

1. INTRODUCTION

1.1 *Why Read This Remediation Program Guide?*

The Indiana Department of Environmental Management (IDEM) Office of Land Quality (OLQ) administers 12 programs that address sites that are contaminated, potentially contaminated, or perceived to be contaminated by hazardous substances or petroleum. Each program operates under a set of rules or laws and addresses a particular kind of site. This guide provides a roadmap through the cleanup programs, from release to closure, to clarify how each site is addressed. The programs differ in many ways, including:

- Terminology
- Types of documentation
- The path that a project travels through the program
- Public notice and participation opportunities

IDEM has made more information available online to make communication easier and information more accessible. This guide explains what information can be found online and where the information is located.

This *Remediation Program Guide* (RPG) is a partner document to the *Remediation Closure Guide* (Waste-0046-R1) (www.IN.gov/idem/4694.htm).

A note about naming conventions

IDEM's remediation programs use various terms to describe the parties who interact with IDEM. The terms indicate why or how the party(s) entered a program and may be based in law. The Voluntary Remediation and Brownfields Programs interact with applicants or program participants. The LUST and ELTF Programs generally interact with owner/operators (O/Os). RCRA, State Cleanup, Superfund, and DERP generally interact with responsible parties/persons or potentially responsible parties/persons. In order to simplify this text, when discussing multiple entities collectively that interact with IDEM's remediation programs, this text will use the general term "party(s)." In the context of a program specific discussion the appropriate term will be used.

1.2 *What Is in This Remediation Program Guide That Is Not in the Remediation Closure Guide?*

This RPG outlines processes and regulatory requirements of the OLQ remediation programs. The RPG describes each program. The RPG also includes information of general use. It discusses the following:

- Document submittals and enforcement processes
- The structure of each remediation program
- How projects flow through each program
- Some program-specific technical guidance
- Useful guidelines, forms and checklists, and e-Tools

The *Remediation Closure Guide* sets forth policies and procedures applicable to all of IDEM's remediation programs. The *Remediation Closure Guide* provides a consistent, risk-based approach to address contaminated sites. It provides detailed information including:

- Remediation objectives
- Conceptual site model (CSM) development
- Exposure assessment
- Remedy selection and implementation
- Background
- Plume evaluation
- Analytical methods
- Standard equations
- Screening levels

1.3 The Approach to Remediation Has Changed

In 2009, Indiana statutes, Indiana Code (IC) 13-12-3-2(a), 13-25-5-8.5 (c) (1) and (d) (3) (www.IN.gov/legislative/ic/code), were revised by House Enrolled Act (HEA) 1162. In the past, IDEM generally required removal of contaminants to closure levels based on the particular land use, to the extent practicable, as a precondition to remedy approval. HEA 1162 added new language to IC 13-25-5-8.5 (c) (1) and (d) (3) that:

- Requires that the remediation objectives proposed for a site be considered when determining the nature and extent of the hazardous substance or petroleum contamination
- Allows the risk based remediation objectives to include risk management and control of completed or potential exposure pathways
- Requires that environmental restrictive covenants (ERCs) and environmental restrictive ordinances (EROs) be considered when evaluating the remediation proposals if proposed as mechanisms to control exposure and manage risk
- IC 13-12-3-2(a) makes the remediation objectives detailed in IC 13-25-5-8.5(d) applicable to all remediation programs

IDEM interprets the above to mean that the agency must consider risk management and exposure pathway control remedies as valid risk management approaches to site closure. Rather than requiring that contaminants be removed as a precondition for remedy approval, IDEM also must consider a risk management approach. Proposed risk management remedies should be evaluated carefully, especially where federal requirements may apply.

The *Remediation Closure Guide (Waste-0046-R1)* (www.IN.gov/idem/4694.htm) provides detailed information about how to assess the protection of human health and the environment, and how to select appropriate remedies.

1.3.1 Record of Remedy Selection and Record of Site Closure

Environmental policies and rules change over time, as do the people who work with them and the people who are affected by them. Environmental investigation and remediation is a process that often takes years to complete. The data collected and interpreted and the documents developed can be extensive and

complex. When contamination is managed in place, a site may require long term maintenance. Circumstances may result in decisions being revisited over time. Therefore, clear documentation is essential. IDEM developed two state forms, Record of Remedy Selection and Record of Site Closure, to serve the following purposes:

- To clarify the amount and type of information necessary to support risk-based decision making
- To ensure that decisions made by the Remediation Services Branch (RSB) of OLQ are consistent, clearly presented and weighed against the appropriate criteria
- To serve as an executive summary of the remedy selection and remedy implementation, identifying key documents and any public participation activities

The appropriate form should be completed by the party(s) (*or their environmental contractor*) and be submitted with any Corrective Action Plan (CAP), Remediation Work Plan (RWP), or any request to approve site closure. IDEM staff will indicate approval by signing and returning the form to the requestor.

The Record of Remedy Selection (RRS) - State Form 54471 (www.IN.gov/idem/5157.htm) presents the remedial or corrective action plan when IDEM must approve the selection of the remedial (*or corrective*) action. It certifies that the remedy selection process was carried out properly; describes the technical parameters; specifies the remediation objectives and remedy components; and provides a consolidated source of information - including the rationale behind the selection.

The Record of Site Closure (RSC) - State Form 54472 (www.IN.gov/idem/5157.htm) presents the site closure decision. (*In cases where IDEM can approve the remedy selection and site closure simultaneously, the RSC may present all information about the remedy selection and remedial action(s) performed, so an RRS would not be necessary.*) It describes the technical parameters; specifies the remediation objectives and remedy components; and provides a consolidated source of information - including the rationale behind the selection.

1.4 How Will IDEM Manage the Transition of Sites From RISC and Other Existing Nonrule Policies to the Remediation Closure Guide (RCG)?

IDEM provides Nonrule Policy Documents (NPDs) such as the *Risk Integrated System of Closure (RISC) Technical Guide (Waste-0046)* (www.IN.gov/idem/4694.htm) as guidance to be used along with applicable rules or laws for risk-based assessment of contaminated sites. Rules or laws may be amended and NPDs revised during the course of a remediation project. IDEM developed a transition policy to identify the applicable guidance and associated procedures and screening level tables for each project.

In general, where 328 IAC and 329 IAC make reference to RISC, IDEM will interpret that in terms of the relevant component of the RCG. Some specific examples are:

- Where 329 IAC 7.1-2-9 defines No Further Action Letters in terms of RISC closure levels, IDEM will interpret that as completed remediation objectives.
- In 329 IAC 7.1-4-1; and in 328 IAC 1-4-1, where these rules say that sites will be prioritized based upon identification or detection of any contaminant above “RISC residential default cleanup levels”, IDEM will interpret that as “RCG residential screening levels”. Where this

section discusses: “ ‘surface soil’ and ‘direct contact exposure pathway’ as defined or further explained in RISC”, IDEM will interpret that as meaning those explanations provided in the RCG. RISC cleanup standards for the appropriate land use will be interpreted as risk-based remediation objectives.

- Where 328 IAC 1-1-5.1 discusses emergency actions in terms of RISC residential groundwater cleanup objectives, IDEM will interpret that as RCG residential screening levels. Where 328 IAC 1-3-5 discusses reimbursable costs associated with transitioning to RISC, IDEM will interpret that as transitioning to the RCG.
- Where 328 IAC 1-1-5.1 discusses costs for remediation of contamination not shown to be at concentrations exceeding the risk integrated system of closure (RISC) as described in IC 13-23-8-4(a)(4)(A)(ii) industrial cleanup standards, IDEM will interpret that as risk-based remediation objectives appropriate for industrial land use as discussed in the RSC. Off-site contamination at concentrations exceeding RISC residential cleanup standards will be interpreted as off-site contamination exceeding residential screening levels. Where personnel classification activity descriptions refer to RISC evaluations, statistics, etc., IDEM will interpret that as RCG evaluations, statistics, etc.

IDEM will evaluate proposed remediation work plans and remediation objectives (*including substantive additions or amendments to previously approved remediation work plans or remediation objectives*) based on the laws, rules, guidance, and prior agreements in effect at the time of each proposal. To the extent that NPDs may become outdated due to amendments to statutes or rules, IDEM must follow state law, unless the site is governed by an agreement, such as a Voluntary Remediation Agreement or Agreed Order, or an order such as a Commissioner’s Order.

The transition period for the RCG ends six months from its effective date. For subsequent substantive changes to guidance (*which includes screening level tables*), IDEM will provide advance notice of the revisions or updates and when appropriate, define a transition period of 6 months that will begin on the effective date of the new guidance. IDEM will consider both the guidance that is being replaced and the new guidance to be in effect during the transition period. A party(s) may choose to use either previously applicable guidance or the new guidance if the following program-specific milestones are met before or during a transition period:

- **Brownfields** – a Remediation Work Plan has been submitted or a complete request for a Comfort/Site Status/No Further Action letter has been logged by the program
- **Resource Conservation and Recovery Act (RCRA) permitting** - a closure plan has been submitted to IDEM
- **RCRA Corrective Action** - a facility investigation work plan has been submitted to IDEM
- **Leaking Underground Storage Tank Program and Excess Liability Trust Fund Program** - a Corrective Action Plan (CAP) has been submitted to IDEM
- **State Cleanup Program** – a Remediation Work Plan has been submitted to IDEM

- **Voluntary Remediation Program** – a Voluntary Remediation Work Plan (RWP) has been submitted to IDEM

If the above milestones have not been met before the end of the transition period, then IDEM will refer to current guidance and applicable rules and laws when evaluating proposed remediation work plans and remediation objectives.

Party(s) that are utilizing an older guidance document may propose site-specific approaches or choose to change to the most current guidance at any time. The scientific methodology and any inputs used to evaluate risk or to establish remediation objectives need to be current at the time they are presented to IDEM for approval. Whether using an older guidance document or the most current guidance, site-specific approaches, including the calculation of site-specific remediation objectives, will be evaluated using currently accepted methodology and best available science.

For example, if the party(s) has an approved remediation plan that references an old default closure level (*or even an entire table of old default values*) or a calculated nondefault value which was based on the toxicity information that was current at the time it was approved, they may proceed with the project under the terms of that approved remediation plan even as policy and science changes after that (*except if a hazardous substance or petroleum becomes an imminent and substantial threat to human health or the environment*). Note that the terms “default closure levels” and “nondefault closure levels” are no longer used. These levels from the *RISC Technical Guide* have been updated and are provided in the *Remediation Closure Guide* as “screening levels.” The *Remediation Closure Guide (Waste-0046-R1)* (www.IN.gov/idem/4694.htm) provides detailed guidance on the use of screening levels.

The RCG defines a remediation objective as “an environmental concentration of a chemical such that an equal or lower concentration will not result in unacceptable risk to receptors. Examples include screening levels, site-specific levels, and background concentrations.” Approved site remediation objectives will not be re-opened merely because they utilize “outdated” guidance or closure tables. If, however, the party(s) decides at some later date to change or recalculate a remediation objective and present a new remediation objective for IDEM to approve, the party(s) will need to base their proposal and calculations on science information and toxicity data that is current at the time that they request that approval. The party(s) may revise selected remediation objectives for a site, as long as the revised value(s) reflect toxicity and other scientific information that is current at the time of the update. A comprehensive table of all remediation objectives should accompany each update. The comprehensive table should describe the source and revision date(s) of all original and revised remediation objectives.

If a party(s) does not complete a remediation project consistent with the terms and conditions of the Remediation Work Plan (*or agreement*), or if a hazardous substance or petroleum contaminant becomes an imminent and substantial threat to human health or the environment, then IDEM may withdraw its prior approval of the work plan.

1.5 Introduction to the Remediation Programs

This RPG will introduce these remediation programs:

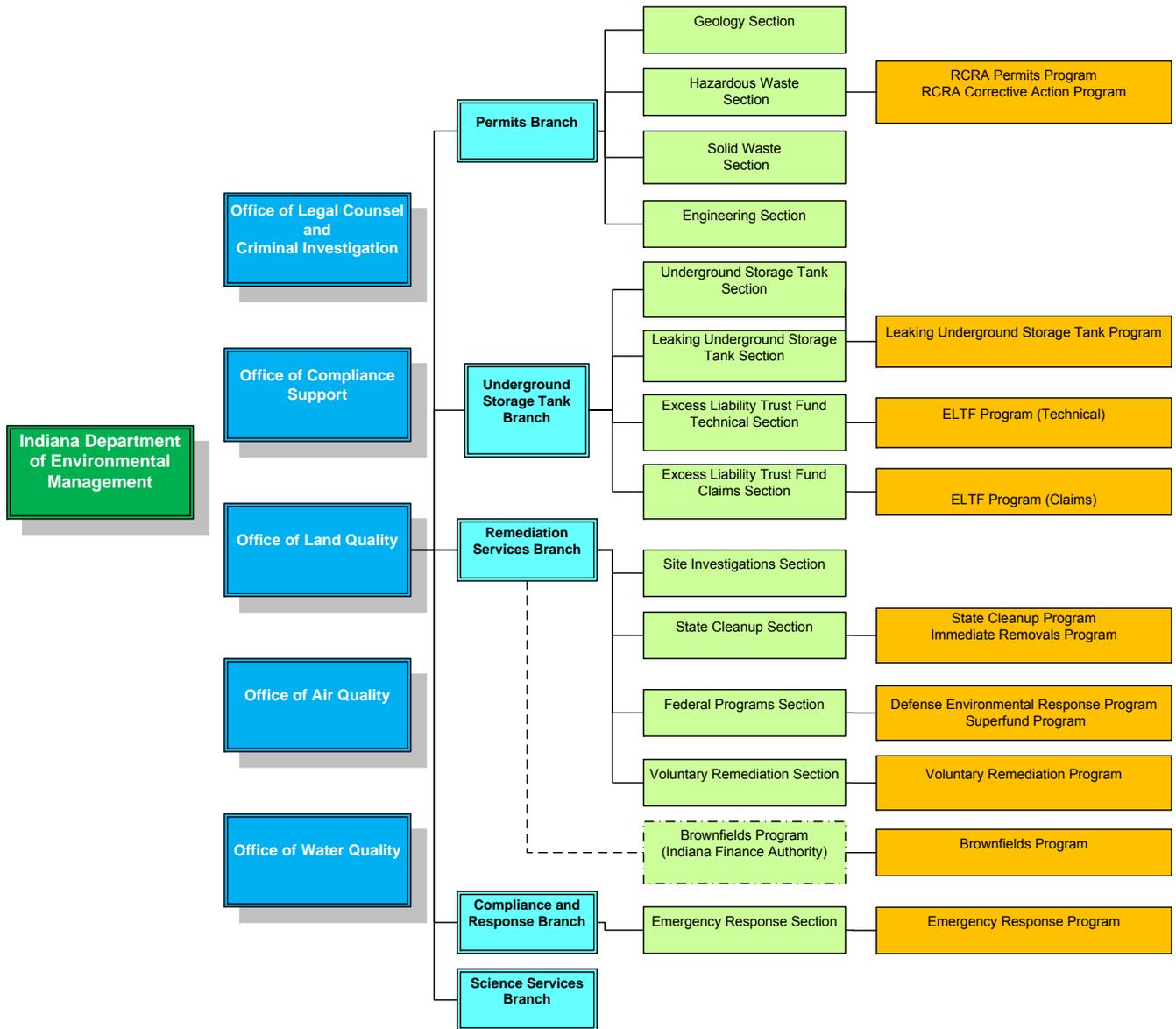
- Indiana Brownfields Program (IBF) (www.IN.gov/ifa/brownfields)
- Excess Liability Trust Fund (ELTF) Program (www.IN.gov/idem/5063.htm)
- Leaking Underground Storage Tank (LUST) Program (www.IN.gov/idem/4997.htm)
- Resource Conservation and Recovery Act (RCRA) Closure and Corrective Action Program, Subtitle C (www.IN.gov/idem/4995.htm)
- Site Investigation Program (SI) (www.IN.gov/idem/4143.htm)
- State Cleanup Program (SCP) (www.IN.gov/idem/4179.htm)
- Superfund Program (SF) and Defense Environmental Restoration Program (DERP) (www.IN.gov/idem/4152.htm)
- Voluntary Remediation Program (VRP) (www.IN.gov/idem/4127.htm)

Figure 1.1 illustrates where these programs are located in IDEM's organizational structure.

FYI - Spill Response!

Emergency Response is not described in detail in this RPG. Spill responses performed in accordance with 327 IAC 2-6.1 are not remedial actions. If the released material is not completely removed, IDEM Emergency Response may refer the incident to a remediation program for further work. At that time, the guidance provided in the Remediation Closure Guide would apply. See Section 1.7 for more information about Emergency Response referrals.

Figure 1.1 IDEM Office of Land Quality Corrective Action and Remediation Programs



1.6 Remediation Process Overview

The *Remediation Closure Guide (Waste-0046-R1)* (www.IN.gov/idem/4694.htm) contains detailed information about approaches to, and requirements for, site discovery, assessment/investigation and closure. A site will follow this general path from discovery through closure:

Discovery. When a party(s) spills a hazardous substance or discovers contamination from previous spills or site activities, they should report that spill or contamination by calling the IDEM Spill Line at (317) 233-7745 or (888) 233-7745. Spill Line staff will ask questions to determine if there is an ongoing spill or damage to waters of the state. If not, the caller is given an incident number which allows the site to be tracked regardless of which IDEM program oversees subsequent activities, and the site is referred to the appropriate program.

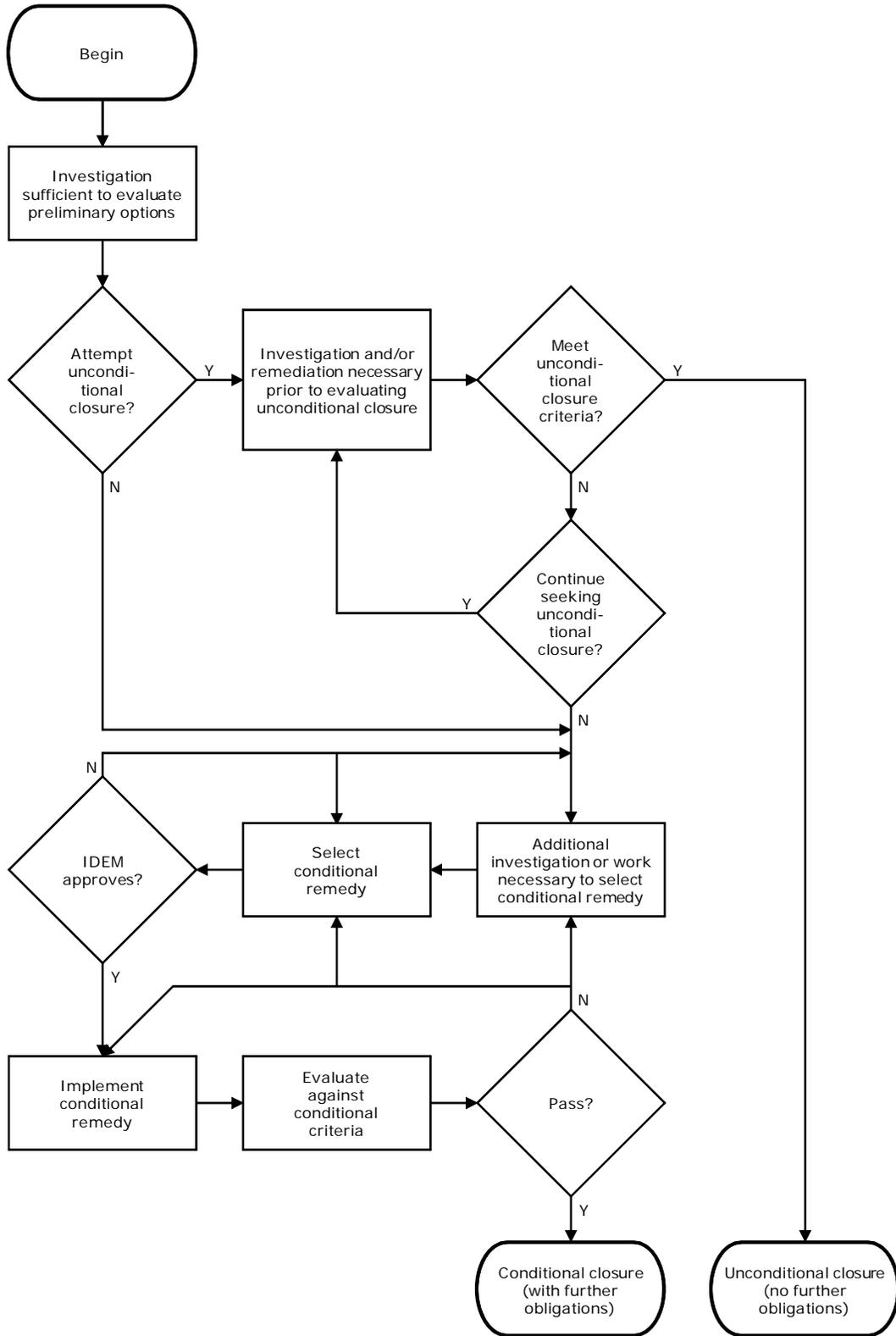
Assessment or investigation. The next step is to assess the extent of contamination and where it is located by collecting information and taking samples. Information may include but is not limited to documents about the history of a facility, data from previous sampling events or studies, or information about a community, a process or a contaminant. Plans and results are submitted to IDEM for review. If the results indicate that contaminant levels are below remediation objectives, a site may go directly to closure.

Closure. Closure is IDEM's written recognition, based on information from the results of an investigation, assessment or remediation, that remediation objectives were achieved. Closure may be achieved by removal or in-situ treatment of contamination, by prevention of exposure to the contaminants through engineered or institutional controls, or by demonstration that chemical concentrations are below remediation objectives.

Conditions Subsequent. Some remediation may require long term maintenance of engineered controls. If contaminants are not removed, IDEM may require institutional controls to ensure that the remedy continues to protect human health and the environment. The most commonly used institutional controls (www.IN.gov/idem/5959.htm) are environmental restrictive covenants (ERCs) and environmental restrictive ordinances (EROs). Sites may require periodic monitoring and/or inspections, and in some cases financial assurance may be necessary.

Figure 1.2 provides an overview of the remediation process from the point when a site enters an IDEM program until site closure. Each program chapter includes a more detailed process flow chart for that program.

Figure 1.2 Remediation Process Overview



1.7 Remediation of Emergency Response Sites

The Emergency Response (ER) Section (www.IN.gov/idem/4155.htm) responds and/or oversees responses to spills and other environmental emergencies. The Spill Rule (327 IAC 2-6.1) requires that the spilled material of a quantity, type, duration and in a location as to damage the waters of the state; be removed or neutralized, utilizing the most effective actions to prevent contaminants from entering waters.

ER may also serve as a “front door” for sites with releases that are not reportable spills. When IDEM staff receive calls from responsible parties about a newly discovered release, IDEM encourages that RP to report the release via the Spill Line. When the Spill Line receives a call, staff enter the site into IDEM’s tracking system and assign an incident number. That number allows the site to be tracked regardless of which IDEM program oversees subsequent activities.

Spill Line staff always collect information to determine if emergency mitigation is necessary. In some cases, a release may be a reportable spill that occurred in the past but was not reported or mitigated. However, many releases reported to the Spill Line are referred to the appropriate program immediately, or require little or no emergency mitigation. If the Spill Rule is not applicable to the release according to 327 IAC 2-6.1-1, or if the site meets the exclusions in 327 IAC 2-6.1-3, ER staff will immediately refer the site to the appropriate program. Detailed information about reportable spills is included in the Spill Rule.

Figure 1.3 Spill Reporting, Containment, Response and Remediation Referral Matrix

	Spills involving acute releases	Spills involving historic releases
Spills to soil, surface water, no ground water impacts	<ul style="list-style-type: none"> • Report spill to Spill Line • ER oversees emergency mitigation • ER oversees immediate containment from waters • ER oversees spill response, removal • RP may earn closure under ER 	<ul style="list-style-type: none"> • Report spill to Spill Line • If there is an ongoing spill or damage to waters of the state: <ul style="list-style-type: none"> ○ ER oversees emergency mitigation ○ ER oversees spill containment and manages impacts to surface waters and public utilities such as sewer lines • Site ultimately referred to Remediation Services Branch for characterization, closure
Spills involving ground water	<ul style="list-style-type: none"> • Report spill to Spill Line • ER oversees emergency mitigation • ER assesses spill containment and manages impacts to surface waters and public utilities • RP may choose to perform additional removal under ER • Site ultimately referred to Remediation Services Branch for characterization, closure 	<ul style="list-style-type: none"> • Same as above

This table provides general guidance. There may be exceptions to this process.

When spill responses fail to remove contaminant concentrations to background or nondetect levels, the site may be referred to the State Cleanup Program (SCP). All spills, overfills and releases from regulated Underground Storage Tanks (USTs) are referred to the Leaking Underground Storage Tank (LUST) Program. LUST sites fall under the legal authority in IC 13-23 (*Underground Storage Tanks*) and 329 IAC 9 (*Underground Storage Tanks*). SCP sites fall under the legal authority in IC 13-25-4 (*Hazardous Substances Response Trust Fund*) and IC 13-24-1(*Petroleum Releases*).

Process

When a spill response is referred to SCP, SCP enters sites into the State Cleanup database, and SCP determines site priority and whether it should remain in SCP or be transferred to the appropriate remediation program. A site may be evaluated by the Site Investigations (SI) Program. ER or SCP will refer a site to the LUST Program if contamination results from a release from an underground storage tank (UST) that contained regulated substances (*petroleum product or hazardous substance*) after January 1, 1974. If a UST was closed prior to January 1, 1974 the site is referred to SCP. Releases from unregulated underground storage tanks (USTs) are usually remediated in accordance with LUST guidance.

The IDEM OLQ project manager will send a letter to the party(s) requesting an initial spill report. OLQ technical staff will review the report and may recommend further actions. IDEM may request further site investigation to determine the extent of contamination. The next step depends on the nature and extent of contamination.

1.8 Potential Petroleum Contaminants

IDEM has developed an updated list of potential petroleum contaminants. Table 3.1 of this RPG entitled *Potential Petroleum Contaminants* provides guidance for selecting the parameters to sample in soil, ground water monitoring wells, drinking water wells, air, and soil gas. The table contains other useful information including laboratory test methods. The updated parameters will be used by the IBP, RCRA Corrective Action Program, LUST Program, ELTF Program, SCP, and VRP. Table 3.1 is presented in Chapter 3 of this guide.

1.9 Document and Electronic Data File Submittal Guidelines

1.9.1 Why Does IDEM Have Document Submittal Guidelines?

IDEM has an electronic document repository called the Virtual File Cabinet (VFC) (www.IN.gov/idem/6551.htm). VFC can capture, store, file, distribute, and securely access electronic documents of all types. This makes it possible for people to look at the public documents in the IDEM files from any computer connected to the internet.

VFC is in constant use. In order to realize the benefits of VFC, IDEM has had to learn what the system will most efficiently handle, given the limitations common to web-based technologies. For that reason, IDEM staff developed guidelines for document submittal.

More information about the VFC is in Section 1.11.

1.9.2 What Are the Document Submittal Guidelines?

The *Document Submittal Guidelines* explain how to submit documents for IDEM to review. They can be found on the IDEM website (www.IN.gov/idem/6578.htm). If there is a need to change the *Document Submittal Guidelines*, the website will be updated. Many environmental consultants are on OLQ's mailing list and will receive these updates directly. Consultants who would like to be added to the mailing list should contact the Chief of the Science Services Branch at (317) 232-8866. **Please check the *Document Submittal Guidelines* on the IDEM website when planning to submit a document!**

The *Document Submittal Guidelines* explain the best way to format electronic documents so that the VFC will upload them correctly, and the number of paper copies that should be submitted.

- Generally IDEM asks for one electronic (*compact disc*) and two paper copies of any document more than ten pages long that is submitted for review.
- Electronic documents should be limited in size to 25 megabytes (MB). Other formatting pitfalls to avoid are detailed in the guidance.
- Data packages (*these are described in Section 1.10 below*) are the exception. Only one paper copy of a data package needs to be submitted.
- If there is a legal document (*these are described in Section 1.10 below*) that specifies some number of copies, the specifications in that legal document must be followed.
- For RCRA Closure, the number of copies of a closure plan required for review depends on the unit type undergoing closure. The OLQ permit manager will provide guidance on the number of copies to be submitted prior to closure plan submittal.

1.9.3 Electronic Data File Submittal Guidelines

Electronic data files may be sent as an e-mail attachment to the Geographic Information Services (GIS) (www.IN.gov/idem/6546.htm) staff at OLQDATA@ idem.IN.gov. IDEM also has published *Electronic Data File Submittal Guidelines* that can be found at www.IN.gov/idem/5384.htm.

1.10 Common Documents and Document Review

Many documents may be developed as remediation projects progress from a reported release to closure. Those may include and are not limited to:

Notifications. Notifications are submitted on state forms (www.IN.gov/idem/5157.htm) to the appropriate program. Information about notifications for each program is included in the program specific chapters of this RPG. Notifications are submitted to the mailing address or contact person identified on the State Forms.

Plans. Plans explain the approach to an investigation or remediation. They may include:

- Work Plans
- Quality Assurance Project Plans(QAPPs)
- Sampling Plans (SAPs)
- Engineering/Design Plans
- Community Relations Plans (CRPs)
- Operation and Maintenance Plans

- Remediation Work Plans (RWPs) and Corrective Action Plans (CAPs) (*CAPs also may serve as investigation reports*)

Reports. Reports present or interpret data, or describe an activity that was completed such as an investigation or remediation activity. Reports may include:

- Initial Site Characterization (ISC) Reports
- Further Site Investigation (FSI) Reports
- Feasibility Study (FS) Reports
- Risk Assessment Reports
- Remedial Action Reports
- Remediation Completion Reports

Data Packages. Data Packages (*sometimes referred to as Level IV or Quality Control /Quality Assurance (QA/QC) Packages*) are documentation of the QA/QC measures for environmental data. They include data summaries, raw data and laboratory QA/QC information.

Legal Documents. Agreed Orders, Commissioner's Orders, and Voluntary Remediation Agreements are some examples of legal documents.

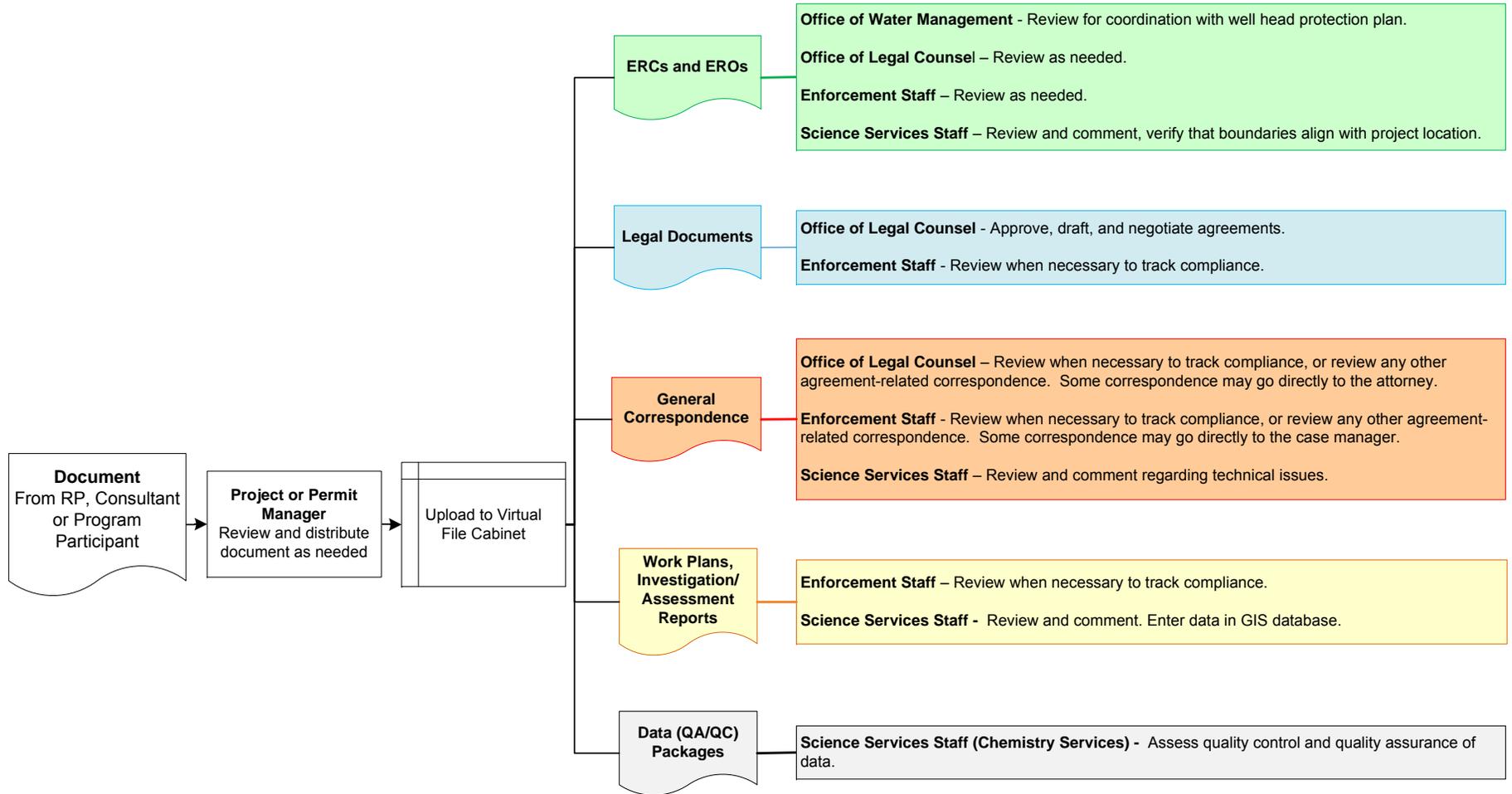
General Correspondence. General correspondence may communicate information about subjects such as project personnel; meeting arrangements; discussion of legal, financial or technical issues; and status reports.

Environmental Restrictive Covenants (ERCs) and Environmental Restrictive Ordinances (EROs). These documents are institutional controls, put in place to prevent exposure to contamination by requiring or restricting some activities.

Community Relations Publications. These may include fact sheets, media advisories, public notices of meetings and public comment periods, or notifications to the local community of releases, document approvals, or proposed EROs. The IDEM OLQ project manager and/or Media and Communications Services staff review community relations publications.

After IDEM receives a notification, or when a site, incident or release is identified by some other means, it is assigned to an IDEM OLQ project or permit manager. All subsequent communication is directed to that project or permit manager, who is responsible to ensure documents are reviewed, responded to, and stored. Some legal correspondence may be directed to legal counsel. Documents may require review by staff of Science Services, Legal Counsel, Enforcement, or other IDEM Offices such as the Office of Water Quality. Figure 1.4 illustrates how some common documents are distributed for review.

Figure 1.4 Distribution of Documents for Review



Project or Permit Manager – Project managers manage projects associated with remediation. Permit managers manage projects associated with RCRA permits.
Enforcement Staff – Typically involved with RCRA or LUST enforcement projects.
Science Services Staff – Chemistry Services, Geological Services, Risk Services, and Engineering Services (includes Geological Information System services).

1.11 Information Available Online

1.11.1 Virtual File Cabinet (VFC)

To access electronically stored files, use IDEM's VFC on the IDEM website (www.IN.gov/idem/6551.htm). The VFC contains the public records for many of IDEM's program areas. 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.

Learn more about VFC, including how to search and enhance viewing options by visiting the VFC Tutorial (www.IN.gov/idem/6551.htm).

1.11.2 Institutional Controls Registry

When an activity/land use restriction or engineering control is necessary to prevent exposure as a part of a remedy, an institutional control may be needed. A list of sites with institutional controls, called the IDEM Institutional Controls Registry, is available on the IDEM website (www.IN.gov/idem/5959.htm). When fully populated, this registry will list all sites where the remedy employs some type of risk-based closure with some type of continuing land use restrictions or engineering controls.

These IDEM cleanup programs are listed in the Institutional Controls Registry:

- Leaking Underground Storage Tanks Program (www.IN.gov/idem/4997.htm)
- Voluntary Remediation Program (www.IN.gov/idem/4127.htm)
- State Cleanup Program (www.IN.gov/idem/4179.htm)
- RCRA Corrective Action Program (www.IN.gov/idem/4995.htm)
- Federal Programs (Superfund Program and Defense Environmental Restoration Program) (www.IN.gov/idem/4152.htm)
- Indiana Brownfields Program (www.IN.gov/ifa/brownfields)

The Institutional Controls Registry will assist in institutional control tracking efforts and provide public information on cleanup sites in Indiana. Information included will help visitors locate and visualize institutional control sites. The Institutional Controls Registry includes information such as the site address, county, city, IDEM cleanup program overseeing the project, and the types of land use restrictions applicable for the site. The registry includes a link to view the actual institutional control document using IDEM's VFC (www.IN.gov/idem/6551.htm) and, where available, internet mapping technology for an aerial view of the site.

1.11.3 Indiana Laws, Rules, and Policies

The entire contents of the current Indiana Code (IC) and Indiana Administrative Code (IAC), along with other useful information about current and proposed Indiana legislation, are posted on the Indiana General Assembly website (www.IN.gov/legislative/ic_iac/) and on the IDEM Rules, Statutes, and Policies website (www.IN.gov/idem/4087.htm), where IDEM NPDs also are found.

1.11.4 State Forms and Other Documents or Resources Pertinent to This Remediation Program Guide

Current state forms that can be completed electronically are posted on the IDEM Forms website (www.IN.gov/idem/5157.htm) as PDF fillable forms, Microsoft Word documents or Excel documents that can be completed electronically. Links to many other documents and internet sites have been provided in this RPG where the information is pertinent.

1.12 When Issues Arise

Each IDEM remediation program is responsible to ensure that cleanups are accomplished in accordance with a specific set of federal and/or state laws, rules, NPDs, and guidance accessible at www.IN.gov/idem/4087.htm. Participation in the Voluntary Remediation and Indiana Brownfields Program is voluntary. Cleanups under other IDEM remediation programs may be performed cooperatively or may be enforcement-driven. The time and expense to achieve closure can be reduced through cooperative interaction between IDEM and the party(s) IDEM endeavors to encourage cooperative projects. The party(s) is advised to contact the project or permit manager when issues arise unless otherwise required by an administrative order or other agreement. Most issues can be resolved through that communication. The program-specific chapters of this guide contain information about how to work through issues or disputes, and various enforcement tools that IDEM may use.

1.13 Forms and Checklists

Sample copies of many state forms, templates and checklists discussed in this RPG may be found at the end of each chapter of this guide. **The sample state forms, templates and checklists in this guide are images only, may not be current, and cannot be completed electronically.**

Current state forms that can be completed electronically are posted on the IDEM Forms website (www.IN.gov/idem/5157.htm) as PDF fillable forms, Microsoft Word documents or Excel documents. Links to the locations of those forms and checklists, and links to many other documents and Internet sites have been provided where the document is discussed in this RPG.

- Sample 1.1 Record of Remedy Selection (RRS) - State Form 54471
- Sample 1.2 Record of Site Closure (RSC) - State Form 54472

Sample 1.1 Record of Remedy Selection



RECORD OF REMEDY SELECTION (REMEDIAL ACTION OR CORRECTIVE ACTION) State Form 54471 (R2 / 11-11) INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INSTRUCTIONS:

1. *The purpose of this form is to clarify expectations and achieve consistency in investigations, reporting and decision-making for sites addressed under the remediation programs of the Indiana Department of Environmental Management (IDEM). Information in this form should be an executive summary of the Remedial Action Plan or Corrective Action Plan.*
2. *Complete and submit this form with a Remediation Work Plan (RWP) or Corrective Action Plan (CAP), when IDEM must approve the remedy selection.*
3. *You may complete this form electronically; however, a paper copy of this form and all attachments should accompany the Closure Report.*
4. *You may add lines and/or include additional information on separate sheets where needed.*
5. *All instructions within this form are in italics.*

1. SITE INFORMATION

- a. Site name _____
- b. Site/Incident/FID number _____
- c. Date of this submittal (*month, day, year*) _____
- d. Location (*number and street*) _____
- e. City, County, ZIP code _____
- f. Will this amend an approved RWP or CAP? (*Yes or no*) _____
- g. IDEM Remediation Services Section (*Leaking Underground Storage Tanks, Excess Liability Trust Fund, Voluntary Remediation, State Cleanup, Brownfields*) _____

2. RESPONSIBLE PARTY/PARTICIPANT INFORMATION

- a. Name _____
- b. Address (*number and street*) _____
- c. City, State, ZIP code _____

3. CONSULTANT INFORMATION

- a. Name _____
- b. Address (*number and street*) _____
- c. City, State, ZIP code _____
- d. Telephone number _____
- e. E-mail address _____

4. SITE DESCRIPTION

The answers in this section should describe the site prior to any remediation or corrective action.

- a. Site type (type of industry or release)

- b. Size of affected area (acres). The nature and extent of contamination that would not qualify for unconditional closure as determined in accordance with the most recent revision of the Remediation Closure Guide is considered to be the affected area.

- c. Current and expected land use(s) of the affected area (residential, commercial/industrial or recreational)

- d. Current and expected use(s) of land adjacent to the affected area (Residential, commercial /industrial or recreational). An affected area may be completely within an industrial property. In that case, the current use of the adjacent land would be industrial.

- e. Contaminant types (based on your Conceptual Site Model (CSM); metals, volatile organic compounds, semi-volatile organic compounds, Petroleum hydrocarbons, pesticides/herbicides (specify other contaminants))

- f. Contaminated media (groundwater, surface soil, subsurface soil, air, indoor air (vapor intrusion), surface water, storm water, sediment, specify other)

- g. Is any part of the affected area within a Well Head Protection Area? (Yes or no.) _____

5. SUMMARY OF COMPLETED AND PROPOSED REMEDIATION OR CORRECTIVE ACTION

- a. Describe free product treatment or free product removal. Check the item that applies below and explain as indicated. Free product treatment or removal may be necessary if any of the following risk-based conditions exist:
 - Free product has the potential to create an acutely hazardous condition
 - Free product is an ongoing source of groundwater contamination that may result in unacceptable risk
 - Direct contact exposure pathway through excavation, utility work or other means is complete or potentially complete or not controlled by proposed remedy; or
 - The vapor intrusion exposure pathway is complete or potentially complete or not controlled by proposed remedy.

No free product was noted during CSM development

Free product treatment or removal measures were performed. Describe any free product treatment or removal measures that were performed: _____

Free product was noted during CSM development but not removed. Explain: _____
- b. Briefly describe any remediation or response, (other than free product treatment or free product removal measures) that has been performed.

6. SUMMARY OF PROPOSED REMEDIATION OR CORRECTIVE ACTION

a. Select the basis for remediation objectives for each contaminant and state what contaminants will be addressed (*In accordance with Indiana Code 13-25-5-8.5. Complete Indiana Code is published at www.IN.gov/legislative/ic/code/. More than one may apply. Group contaminants if addressed by the same type of remediation objective).*

Background.
Contaminants _____

Risk-based, using standard equations and default values (screening levels)
Contaminants _____

Risk-based, using site specific data for default values (screening levels) in standard equations
Contaminants _____

Risk-based, using site specific factors, including consideration of remediation measures
Contaminants _____

b. For each potential exposure pathway(s) listed below, check yes or no to indicate if the pathway requires remediation or exposure control measures. Then either:

- Briefly describe the proposed remediation or corrective action measures, including risk management approaches; or
- If contamination was detected above screening levels or site-specific levels that is not considered to pose a risk, discuss the pathway and the magnitude of risk and explain why the contamination does not contribute to unacceptable risk or a complete pathway. (If no such contamination was detected, no explanation is needed here).

i. Direct contact
Does this pathway require remediation/exposure control measures? Yes No
Discuss: _____

ii. Groundwater contact and migration to groundwater
Does this pathway require remediation/exposure control measures? Yes No
Discuss: _____

iii. Vapor intrusion
Does this pathway require remediation/exposure control measures? Yes No
Discuss: _____

iv. Other human health or ecological scenario
Does this pathway require remediation/exposure control measures? Yes No
Discuss: _____

c. List and attach a copy of:

i. Each proposed Environmental Restrictive Ordinance (ERO) used for exposure control.

ii. Each proposed Environmental Restrictive Covenant (ERC) used for exposure control.

d. Describe any third party property interest or other formal agreement. (*If any third party property interest or other formal agreement is needed to ensure that the remedy remains protective, identify the third party property address, and the nature of the property interest or agreement needed.*) _____

- e. List any inspections, status reports, or operation and maintenance (O&M) activities (if O&M is necessary). _____
- f. Describe any financial assurance mechanism (if required to assure remedy effectiveness)
 - Type of instrument _____
 - Amount _____
 - Type of reporting required _____
 - Frequency of reporting _____
 - Period of effectiveness _____
 - Beneficiary _____
- g. List any report that contains more information about items a. through f. above Enter title, date and 8-digit Virtual File Cabinet (VFC) document number. Any report referenced here should be listed in Section 10, Record of Communication. More than one may apply, add lines as needed.)

<u>Title</u>	<u>Date</u>	<u>VFC Number</u>
_____	_____	_____

7. ILLUSTRATION OF CONCEPTUAL SITE MODEL (CSM) AND SITE RISK CHARACTERIZATION

If there is a previously approved Record of Remedy Selection for this remedial or corrective action, only new information needs to be entered here.

SAMPLE

- a. Attach figures or tables to illustrate the information provided in Section 6, including the background levels, screening levels or site-specific levels (for each contaminant, affected media and exposure pathway) used.
 - 1. Determine the extent of contamination; and
 - Identify areas that were evaluated for remedy (areas that do not immediately qualify for an unconditional closure based on the investigation data).
 - Document (with figures and tables) areas where screening levels or site-specific levels were exceeded.
 - Organize and label the figures and tables according to the exposure pathway.
 - Figures or tables should include:
 - Sample identifiers
 - Contaminants detected above screening levels or site-specific levels
 - Concentrations of those contaminants
 - Screening levels or site-specific levels that indicate the need for a remedy.)
- b. List all attachments.
 - 1. Figure(s). _____
 - 2. Table(s). _____

8. PUBLIC PARTICIPATION

Types of public participation may include letters to health department officials, direct contact or notification of potentially affected parties, fact sheets, public notices, availability sessions, public meetings or other. Include: 1) the date(s) of the activity, 2) type of activity, and 3) location (for any meeting), name of publication (for any ad or public notice), or address(s) of party(s) notified. If this will amend an approved Record of Remedy Selection, provide only information that has changed. Add lines as needed.

Not applicable. (Check if no participation or notification was necessary.)

<u>Date</u>	<u>Activity</u>	<u>Location/Publication/Address</u>
_____	_____	_____

9. RECORD OF COMMUNICATION

List key documents generated. May include Initial Site Characterization, Further Site Investigation, Corrective Action Plan, Remediation Work Plan, Request for No Further Action, any legal agreements, and any other key documents. Include 1) title, 2) document date, 3) preparer and 4) 8-digit Virtual File Cabinet (VFC) document number. If this will amend an approved Record of Remedy Selection, provide only information that has changed. Add lines as needed.

<u>Title</u>	<u>Date</u>	<u>Preparer</u>	<u>VFC No.</u>
_____	_____	_____	_____

10. SIGNATURE OF PREPARER OF THIS REPORT

Site name _____
Site/Incident/FID number _____

Amendment No. _____

Name _____

Position _____

Company _____

Date (month, day, year) _____

Enter professional credential(s) for sites addressed under 329 Indiana Administrative Code (IAC) 9-5-5.1, 329 IAC 9-5-6, or 329 IAC 9-5-7, or if required by a site specific agreement.

Environmental Professional Credential

Signature

11. THIS SECTION TO BE COMPLETED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Approval of Remedy Selection

Approval may be rendered ineffective if new information indicates potentially unacceptable risk to human health and/or the environment.

Some remediation or corrective action procedures may be the subject of claims of patent protection. By approving remediation or corrective action procedures proposed in your work plan IDEM makes no representation about your rights to utilize those procedures and is in no way suggesting, encouraging, or otherwise inducing you to infringe on any patented interest. It is solely your responsibility to ensure that you have all necessary rights and licenses to implement the remedial or corrective action activities proposed in your work plan and to ensure that you do not infringe on the patent rights of others.

Site name _____

Site/Incident/EID number _____

Amendment No. _____

Name _____

Title _____

Date (month, day, year) _____

Signature _____

SAMPLE

Sample 1.2 Record of Site Closure (RSC)



RECORD OF SITE CLOSURE (REMEDIAL ACTION OR CORRECTIVE ACTION)

State Form 54472 (R2 / 11-11)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INSTRUCTIONS:

1. The purpose of this form is to clarify expectations and achieve consistency in investigations, reporting and decision-making for sites addressed under the remediation programs of the Indiana Department of Environmental Management (IDEM). Information in this form should be an executive summary of the Remedial Action or Corrective Action.
2. Complete and submit this form with a Closure Report when you have implemented a Remediation Work Plan (RWP) or Corrective Action Plan (CAP), and seek closure approval from IDEM.
3. You may complete this form electronically; however, a paper copy of this form and all attachments should accompany the Closure Report.
4. You may include additional information on separate sheets where needed.
5. Note: If there was a Record of Remedy Selection, Sections 8, 9 and 10 of this form should contain only new information. See the instructions for each of these sections.
6. Add lines and/or attach pages as needed.
7. All instructions within this form are in italics.

1. SITE INFORMATION

- a. Site name _____
- b. Site/Incident/FID number _____
- c. Date of this submittal (*month, day, year*) _____
- d. Location (*number and street*) _____
- e. County, ZIP code _____
- f. Will this be enclosed in a Pallet (P) Yes (no) _____
- g. IDEM Remediation Services Section (*Leaking Underground Storage tanks, Excess Liability Trust Fund, Voluntary Remediation, State Cleanup, Brownfields*) _____

2. RESPONSIBLE PARTY/PARTICIPANT INFORMATION

- a. Name _____
- b. Address (*number and street*) _____
- c. City, State, ZIP code _____

3. CONSULTANT INFORMATION

- a. Name _____
- b. Address (*number and street*) _____
- c. City, State, ZIP code _____
- d. Telephone number _____
- e. E-mail address _____

4. SITE DESCRIPTION

The answers in this section should describe the site prior to any remediation or corrective action.

- a. Site type (type of industry or release)

- b. Size of affected area (acres). The nature and extent of contamination that would not qualify for unconditional closure as determined in accordance with the most recent revision of the Remediation Closure Guide is considered to be the affected area.

- c. Current and expected land use(s) of the affected area (residential, commercial/industrial or recreational)

- d. Current and expected use(s) of land adjacent to the affected area (Residential, commercial /industrial or recreational). An affected area may be well within the perimeter of an industrial property. In that case, the current use of the adjacent land is industrial. If an affected area is at or near the perimeter of an industrial property, the adjacent land is the neighboring property.

- e. Contaminant types (based on your CSM; list all Significant Metals, CS, metals, volatile organic compounds, semi-volatile organic compounds, PCBs, neurotoxic pesticides, herbicides, or specify other contaminants)

- f. Contaminated Media (based on your CSM; surface soil, subsurface soil, air, indoor air (vapor intrusion, surface water, ground water, sediment, or specify other media)

- g. Is any part of the affected area within a Well Head Protection Area? (Yes or no.) _____

5. SUMMARY OF COMPLETED REMEDIATION OR CORRECTIVE ACTION

- a. Select the basis for remediation objectives for each contaminant and state what contaminants will be addressed (In accordance with Indiana Code 13-25-5-8.5. Complete Indiana Code is published at www.IN.gov/legislative/ic/code/. More than one may apply. Group contaminants if addressed by the same type of remediation objective).
 - Background levels.
Contaminants _____
 - Risk-based levels, using standard equations and default values (screening levels).
Contaminants _____
 - Risk-based levels, using site specific data for default values (screening levels) in standard equations. Contaminants _____
 - Risk-based levels, using site specific factors, including consideration of remediation measures. Contaminants _____
- b. For each potential exposure pathway(s) listed below, check yes or no to indicate if the pathway required remediation or exposure control measures. Then either
 - Briefly describe the remediation or corrective action measures, including risk management approaches; or

- *If contamination was detected above screening levels or site-specific levels that is not considered to pose a risk, discuss the pathway and the magnitude of risk and explain why the contamination does not contribute to unacceptable risk or a complete pathway. (If no such contamination was detected, no explanation is needed here).*

i. Soil direct contact

Did this pathway require remediation/exposure control measures? Yes No

Discuss: _____

ii. Ground water direct contact and migration to ground water

Did this pathway require remediation/exposure control measures? Yes No

Discuss: _____

iii. Vapor intrusion

Did this pathway require remediation/exposure control measures? Yes No

Discuss: _____

iv. Other human health or ecological scenario

Did this pathway require remediation/exposure control measures? Yes No

Discuss: _____

c. List and attach a copy of:

i. Each legally adopted Environmental Restrictive Ordinance (ERO) used for exposure control.

ii. Each recorded Environmental Restrictive Agreement (ERA) used for exposure control.

6. UNCONDITIONAL CLOSURE (If closure is not required, proceed to Section 7.)

a. Why is unconditional closure appropriate? (*Explain why: 1) it is unnecessary to remediate or restrict site use based on contaminant levels, or 2) use can be effectively restricted without institutional controls, and/or 3) no ongoing monitoring, maintenance or reporting is necessary.*)

b. Title of report that contains more information including section/page numbers, and/or figure or table with pertinent information. (*Any report referenced here should be listed in Section 10, Record of Communication. More than one may apply, add lines as needed.*)

<u>Title</u>	<u>Section/Page</u>	<u>Figure/Table</u>
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7. CONDITIONAL CLOSURE AND CONDITIONS SUBSEQUENT TO CLOSURE

a. Where does the contamination remain that does not qualify for unconditional closure. Include media and location (*horizontal and vertical*).

b. What are the conditions of closure that need to be performed or maintained?

c. Describe any third party property interest or other formal agreement. (*If any third party property interest or other formal agreement is needed to ensure that the remedy remains protective, identify the third party property address, and the nature of the property interest or agreement needed.*) _____

- d. List and indicate the frequency of any inspections, status reports, or operation and maintenance (O&M) activities (if O&M is necessary). _____
- e. Describe any financial assurance mechanism (if required to assure remedy effectiveness).
 Type of instrument _____
 Amount _____
 Type of reporting required _____
 Frequency of reporting _____
 Period of effectiveness _____
 Beneficiary _____
- f. List any report that contains more information about items a. through e. above. (Enter title, date and 8-digit Virtual File Cabinet (VFC) document number. Any report referenced here should be listed in Section 10, Record of Communication. More than one may apply, add lines as needed.)

<u>Title</u>	<u>Date</u>	<u>VFC Number</u>
_____	_____	_____

8. ILLUSTRATION OF SITE CONCEPTUAL MODEL AND REMEDY SITE CHARACTERIZATION

If a Record of Site Characterization was approved for this site, and previously approved Record of Site Closure, only new information needs to be provided.

- a. Attach figures or tables to illustrate the information provided in Section 5, including the background levels, screening levels or site-specific levels (for each contaminant, affected media and exposure pathway) used to:
1. Determine the nature and extent of contamination; and
 2. Identify areas that were evaluated for a remedy (areas that did not immediately qualify for an unconditional closure based on the investigation data).
- b. Document (with figures and tables) specific areas where a cleanup was performed, or a risk assessment applied, or a risk management approach was employed to achieve closure.
- Document (with figures and tables) areas where screening levels or site-specific levels were exceeded.
 - Organize and label the figures and tables according to the exposure pathway.
 - Figures or tables should include:
 - Sample identifiers
 - Contaminants detected above screening levels or site-specific levels
 - Concentrations of those contaminants
 - Screening levels or site-specific levels that indicated the need for a remedy.)
 - Post-remediation concentrations (Use numerical concentrations if contaminants were treated or removed. This is not necessary if the remedy consists of exposure control, or exposure control measures were considered in the site specific risk assessment).
- c. List all attachments.
1. Figure(s).
 2. Table(s).

9. PUBLIC PARTICIPATION

Types of public participation may include letters to health department officials, direct contact or notification of potentially affected parties, fact sheets, public notices, availability sessions, public meetings or other. Include: 1) the date(s) of the activity, 2) type of participation, and 3) location (for any meeting), name of publication (for any ad or public notice), or address(s) of party(s) notified. If public participation was reported in a Record of Remedy Selection, or if this will amend an approved Record of Site Closure, provide only information that has changed. Add lines as needed.

Not applicable. (Check if no participation or notification was necessary.)

<u>Date</u>	<u>Activity</u>	<u>Location/Publication/Address</u>
_____	_____	_____
_____	_____	_____

10. RECORD OF COMMUNICATION

List key documents generated since the Record of Remedy Selection (if any). May include Corrective Action Plan, Remediation Work Plan, revision or amendment, request for No Further Action, as-built drawings, Remediation Completion Report, Certificate of Completion, Record of Remedy Selection (if any), any legal agreements, and any other key documents. Include 1) title, 2) document date, 3) preparer and 4) 8-digit Virtual File Cabinet (VFC) document number. If this will amend an approved Record of Site Closure, provide only information that has changed. Add lines as needed.

<u>Title</u>	<u>Date</u>	<u>Preparer</u>	<u>Number</u>
_____	_____	_____	_____

11. SIGNATURE OF PREPARE OF THIS REPORT

Site name _____

Site/Incident/FID number _____

Amendment No. _____

Name _____

Position _____

Company _____

Date (month, day, year) _____

Enter professional credential(s) for sites addressed under 329 Indiana Administrative Code (IAC) 9-5-5.1, 329 IAC 9-5-6, or 329 IAC 9-5-7, or if required by a site specific agreement.

Environmental Professional Credential

Signature

12. THIS SECTION TO BE COMPLETED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Approval of Site Closure

Closure status may be rendered ineffective if new information indicates potentially unacceptable risk to human health and/or the environment or if the terms of any ERC, ERO or other Condition Subsequent to Closure are not met.

Some remediation or corrective action procedures may be the subject of claims of patent protection. By approving remediation or corrective action procedures proposed in your work plan IDEM makes no representation about your rights to utilize those procedures and is in no way suggesting, encouraging, or otherwise inducing you to infringe on a patent. It is your responsibility to ensure that you have all necessary rights and licenses to implement the remediation or corrective action activities proposed in your work plan and to ensure that you do not infringe on the patent rights of others.

Site name _____

Site/Incident/FID number _____

Amendment No. _____

Name _____

Title _____

Date (month, day, year) _____

Signature _____