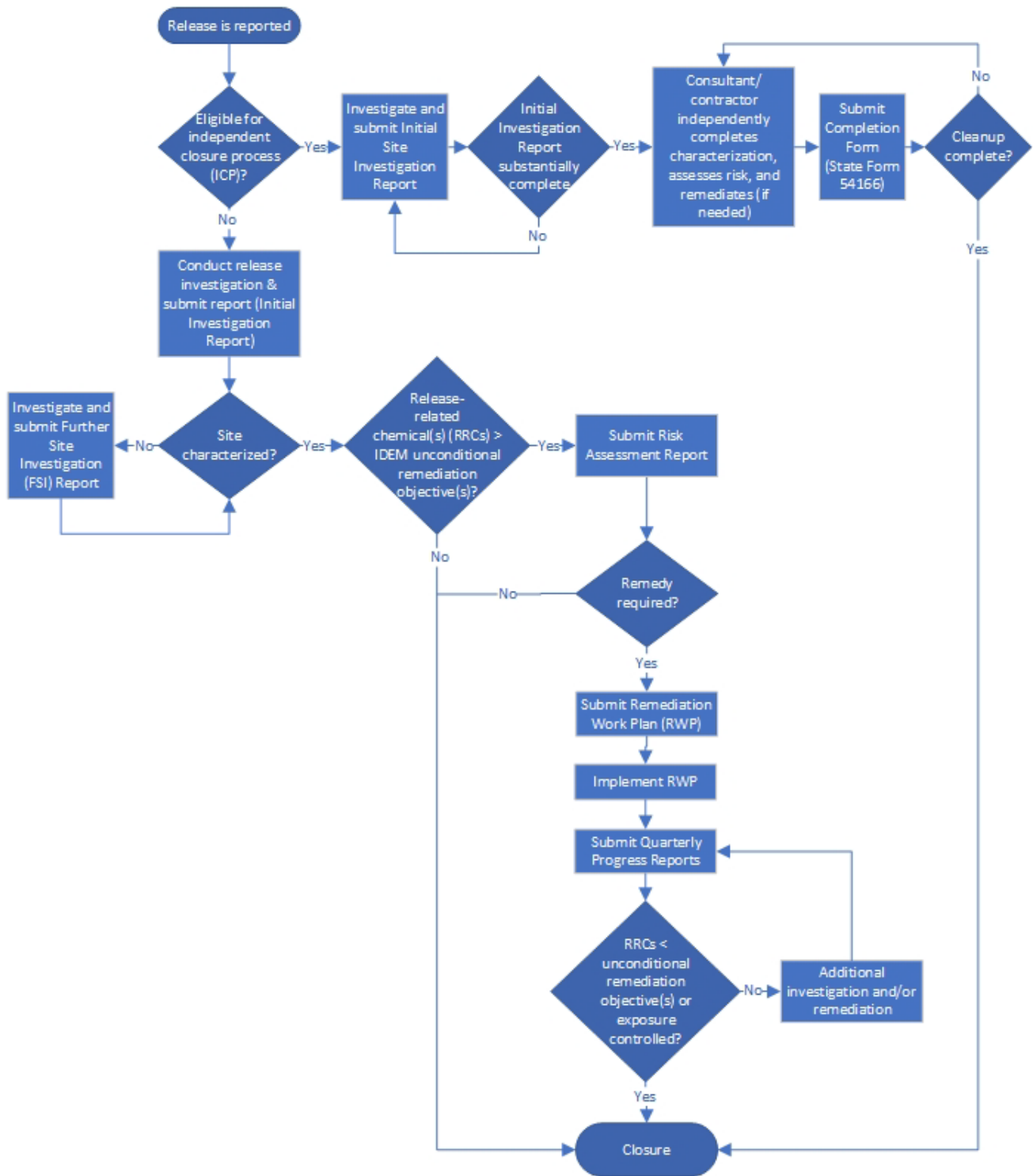
- [IC 13-14-2-9](#) and standards for certain remediation projects.
- [IC 13-14-10](#) Outlines modification of restrictive covenant procedures.
- [IC 13-24](#) Authorization for emergency order procedures when a release constitutes a clear and present danger.
- [IC 13-24-1](#) Permits IDEM to enter into Agreed Orders (AOs) with owners, operators and responsible persons (RPs). Provides actions to recover costs and damages.
- [IC 13-25-5-8.5\(c\)](#) Authorizes IDEM to require cleanup of petroleum releases that are not from an underground storage tank (UST) subject to [IC 13-23 \(The UST Statute\)](#). Defines remediation objectives and is applied to all remediation programs per [IC 13-12-3-2](#).

NonRule Policy Documents

- [Community Involvement Plan \(Waste-0070-NPD\)](#) Provides a systematic approach to community involvement.
- [Procedures for Gaining Access to Third party Properties by Responsible Parties performing Remediation \(Waste-0065-NPD\)](#) Describes the adequate steps to be taken and documentation to be provided by a responsible party or program participant who is attempting to access third party properties for the investigation or remediation of RRCs in soil, groundwater, surface water, sediment and/or indoor air.
- [Risk-based Closure Guide \(Waste-0046-R2\)](#) Sets a framework for characterizing releases, evaluating resulting risk and when necessary, selecting and implementing appropriate remedies that allow for closure.
- [Supplemental Characterization Guidance \(Waste-0072-NPD\)](#) Identifies information on how to better organize a procedure for investigating specific geological environments and specific types of source facility.

PROCESS OVERVIEW

Figure III.1 Certain Other Petroleum Releases (Petro) Program Process Overview



III.2.0 How a Petro site enters the Petroleum Remediation Section

III.2.1 Reporting Subject to the Spill Rule (327 IAC 2-6.1)

Reportable spills ([327 IAC 2-6.1-5](#), [327 IAC 2-6.1-6](#)) must be reported immediately, but no later than within two hours of discovery to ER via telephone at (317)233-7745 or (888)233-7745. There are many types of spills subject to reporting under the Spill Rule and this NPD will not address the majority of those spills. Petroleum related reportable spills include, but may not be limited to:

- Spills of petroleum in excess of 55 gallons or that cause sheen on waters.
- Spills that damage the waters of the state and that: 1) cause death or acute injury or illness to humans or animals; or 2) are located in certain specified areas.
- Any spill for which a spill response has not been done.

The ER may document the release and refer it to the Petro Program. PRS staff will contact the RP or their environmental consultant with follow up questions.

To document that the spill report was made in substantial compliance with IDEM requirements, the RP should retain a record of the report. Examples of information to retain include:

- RM incident number assigned by IDEM.
- E-mail record.
- Fax record.
- Telephone report notes with date, time, and name of the IDEM person who took the report.

III.2.2 Initial Response

In addition to the reporting a release or spill to IDEM, pursuant to [327 IAC 2-6.1](#), the owner, operator or RP must take action to contain the spill and remove any free material.

III.2.3 Emergency Conditions

The IDEM ER Program will respond when emergency conditions exist and are reported due to a spill or release. **Once mitigated, ER will refer the petroleum release to the PRS for follow-up.**

III.2.4 Site Referral

The PRS Section receives referrals from IDEM Emergency Response, other IDEM Remediation Services Branch programs, other IDEM offices, the IDEM Complaint Coordinator, citizens, and local health departments.

- *Emergency Response (ER) Section* –The ER Section refers sites to the PRS Program when long term cleanup management and oversight are necessary.
- *Voluntary Remediation Program (VRP)*—The VRP refers sites to the PRS Program if the VRP applicant does not complete the obligations of the Voluntary Remediation

Agreement and is terminated from VRP, if imminent threats to human health and/or the environment exist, or if a new source area of petroleum release-related chemicals is found and determined to be unrelated to the existing VRP project.

- *Indiana Brownfields Program (Brownfields)*—Brownfields refers petroleum sites to the PRS while in process of Phase II activities and Comfort Letter review when off-site releases or emergency threats are encountered, or if it is determined that the applicant does not qualify for a Comfort Letter and further investigation is needed.
- *IDEM Office of Water Quality (OWQ)*—The Drinking Water Section of the OWQ refers sites to the PRS when it is determined that release-related chemicals are detected above the federal maximum contaminant level (MCL) in a private or public drinking water source.
- *IDEM Complaint Coordinator*—The Complaint Coordinator refers sites to the PRS if a complaint involves historical releases, imminent threat to human health and/or the environment, or if a remedial action may be warranted. The PRS will investigate the site and evaluate the need for further action.
- *State Cleanup Program (SCP)*—The SCP refers sites to the PRS to investigate and oversee mitigation of the risks when RRCs are from petroleum sources only.
- *Compliance Programs*—Compliance inspectors refer sites to the PRS if evidence of historical releases from petroleum sources are observed. Inspectors call the IDEM Spill Line, instead of referring the release directly to PRS for long-term remediation, if they observe evidence of an ongoing release or have evidence that release(s) pose an acute or imminent threat.

III.2.5 Release Classification

Following release reporting, the PRS will evaluate the release description and assign a category of Low, Medium, or High Priority. A High Priority release is any release with unacceptable exposure to RRCs in soil, drinking water or irrigation wells, surface water, and/or vapors in inhabitable structures.

A Medium Priority release is any release with the potential for unacceptable exposure because soil, groundwater, and/or vapor RRC(s) extend beyond the source facility (and are not contained within the adjacent Right of Way (ROW)). A release is classified as Low Priority if no free product is present and the soil, groundwater and/or vapor RRC(s) are confined to the source facility and/or within the adjacent ROW(s).

When High Priority conditions exist, Responsible Parties/Persons (RPs) should meet with IDEM staff within 7 days of release discovery to discuss the CSM and IDEM expectations throughout a release's lifecycle.

Per reporting requirements, the RP must notify PRS within 24 hours if high priority conditions are discovered at any time. The PRS Section should be notified of any changes in environmental conditions that warrant a classification change.

III.3.0 Public Involvement or Notification

III.3.1 Administrative Record

IDEM maintains the administrative records for all releases from Petro releases. These records are available in:

- *IDEM's [Virtual File Cabinet \(VFC\)](#)* The VFC contains the public records for Petroleum Remediation Programs. New records are added daily, so please check the site frequently. The VFC features a simple, fill-in-the-blanks interface, much like any basic search engine. Search the VFC by facility information or document information, or by using the enhanced search feature. The results can then be sorted to allow the searcher to locate the records more easily.
- *[Institutional Controls Registry](#)* When an activity/land use restrictions or engineering controls is necessary to prevent exposure as part of a remedy and institutional control may be needed. When fully populated, this registry will list all sites where the remedy employs some type of risk-based closure with some type of containing land use restrictions or engineering controls. The PRS sites with institutional controls are listed in the Institutional Controls Registry.

The IDEM Office of Records Management manages IDEM's public records. Visit or contact the IDEM Office of Records Management at:

Indiana Government Center North
MC 50-07 Room 1201
100 North Senate Avenue
Indianapolis, IN 46204
Phone (317)234-0965 or (800) 451-6027; Fax (317) 232-8659

III.3.2 Public Involvement and Notification

The Petro Program will notify the public in a manner designed to reach those members of the public directly affected by the release and the planned remediation. Personal contacts by field staff are the most common method used to provide direct notification. IDEM decides on a site-by-site basis if another method is needed.

OLQ's [Community Involvement Plan \(Waste-0070-NPD\)](#) Provides a systematic/tiered approach to community involvement. The NPD also provides methods for identifying those persons and organizations that may be most affected by contamination and at the same time, providing a

staged approach to community involvement to those identified persons based on scope and impact.

Environmental Restrictive Ordinance (ERO): When a remedy will include the use of an ERO as an institutional control, it is important that the person seeking to use the ERO for closure initiate contact with local officials early in the process because input from the water utility and from the local government unit that has enacted (or that has proposed adoption of) the ERO will be required by IDEM. Consultants are encouraged to work directly with the local government unit because IDEM does not take a position as to whether the local government should or should not enact an ERO. Because IDEM must rely on local governments to enforce EROs, municipal involvement throughout the review process will help IDEM evaluate the effectiveness of proposed EROs and determine whether an ERO effectively manages risk.

Local governments should be contacted for information including:

- Current and future local water resource planning.
- Procedures for granting exceptions and variances to the ERO.
- Local point of contact for ERO monitoring and compliance.
- Notification provisions for EROs.

III.4.0 Characterization

Sites generally follow the process outlined in Figure III.1. IDEM requires that all detections of release-related chemicals be reported as releases. The reason for this is that IDEM must verify that sampling was performed correctly and that the laboratory results are validated. In some cases, such as discovery of an unregistered (orphan) UST, or a Phase II Investigation, minimal contamination may be present, and pose a low-threat to human health and the environment. Petro releases eligible for the Independent Closure Process (ICP) can investigate and remediate low-threat releases following OLQ's [Independent Closure Process Guidance \(Waste-0069-NPD\)](#).

III.4.1 Conceptual Site Model (CSM)

IDEM's evaluation of the adequacy of characterization, risk evaluation, and remedy-related activities relies on submission of supporting documentation by the RP or its consultant. One product of project-related activities and document submissions is the development of a conceptual site model (CSM) – a comprehensive understanding of the release. A CSM should be developed and updated, as needed, as described in the R2, Section 2.

High-resolution site characterization (HRSC) data can rapidly and efficiently improve a CSM and guide project decisions throughout investigation, risk evaluation, and when necessary, remedy selection while saving time and costs needed to complete traditional investigations.

If you believe a release would benefit by using HRSC technology, contact the PRS PM assigned to your incident. If appropriate, the PRS PM can assist with sampling locations and logistics.

III.4.2 Independent Closure Process

The [ICP NPD](#) describes an approach to address investigation and remediation (if necessary) of Low Priority petroleum releases of petroleum and/or petroleum release-related chemicals (RRCs). Its purpose is to provide an efficient method of closure at petroleum releases that pose a low threat to human and environmental health. The [ICP NPD](#) describes a self-completion and certification process that allows persons responsible for the petroleum release to complete investigation, remediation, and site closure without IDEM's direct oversight.

The requirements for closure approval include:

- Investigation and/or remediation performed by an environmental consultant following the R2.
- Implementation of institutional controls where applicable.
- Submittal of the [ICP Completion Form \(State Form 54166\)](#).
- Submittal of complete and accurate closure documentation (including all investigation, remediation, and monitoring information) to IDEM within one year from the date of release discovery. The timeline to achieve closure may be extended to a maximum of three years from the date of discovery if the site has RRCs in groundwater that require treatment and/or monitoring to achieve closure goals.

The reduction of direct IDEM oversight does not relieve the RPs or their environmental consultants from the legal requirements of reporting releases and conducting investigation and cleanup. The IDEM will issue a No Further Action status letter to the RP when the RRCs have been adequately delineated and remediated to land-use appropriate closure levels, and/or institutional controls are implemented to protect human and environmental health.

III.4.3 Initial Investigation

Following release reporting, IDEM will generally request additional information. The request will be tailored to the site classification. An Initial Site Investigation (ISI) Report is always required for all High Priority Petro releases.

The purpose of the ISI Report is to timely gather and submit the following information (R2, Section 2):

- Site history.
- Source and cause of the release.
- Regulated substance(s) released.

- Soil lithology and bedrock.
- Minimum three soil borings with one soil and one groundwater sample from each boring.
- Groundwater flow direction.
- Preferential flow pathways (potential or actual, natural and manmade).
- Human and ecological receptors (potential or actual).
- FSI Work Plan for any additional work necessary to determine the full nature and extents of the release.

When investigating at properties not owned or controlled by the responsible party/person (RP) and access is an issue, refer to IDEM’s [Procedures for Gaining Access to Third Party Properties by Responsible Parties Performing Remediation \(Waste-0065-NPD\)](#) to ensure adequate attempts are made to obtain access and document collection of adequate information. The PRS PM and IDEM legal counsel may assist in attempting to gain access as described in [Waste 0065-NPD](#).

III.4.3 Further Site Investigation

The Further Site Investigation (FSI) is performed to determine the full nature (R2, Task 2) and extents (R2, Task 3) of RRCs, and to evaluate actual or potential exposure to human and ecological receptors (using the CSM).

Most petroleum release characterization completion should occur within 365 days of release discovery. Although the process may take multiple sampling events, IDEM anticipates that a comprehensive FSI Report compiling documentation and analysis of multiple investigations will be submitted at the conclusion of characterization, unless otherwise directed by IDEM. To save time and efforts, multiple investigation mobilizations should be limited to the extent practicable.

If needed, for High and Medium Priority releases, IDEM will provide dates for submittal of the FSI Report based on the proposed work and schedule. The RP may request an extension of the FSI report. IDEM will grant extensions if it is warranted. Extension requests should be written, submitted timely by electronic mail or letter, provide an expected date for submittal of the FSI and include a justification for the request.

The FSI Report must include the following:

- Investigation results concerning
 - The full extent of RRCs
 - Preferential pathways
 - Surface water

- Human and ecological receptors.
- FSI Work Plan if any additional investigation is necessary to complete site characterization.
- Summary of the following for remediation and closure alternatives:
 - Overall effectiveness of the technology.
 - Ability to achieve remediation objectives.
 - Expected treatment duration.
 - Treatment reliability.
 - Pilot Study Proposal.
 - Permits required.

III.4.4 Quarterly Monitoring During Site Characterization

When warranted, IDEM requires quarterly monitoring reports (QMRs) for groundwater sampling and other field activities during the site characterization and beyond. This provides information concerning any seasonal fluctuation in groundwater depth, groundwater flow direction, and RRC concentrations in groundwater that will enhance the development of the final remediation decision. Only quarterly monitoring results and relevant information (operation and maintenance activities, sampling results, etc.), should be included in the QMR. Investigation, mitigation and corrective action activities must be submitted in a separate report as directed by the PRS Program.

QMRs should be submitted four times per year (about every 90 days). QMRs should be submitted with a QMR Cover Sheet and in the format required in the QMR Cover Sheet and format.

III.5.0 Risk Evaluation

Risk evaluation, the process for determining whether a chemical release warrants a remedy, is necessary to fulfill statutory obligations under [IC 13-25-5-8.5\(c\)](#) to protect human health and the environment. Every chemical release that requires characterization also requires some level of risk evaluation.

Risk evaluation complexity varies. The risk evaluation process may be fairly simple, involving a few numerical comparisons, or it may include complex tasks like statistical evaluation of large sample data sets, target cancer risk adjustments, development of site-specific remediation objectives, or evaluating the relevance and sufficiency of different lines of evidence in a remedy decision.

Section 3 of the R2 describes four broadly defined tasks that comprise a risk evaluation.

III.6.0 Remediation

IDEM will determine if a remedy is necessary based on the CSM and completion of a risk assessment. When IDEM requires remediation for High and Medium Priority releases, the RP must submit a Remediation Work Plan (RWP) for IDEM review along with other relevant information. If a remedy is not required, the RP skips this step and proceeds to the closure process outlined in Section 7. Additional guidance on remedy selection and implementation is in Section 4 of the R2.

III.6.1 Free Product Recovery

Free product recovery and reporting should be conducted throughout site characterization and remediation. The following documents may contain free product recovery information:

- Interim Remedy Report (when required by IDEM).
- Initial Site Investigation (ISI) Report.
- Further Site Investigation (FSI) Report.
- Quarterly Monitoring Report prior to and after RWP approval.

III.6.2 Pilot Study

A pilot study may be necessary prior to making a remedy decision to determine the effectiveness and design of a selected remediation technology. An IDEM-approved Pilot Study Report may be submitted prior to or with the RWP as directed by the IDEM PM. Typically, the Pilot Study Report is included with the RWP.

The RP may request an extension for Pilot Study Report submittal. Extension requests should be timely, provide an expected date for submittal and include a justification for the request. IDEM may grant an extension if the request is acceptable and does not delay remediation activities.

III.6.3 Remediation Work Plan Contents

The RWP Report should contain detailed information about the proposed remedy including, but not limited to:

- Remediation objectives.
- Reason(s) for selecting technology.
- Narrative of selected remediation technology that may include:
 - Design information for an engineered system.
 - Volume or mass to be treated by chemical or biological treatment.
 - Location and mass of source to be excavated and disposed and/or monitored natural attenuation information.
- Sampling and Analysis Plan (SAP).
- Health and Safety Plan (HASP).
- Required federal, state and local permits and approvals.

- Schedule of proposed activities.

Typically, RWPs must be submitted within 60 days of the RWP request. The RP may request and IDEM may grant an extension. Extension requests should be written, submitted by electronic mail or letter, timely, provide an expected date for submittal, and include a justification for the request.

III.6.4 Remediation Work Plan Approval

When IDEM determines that the remedy selected is acceptable and the plan is complete and accurate, IDEM sends a written approval to the RP. The approval letter requires the RP to implement the RWP immediately in accordance with the schedule in the RWP.

III.6.5 Remediation Work Plan Amendment

Modifications may be necessary during or after implementing the approved RWP when:

- Engineered system operation is complete.
- Engineered system operation is modified.
- Engineered system design is modified.
- Sampling and Analysis plan is modified.
- Technology is determined to be ineffective.

Do not include these recommendations or modifications in Quarterly Monitoring Reports (QMRs). All changes must be submitted as a RWP Amendment. Consult the IDEM PM to determine what is needed in the RWP Amendment submittals.

III.6.6 Quarterly Monitoring During Remediation Implementation

Quarterly monitoring is often necessary to determine if an implemented remedy exhibits a rebound of dissolved RRC concentrations or free product in the groundwater once the remedy stabilizes. The duration of quarterly sampling depends on the RRCs, remedy and site conditions.

If an engineered system is operating, additional operation and maintenance performance monitoring is required. QMRs should be submitted with a QMR Cover Sheet and in the format required in the [QMR Cover Sheet and format](#).

III.7.0 Petro Program Closure

III.7.1 Conceptual Site Model at Closure

As with the determination of nature and extents of RRCs, and RWP development and implementation, the CSM should be applied during the closure process. The closure strategy must adequately demonstrate that the remedy (when required, which may include institutional

controls) and site conditions adequately control current and future risk to human health and the environment resulting from the RRCs.

III.7.2 Quarterly Monitoring During Closure

Closure monitoring begins after a mechanical, chemical, or biological remedy is stabilized.

Following the RWP implementation, IDEM requires groundwater monitoring is performed to:

- Determine if groundwater rebound occurs after the shutdown of an engineered remediation system. Typically, this takes at least two quarters.
- Determine if groundwater rebound occurs after the application of materials for bio-augmentation such as an Oxygen Release Compound (ORC®). Typically, this takes two to four quarters following application or injection.
- Determine if the remaining RRC plume is stable or shrinking. Typically, this takes four quarters. IDEM may require more quarters to verify acceptable closure conditions depending on many factors. Common factors include:
 - RRC concentration(s).
 - Areal extents of RRC (s).
 - The contaminated groundwater zone is being used or is likely to be used for drinking water in close proximity to the release.
 - Proximity to drinking water receptors.

Quarterly monitoring reports (QMRs) should be submitted with a QMR Cover Sheet and in the format required in the QMR Cover Sheet and format.

III.7.3 No Further Action Request

Most NFA approvals are in response to an NFA Request Report submitted by the RP. IDEM acknowledges that the need for a comprehensive NFA Request Report is not always needed to evaluate closure of a release. However, under the following circumstances, an NFA Request Report should be submitted when site conditions are appropriate for closure of High and Medium Priority releases:

- Old releases where historical soil and groundwater data are not readily available.
- Releases with extensive or multiple corrective actions with data gaps where the CSM needs to be updated.
- High Priority releases with completed exposure pathways in indoor air, drinking water, surface water, etc.
- Releases using Institutional Controls, such as an ERC to adequately control exposure.
- Releases using LOE to demonstrate adequate exposure control (not including Institutional Controls).
- Releases where significant data gaps exist.
- Releases with commingled plumes or multiple releases being closed at the same time.

If IDEM believes that a site may be eligible for an NFA approval, IDEM may request that the RP submit an NFA Request Report. The NFA request may include a closure strategy based on existing conditions. A prepared NFA Request Report should include:

- NFA Request cover letter.
- Full Quality Assurance/Quality Control (QA/QC) documentation when required.
- Draft ERC when necessary (IDEM encourages the use of the [OLQ ERC template](#)).
- Local ERO.
- Any other information supporting the NFA request (such as notification to state or local government agency that RRCs remain under a roadway).

On a site-by-site basis, the submittal of appropriate QA/QC documentation, and data validation by IDEM, may be requested in order to approve the NFA request.

III.7.4 Institutional Controls

Environmental Restrictive Covenant (ERC)—An ERC is a legal and administrative measure to protect human health and the environment at properties where RRCs are left in place. The intent of the ERC is to limit human exposure by restricting activity, use, and access to properties with RRCs at concentrations exceeding the R2 unconditional remediation objectives unless convincing LOE demonstrate otherwise. Examples of convincing LOE are further identified in the R2, Sections 2 and 3. Controls may include administrative and engineering controls.

Administrative controls typically include restrictions on land use and groundwater. Engineering controls, on the other hand, may include vapor mitigation systems and caps or covers that are designed to prevent direct contact or migration of RRCs to groundwater.

Environmental Restrictive Ordinance (ERO)—An ERO is a local ordinance that may be used to restrict groundwater use in lieu of, or in addition to, an ERC.

III.7.5 No Further Action (NFA) Approval

The Petro Program issues an NFA approval letter upon approval of the post-RWP CSM or submittal of the [ICP Completion Form \(State Form 54166\)](#). When an ERC is utilized as a component of the remediation, IDEM will issue the NFA approval letter upon receipt of the IDEM-reviewed, approved, and recorded ERC. The NFA determination is based on information provided to and reviewed by IDEM. The NFA approval letter summarizes the information used to determine and implement the remediation, the use of any institutional controls, residual contamination at the time of closure, and the responsibilities that the RP may have in maintaining the NFA approval status.

NFA approvals may be:

- Unconditional Closures—Closures that leave the site environmentally suitable for any future use.
- Conditional Closures—Closures that require some continued operation, maintenance, monitoring, or that require property use restrictions or exposure controls. Approval depends on one or more ongoing activities or restriction that control exposure to levels of RRCs above the R2 unconditional remediation objectives or site-specific risk-based levels upon which the remediation objectives for a particular land use were based. Most Petro conditional closures utilize an ERC. The most common restrictions are:
 - Groundwater use
 - Land use
 - Contamination under building or pavement requiring areas to remain unchanged.

III.7.6 Conditions Subsequent

When the Petro Program approves a conditional closure, the No Further Action (NFA) letter will include conditions subsequent to closure that must be monitored or maintained to ensure the continued effectiveness of a remedy. An ERC may also detail any condition that requires monitoring or maintenance.

Engineering Controls

Often passive engineering controls such as pavement and buildings are used at Petro sites. Vapor mitigation may be required in current or future buildings within the Exposure Control Area. If there are any engineering controls, an ERC may specify the location of the controls, and requirements for compliance with the ERC.

Monitoring

If monitoring is required as a condition of closure, an ERC may specify the specific monitoring requirements. IDEM may conduct post-closure monitoring to verify compliance with the conditions of closure.

Reporting

If reporting is required as a condition of closure, an ERC may specify the specific reporting requirements for the site.

III.8.0 When Issues Arise

Sometimes issues arise as part of the normal course of business. These issues usually center on technical and policy decisions related to denials of work proposed or performed rather than regulatory requirements and deadlines. When these issues arise and the RP, or environmental consultant is not satisfied with the resolution, IDEM recommends contacting the PRS Section

Chief via telephone or email. If unsure which person at IDEM to contact, the RP or consultant should ask the project manager of call (317)232-8900. If a satisfactory solution is not reached, IDEM recommends that the RP or consultant contact the Petroleum Remediation Branch Chief.

When significant violations are identified, typically the PRS Section issues a Violation Letter that identifies the violation(s), and timeframe for corrective measures. If the violations are not corrected in a timely and complete manner, the PRS Section may refer the violations for consideration of a formal enforcement action.

III.9.0 Cost Recovery

The PRS seeks recovery of its costs incurred in overseeing response actions taken at Petro sites. IDEM oversight costs to be paid by RPs include costs associated with site-specific review of environmental investigation, remediation, and closure documentation, including site visits, data collection, meetings, technical review, legal review, or other tasks necessary to manage a site to closure.

IDEM oversight costs will be billed on a monthly or quarterly basis. IDEM's oversight cost hourly rate is subject to change. RPs shall pay Petro project oversight costs to the Hazardous Substances Response Trust Fund as provided in [IC 13-24-1-4](#) and shall pay in full before receiving a No Further Action status from IDEM. Failure to pay these costs within 60 calendar days from the initial due date shown on the invoice may result in IDEM referring the balance (including late fees and a collection fee) to a collection agency or pursuing legal action through the Office of the Indiana Attorney General to compel payment of outstanding project oversight costs.

If an RP declares bankruptcy, the RP must include IDEM as a creditor and provide notice of the bankruptcy to IDEM, because IDEM has a potential claim. IDEM reserves the right to file a proof of claim or an application for administrative expenses in any bankruptcy proceedings.

Costs associated with investigation and cleanup of the site may be covered by current or past insurance policies that were in effect at the time of ownership of the site or during the period of operation of the facility by the RP or its predecessor companies. Most insurance companies require notice to the carrier of a claim in a timely manner, often based upon receipt of the Initial Investigation Report Request Letter. RPs may want to review current and past policies to evaluate whether they have coverage. Coverage depends on many factors such as the language of the policy and which state's laws apply. Not having insurance or not having coverage under a policy does not prevent RPs from being responsible for all response actions. Furthermore, PRS will not excuse delays associated with third parties, such as delays caused by negotiations between RPs and their insurance carriers.

III.10.0 Forms and Checklists

Current State Forms that can be completed electronically are posted on the [IDEM Forms webpage](#) as PDF-fillable forms, Microsoft Word documents, or Excel documents. Links to those forms and checklists as well as many other documents and websites have been provided where the document is discussed in the text.