UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

September 22, 2004

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RESPONSE

OSWER 9200.3-31

MEMORANDUM

SUBJECT: Superfund Environmental Indicators Guidance Manual

FROM: Michael B. Cook, Director /s/
Office of Superfund Remediation and Technology Innovation

TO: Superfund National Policy Managers, Regions I - X

Purpose

This memorandum transmits to regional and headquarters staff guidance on making determinations for Superfund Environmental Indicators (EIs). Environmental Indicators are data measures that help document progress in protecting human health and the environment as a result of Superfund cleanup activities.

Background

Historically, the Superfund program has focused on the completion of construction at National Priorities List sites as a primary measure of cleanup progress. Doing so does not recognize the incremental progress made toward safeguarding human health and the environment that occurs during site clean up. The Office of Superfund Remediation and Technology Innovation, which manages the Superfund Program, developed a way to more accurately document and communicate environmental accomplishments at Superfund sites. This guidance provides an overview of the Superfund EIs, presents relevant definitions and data requirements, and describes how Superfund EI data are used to communicate cleanup progress. It also explains the process of entering, extracting, and using Superfund EI data from EPA's WasteLAN database.

Implementation

This document is intended primarily to assist those who are responsible for making Superfund Environmental Indicator determinations. Depending on the region, this group includes regional managers, data entry personnel, and/or site managers. Regions are required to update EI data in WasteLAN, at a minimum, once each fiscal year (no later than October 15th). The Human Exposure, and Migration of Contaminated Ground Water Indicators should be updated as site conditions change. The guidance presents detailed instructions on keeping EI data accurate, consistent, and up to date.

Please refer questions about the implementation of this guidance to Rich Norris at norris.rich@epa.gov, (703) 603-9053. The guidance may also be found at: http://www.epa.gov/superfund/accomp/ei/guidance.htm

Attachment

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SUPERFUND ENVIRONMENTAL INDICATORS GUIDANCE MANUAL

OFFICE OF SUPERFUND REMEDIATION AND TECHNOLOGY INNOVATION
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEPTEMBER 2004

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1.0 INTRODUCTION

This document is primarily intended to provide guidance regarding Superfund Environmental Indicators (EIs) for U.S. Environmental Protection Agency's (EPA's) Superfund personnel, including Regional Superfund Managers and Remedial Project Managers. This document may also be a useful resource for those interested in how Superfund EI data are collected and how to interpret Superfund EI reporting. This guidance document provides an overview of the Superfund EIs, including definitions, data requirements, and descriptions of how Superfund EI data are used to communicate the progress of cleanups at Superfund sites. The Appendices to this manual explain the process of entering, extracting, and using Superfund EI data from WasteLAN to monitor the results of cleanup actions and to communicate incremental progress to the public.

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), to clean up abandoned or uncontrolled hazardous waste sites. CERCLA was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). EPA's primary response authority is found in Section 104 of CERCLA gives EPA the authority to respond to the release or threat of release of a hazardous substance, pollutant, or contaminant which may present a substantial risk to human health or the environment. EPA began developing EIs for the Superfund Program in the early 1990s to measure progress in protecting human health and the environment.

2.0 ENVIRONMENTAL INDICATORS OVERVIEW

2.1 BACKGROUND

Past criticism of the Superfund program has focused on the relatively few sites that have been deleted from the National Priorities List (NPL) following remediation. Since a site is not deleted until all cleanup goals are achieved, this has provided a perception that little progress has been made toward the cleanup of the Nation's hazardous waste sites since the Superfund program was first authorized. Measuring the success of the Superfund program by the number of sites removed from the NPL neglects the incremental progress made toward safeguarding public health and the environment that occurs during site clean up. EPA developed three initial program-based indicators to address this misperception and to document and communicate environmental progress towards cleaning up Superfund sites.

The three original Superfund EI's were: Populations Protected; Progress Towards Permanent Cleanup; and Cleanup Technologies Applied. Currently, two of these three program-based indicators, Populations Protected and Cleanup Volumes (Formerly Cleanup Technologies Applied), are being implemented. Progress Toward Permanent Cleanup was functionally

replaced by the development of the construction completion category. Since the inception of the Superfund EI initiative, two additional indicators, Human Exposure Under Control (HE) and Migration of Contaminated Ground Water Under Control (GM), have been developed to measure the interim progress in meeting the Superfund goal to protect human health and the expectation to return usable ground waters to their beneficial use. These Superfund EIs are discussed more fully in Sections 3.0 through 6.0 of this document. Additional indicators are under development to measure progress in controlling long-term human exposures, protecting ecological resources, and returning contaminated land to productive use.

All of Superfund's Environmental Indicators are designed to communicate the tangible progress made in protecting human health and the environment through site cleanup activities. In the past, OSRTI has used Superfund EI data in Congressional testimony for Superfund reauthorization, Government Performance and Results Act (GPRA) reporting, and budget requests to the Chief Financial Officer. The Agency consistently requests Superfund EI data from the Regions because it is effective in reporting:

- The number of people protected from immediate and long-term threats through the provision of alternate water supplies, relocation of the affected population, and the implementation of site security and institutional controls;
- The amount of contaminated media that has been treated, stabilized, or removed through the use of treatment or containment technologies;
- The number of sites at which human exposure to contamination under current conditions is under control; and
- The number of sites where the migration of contaminated ground water has been contained within the existing area of contamination.

Subsections 2.2 - 2.7 below provide an overview of EI reporting policies, definitions, and indicator relational diagrams. Sections 3.0 - 7.0 provide indicator-specific guidance including data requirements, instructions for data reporting, and guidelines used to make EI determinations. This guidance is intended to provide Superfund personnel with the information necessary to capture the most current, complete EI data available.

2.2 UPDATING EI INFORMATION

Beginning in FY 92, EPA Regions have been responsible for recording environmental progress information directly in WasteLAN to make data collection more efficient and timely and to standardize future reporting cycles. In FY 95 determinations for the three program-based EIs were first required to be reported. Determinations for the new HE and GM Superfund EIs were first required to be reported in FY 2001. Please refer to Section 2.7 for a summary of Environmental Indicator Reports in WasteLAN.

Many Environmental Indicator data points have been incorporated into the Superfund Comprehensive Accomplishment Plan (SCAP). For further information, see *Reporting Requirements for Environmental Indicators* in Appendix B of the Superfund /Oil Program Implementation Manual Fiscal Year 2003/2004 (Publication 9200.3-14-1G-Q, April 7, 2003).

At a minimum, Regional personnel are required to update Environmental Indicator data in WasteLAN once each fiscal year (by October 15th of each year). The HE and GM Indicators should be updated as site conditions change.

2.3 COORDINATION WITH THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PROGRAM

Following OSRTI's development of the initial three indicators, EPA's Office of Solid Waste developed two indicators to measure interim progress in reducing current risks and controlling migration of contaminated ground water at RCRA sites. The Senate Appropriations Committee felt OSRTI would benefit from the development of Superfund EIs "as in the RCRA corrective action program."(Evaluation of Superfund Environmental Indicators, Report No. 2002-P-3, December 27, 2001) Recognizing the benefits of comparability among indicators for similar cleanup programs, OSRTI developed the HE and GM Superfund indicators to be as consistent with the RCRA indicators as possible, while incorporating the specific requirements of the Superfund program and taking advantage of data sources unique to the Superfund program.

Where both RCRA and CERCLA authorities are being used to address different areas of the same site, it is very important for the CERCLA and RCRA program managers to work together to make a consistent determination for the site, since both of these indicators are site-wide determinations. If both programs cannot make the determination that conditions meet the HE indicator, then the site, as a whole, does not meet the criteria. Similarly, a single response for the GM EI should be reported by both programs. To facilitate this policy, when both programs are evaluating EIs at a site, the record of EI determination should be signed by both program managers in order to provide verification and greater credibility for the EIs.

2.4 RELATIONSHIP OF INTERIM EIS TO FINAL REMEDIES

While the HE and GM Superfund EIs document interim progress in reaching final cleanup goals at NPL sites, the fundamental goal of the program has not changed. The goal of Superfund remedies is still to protect human health and the environment, maintain protection over time, and to minimize untreated waste (NCP, Section 300.430(a)(1)(i)). The CERCLA program realizes this goal at NPL sites by implementing final remedies to achieve cleanup goals specified in Records of Decision. Progress in implementing these remedies and achieving cleanup goals is measured by other program indicators (i.e. construction completions and site deletions). The focus of these new indicators on interim progress in no way changes the goal of the remedial process to provide remedies that are protective of human health, maintain protection over time, and minimize untreated waste. Achieving the HE and GM Superfund EIs will not substitute for meeting final remedy requirements, expectations associated with sources of contamination, and the need to restore, wherever practicable, contaminated ground water to beneficial use.

2.5 SITE-SPECIFIC DATA FOR ENVIRONMENTAL INDICATORS

The different Superfund EI categories are described below.

The *Site* is the basic reporting unit for environmental progress.

Human Exposure Under Control indicates whether contamination levels at a site fall within the levels specified by EPA as safe, or if they do not, whether adequate controls are in place to prevent unacceptable human exposure to contamination.

Migration of Contaminated Ground Water Under Control indicates whether contamination levels fall within the levels specified as safe by EPA, or if they do not, whether the migration of contaminated ground water is stabilized, and there is no currently unacceptable ground water discharge to surface water.

Actions are the primary level of data below the *site* where media and subsequent Populations Protected and Cleanup Volumes data reside. Actions for which EI data are required include: Removal (RV), PRP Removal (BB), FF Removal (LV), Remedial Action (RA), PRP RA (BF), FF RA (LY), PRP Emergency Removal (PJ), and Initial Remedial Measure (IP).

The *Media* information category documents the contaminated materials addressed.

Population Protected indicates the number and type of people protected from risks to human health through the provision of alternate water sources, or through temporary or permanent relocation, or where site security measures have been implemented during both long and short-term response actions.

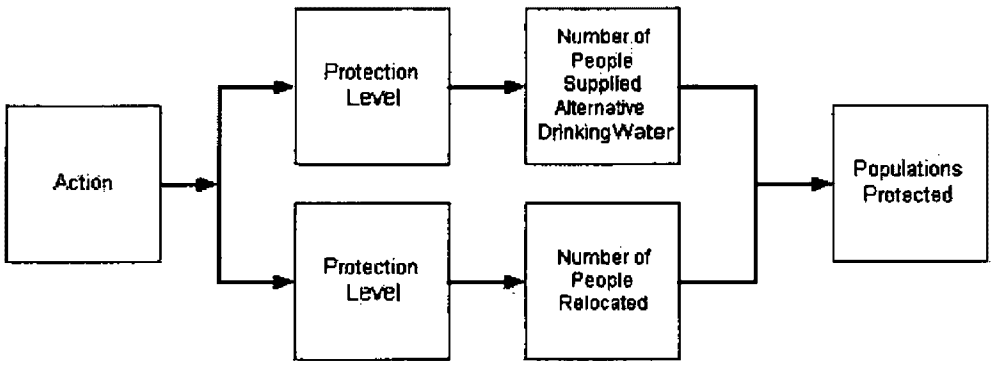
Cleanup Volumes documents the amount of contaminated media that has been treated, stabilized, contained, or removed through the use of risk management technologies, engineering techniques, or institutional controls.

The HE and GM indicators are site-wide determinations. The Populations Protected indicator is reported at the action level, while the Cleanup Volumes indicator is reported on an action and medium-specific basis.

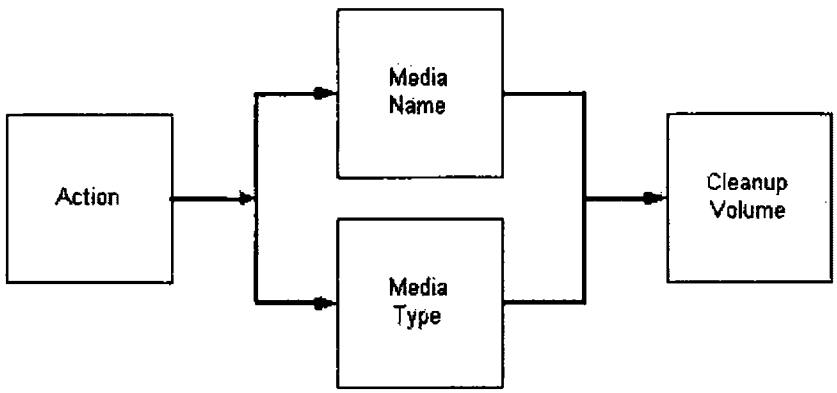
Exhibit 1 below shows how Regional data reported in WasteLAN support the action-level based indicators. Detailed descriptions regarding the analysis and reporting of specific data elements supporting each indicator appear in the sections following this introduction.

Exhibit 1: Crosswalk of Environmental Indicators to Reported Progress Information Sites with Removal or Remedial Actions[1]

Populations Protected



Cleanup Volumes



[1]Removal and Remedial actions that require EI reporting include: Removals (RV); PRP Removals (BB); FF Removals (LV); PRP Emergency Removals (PJ); Remedial Actions (RA); PRP RAs (BF); Federal Facility RAs (LY); and Initial Remedial Measures (IP).

2.6 Environmental Indicator Reports

Environmental Indicator Reports were developed to assist the Regions with data entry to facilitate National and site-specific report viewing. OSRTI refines the EI reporting system by noting any defects and enhancements that appear in the WasteLAN User Request System, as well as through contact with EPA HQ and Regional personnel. The following tools are currently available in WasteLAN to facilitate data entry and viewing:

- **PGMT-08 Environmental Indicators Audit Report**

  The audit report displays sites where there are incomplete or missing Environmental Indicators data. It displays discrepancies in EI data at the national, regional, state, or site-specific levels. For example, an error code and description will be generated in the report if a Populations Protected-specific action has been selected, but is not accompanied by the number of people affected by that particular action. Please note: EI legacy sites[2] are excluded from PGMT-08 reporting.

- **PGMT-09 Data Compilation Report**

  The Data Compilation Report is a summary of site data that can be used in conjunction with the PGMT-08 report to ensure that all data for a site are entered completely and accurately. This report displays the most recent information entered into WasteLAN and is useful for the review of start and completion dates.

- **PGMT-10 Site Turnaround Report**

  The Site Turnaround Report lists key progress information for a specific site or for all sites managed by a selected site manager. Progress information that populates this report is obtained from pollution reports, contractor progress reports, sampling reports, field logs, telephone logs, closeout reports, and other site reporting documents. The report is intended to serve as a simple data entry guide for site managers, and as an effective quality assurance record for confirming that EI data are entered accurately into the system.

- **PGMT-11 Environmental Indicators HE/GM Report**

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[2]To prevent the PGMT-08 EI Audit Report from continually identifying volumetric data errors for sites where cleanup activities are no longer occurring, a universe of EI Legacy sites has been identified and excluded from PGMT-08 audit reporting. EI Legacy sites are defined as sites listed prior to 1995 that have no ongoing or planned pipeline actions (action codes: RV, BB, PJ, LV, RI , NA, NH , FS, NK, NI, CO, BD, LW, RO, RD, BE, LX, RA, BF, LY). Please note that the PGMT-08 EI Audit Report identifies errors related to the Populations Protected and Cleanup Volumes EI data only. Missing data for these Legacy Sites are reported in the PGMT-12 Environmental Indicators HE/GM Error Report for the HE or GM Superfund EIs.

The EI HE/GM report is a site-wide summary detail and Regional summary count of HE and GM determinations and last Regional and Headquarters review dates. This report is intended to be a quick reference guide for use by both Headquarters and the Regions.

- **PGMT-12 Environmental Indicators HE/GM Error Report**

  The HE/GM Error report displays a site summary of data gaps and potential reporting errors for the HE and GM EI's. Errors are reported for sites missing an HE or GM determination or for sites with an HE or GM determination that differs from the approved Headquarters determination.

- **PGMT-13 Environmental Indicators Summary Report**

  The PMGT-13 is a quick reference cumulative summary of all EI data. This report includes NPL and non-NPL totals of solid waste (hazardous soil, solid waste and sediment) and liquid waste (hazardous liquid waste, ground water, and surface water), the number of people provided alternative drinking water, and the number of people either temporarily or permanently relocated and the number of people returned. In addition, the report provides totals of HE and GM totals by determination type.

3.0 POPULATIONS PROTECTED EI

The Populations Protected Superfund EI was developed to measure the progress made in protecting individuals living at or near Superfund sites from immediate threats of exposure to contaminated media. Specifically, this EI measures the number individuals protected through the provision of alternate drinking water supplies or relocation in response to contamination.

3.1 DATA REPORTING

Certain removal and remedial actions trigger the need to enter Populations Protected EI data. The Populations Protected EI provides a means for describing the types of actions used to protect people living at or near Superfund sites.

3.2 ACTION TYPES

In general, Populations Protected EI data should be reported by the Regions when a removal or remedial action at an NPL or non-NPL site provides for:

- Alternate sources of drinking water, either temporarily or permanently;
- Reinstatement of drinking water supply following provision of temporary supply;
- Relocation, either permanently or temporarily; or
- Return of population following temporary relocation.

When a removal or remedial action is conducted, the action and the following details describing the action should be reported:

- The date the population was either relocated or provided alternative drinking water;
- The level at which the population was relocated or provided alternative drinking water (temporarily, permanently, or returned/reinstated); and
- The number of people relocated or provided alternative drinking water.

To obtain the most accurate description of site activity, designate as many actions as necessary to characterize how people were protected from immediate and long-term threats posed by site contamination. Data related to this indicator can typically be found by reviewing RODs, Action Memoranda, pollution reports (POLREPS), Remedial Action Reports, and Close Out Reports.

3.3 Populations Affected (Number of People Protected)

Report the number of people who were provided alternate water supply or were relocated either temporarily or permanently. In addition, the population whose water supply has been reinstated or a population who has been returned from relocation should also be recorded. If the population in the site records is listed as number of homes or residences and not the actual number of people relocated, use Census statistics (http://www.census.gov/) for county-level data on average number of people per household and multiply by the number of households to obtain a good estimate of the number of people protected. For a quick estimate, the Year 2000 US Census estimates that there were an average of 2.69 people per owner-occupied household and 2.40 people per renter-occupied household. Finally, round the estimate to the nearest whole number, as there are no fractions of people.

See Appendix B for detailed data entry instructions.

4.0 CLEANUP VOLUMES EI

The CleanupVolumes Indicator was developed to measure the amount of contaminated media that has been treated, stabilized, contained, or removed through the use of risk management technologies, engineering techniques, or institutional controls.

4.1 Data Reporting

For this indicator, report the following information for NPL and non-NPL sites:

- Date that the quantity of contaminated media were addressed;
- Media addressed by a removal or remedial action.
- Quantity of contaminated media addressed by each removal or remedial action reported in WasteLAN.

Often, a single medium may be addressed by multiple actions. If that is the case, multiple entries may exist for a single medium. To assist in data entry and reporting, media associated with different actions can be named accordingly in the SCAP or Remedy Selection screens (e.g. Soil 01 and Soil 02). Data associated with this indicator can be found in RODs, Action Memoranda, POLREPS, Interim RA Reports, Final RA Reports, and Close Out Reports.

4.2 Media Types

Media types are carried over to the Add/Edit EI screen from other areas in WasteLAN, such as the Remedy Selection or SCAP-Selected Remedy Screens. If a medium is not present for a volume to be entered, it will be necessary to add that medium on the Add/Edit Media screen via the SCAP or Remedy selection screens as mentioned in Section 4.1. Once the medium has been entered, it will be available on the Cleanup Volume tab in the Add/Edit EI module for entry along with its corresponding volume. Use the following descriptions as a guide to assist in reporting the types of contaminated media that have been addressed:

- **Air:** Gases from processes such as landfilling or thermal treatment.
- **Debris**: Large solid waste, such as machinery, buildings, and tanks.
- **Ground water**: Water in the ground, both shallow and deep aquifers.
- **Leachate**: Rainwater, surface water, or ground water filtered through a landfill.
- **Liquid waste:** Waste such as acid contained in tanks, drums, lagoons, or ponds.
- **Residuals**: Waste remaining after treatment, such as incinerator ash.
- **Sediment**: Solids settled out of surface water or dredged material.
- **Sludge**: Solids settled out of a liquid, for example following wastewater treatment.
- **Soil**: Soil not distinguished as surface or subsurface.
- **Solid waste**: Discarded material such as garbage, refuse, tars, and contained gaseous materials but excluding for WasteLAN purposes debris, liquid waste, and sludge.
- **Subsurface soil**: Generally, soil below surface soil and at a depth of 2 feet and below.
- **Surface soil**: Generally, the top 2 feet of soil, but may be deeper depending on site-specific conditions and exposures.
- **Surface water**: Water open to the air, such as wetlands, lakes, streams, ponds, and overland surface flow.

4.3 Cleanup Volumes

Record in WasteLAN the volumes of contaminated media that have been addressed. The current Add/Edit EI screen, allows for the entry of incremental volumetric data. It is important to add a

new cleanup date and corresponding volume each time a new volume of waste has been addressed. For example, if 200 cubic yards (cu yd) of solid waste were reported as previously treated, and an additional 100 cu yd are currently being treated, a new separate entry of 100 cu yd of solid waste should be created along with the cleanup date. Cumulative totals by media can be viewed on the Add/Edit EI Summary tab.

Cleanup volumes can be entered for non-standard units available in the drop-down list (cubic feet, drums, liters, tons, pounds cubic meters, tanks, cylinders, and battery casings). Once selected, these non-standard units will convert to standard units of gallons for liquid-based waste and cubic yards for solid-based waste. Appendix B provides detailed data entry instructions for Cleanup Volumes.

5.0 HUMAN EXPOSURE UNDER CONTROL EI

The HE Indicator documents whether contamination is below protective, risk-based levels or, if not, whether adequate controls are in place to prevent human exposure to contamination based on current land and ground water use conditions at NPL sites. A positive determination of "human exposure under control" indicates that all information on known contaminants to soil, ground water, surface water, sediments, and air have been reviewed and the following conditions are met at the site:

- No ground water, soil, surface water, sediment or air media are known or suspected to be contaminated above appropriately protective levels; or
- If one or more media is know or suspected to be "contaminated" above protective levels, actual or potential human exposure is not expected or is within acceptable limits under current land and ground water use conditions.

The data for this EI can first be reported when the site is proposed to be listed on the NPL.

5.1 Making the Human Exposure Under Control Determination

The following guidelines should be observed when making the HE determination:

- The determination is made on a site-wide basis looking at all media across the entire site.
- The determination must be made with "reasonable certainty" (i.e., based on the most current data for the site). Documents such as risk assessments, RODs, Action Memoranda, POLREPS, Five-year Reviews, and Close Out Reports are good sources of data and often provide the information necessary for making a determination with reasonable certainty. The determination can be revised as new information becomes available.
- The determination is intended to be a realistic, risk-based evaluation based on actual current land and ground water use. The determination should not consider hypothetical human exposures, but rather exposure that would be expected under current use. Similarly, current land and ground water use should be considered, but exposures that would occur under reasonably anticipated future land or ground water use are not considered for this indicator.

Use the step-by-step process and worksheet on the following pages to make a determination of "Yes", "No", or "Insufficient Data" for the HE EI. The worksheet was developed in cooperation with representatives from all ten Regions, and was designed to assist project managers in making the most accurate EI determination possible.

Superfund Human Exposure Under Control Worksheet

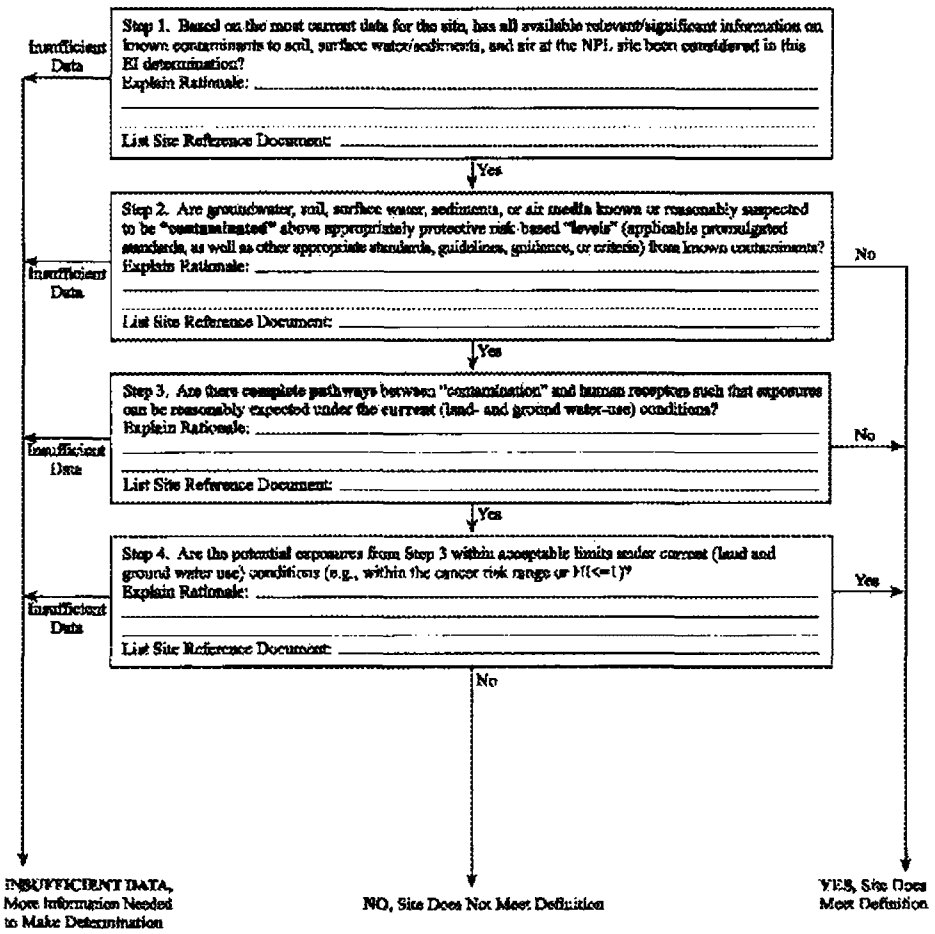
Definition: All identified human exposure pathways from contamination at the site are under control or below health-based levels for current land and/or groundwater use conditions. "Under control" means that adequately protective controls are in place to prevent any unacceptable human exposure under current land- and groundwater- use conditions only. This environmental indicator does not consider potential future land- or groundwater- use conditions nor ecological receptors.

Region: _____

State: _____

EPA ID: _____

Site Name: _____



Detailed instructions for completing the worksheet and determining the appropriate response to enter into WasteLAN are as follows.

- **(Step 1)** Based on the most current data for the site, have all available relevant/significant information on known contaminants to soil, ground water, surface water/sediments, and air at the NPL site been considered in this EI determination?

  - If **no**, re-evaluate existing data.
  - If **data are unavailable** or are insufficient to make this determination, select "Insufficient Data" in WasteLAN.
  - If **yes**, proceed to Step 2.

  Tips for completing rationale:

  - *"Current data for the site" are those that describe conditions that are known or suspected at the time the EI determination is made.*
  - *Review and consider only that information that is pertinent to the evaluation of human exposure. Consider all available sources, even if you decide to base the indicator determination on one source or a subset of sources.*

  Note: For additional guidance, please see Section 5.3 for a compilation of frequently asked questions that may assist in making the HE determination.

- **(Step 2)** Are ground water, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from known contaminants?

  - If **no**, site meets definition of HE. Select "No" in WasteLAN.
  - If **yes**, proceed to Step 3.
  - If **insufficient data** are available to make this determination, select "Insufficient Data" in WasteLAN.

  Tips for completing rationale:

  - *"Contaminated" refers to concentrations of contaminants that exceed appropriately protective risk-based levels such as chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs) or health-based levels developed in a risk assessment or Record of Decision.*

Contaminated media include indoor air contaminated via vapor intrusion from a source of volatile contaminants beneath the structure. Contaminated media also include contaminated fish, shellfish, and other edible plants and animals associated with the site.
If a medium contains no contaminants at concentrations above risk-based levels, do not consider the medium in Steps 3 and 4.

(Step 3) Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and ground water-use) conditions?

If **no**, site meets definition of HE. Select "No" in WasteLAN.

If **yes**, proceed to Step 4.

If **insufficient data** are available to make this determination, select "Insufficient Data" in WasteLAN.

Tips for completing rationale:

Use the table below and modify as needed to identify potential exposure pathways. Consider indirect and direct exposure pathways, including indoor air contaminated via vapor intrusion and exposure to contaminated food (e.g., fish, shellfish, dairy, edible plants).
Consider the exposure scenarios being evaluated for risk management decisions for the site. Note that some exposure pathways evaluated in the baseline risk assessment may be identified as "incomplete" in this EI determination if the pathway was eliminated using institutional or engineering controls.
Consider not only the presence of controls intended to eliminate exposure potential but also their effectiveness. Answer "yes" only where controls are known to be effective.
The ground water exposure pathway is considered complete if an uncontained contaminated ground water plume is migrating toward a drinking water supply and contaminant concentrations are expected to reach unacceptable levels within a year in the absence of response actions.
If a potential pathway is not complete, do not consider the pathway in Step 4.

Summary Exposure Pathway Evaluation Table:

	Potential Human Receptors (Under Current Conditions)						
Contaminated Media	Residents	Workers	Day Care	Construction	Trespassers	Recreation	Food
Ground Water	———	———	———	———			———
Air (indoors)	———	———	———	———	———	———	
Soil (surface e.g., < 2 ft)	———	———	———	———	———	———	———
Surface Water	———	———			———	———	———
Sediment	———	———			———	———	———
Soil (subsurface e.g., > 2 ft)				———			———

Note: In order to focus the evaluation on the most probable combinations, some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have spaces for check marks. While these combinations are not likely in most situations, they may be appropriate in some settings and should be added as necessary.

- **(Step 4)** Are the potential exposures from Step 3 within acceptable limits under current (land and ground water use) conditions (e.g., within the cancer risk range or HI less than or equal to 1)?

  If **no**, site does not meet definition of HE. Select "No" in WasteLAN.

  If **yes**, site meets definition of HE. Select "Yes" in WasteLAN.

  If **insufficient data** are available to make this determination, select "Insufficient Data" in WasteLAN.

  Tips for completing rationale:

  Refer to the summary of site risks section in the ROD if available. Note that if the exposures driving the remedy are based on future land or ground water use only, and future use conditions are different than current, it may be necessary to review the RI to obtain data on current risks.
  The definition of "acceptable limits," risk (e.g., cumulative or single substance), exposure assumptions, etc. should be the same as those being used to make risk management decisions for the site. Examples of "acceptable limits" are the cancer risk range and HI<1.
  Refer to Close-Out Report, if available, for documentation of whether the remedial action (RA) achieved the cleanup goals to reduce risks from the site.

5.2 Information Update and Reporting Requirements

Complete the HE EI worksheet in WasteLAN after a site is listed as Final on the NPL (data can first be entered when the site is Proposed), and update the HE EI as soon as a change in the determination is warranted. At a minimum, data updates are required by October 15 of each year, or as required in the current year SPIM, to reflect the status at each site as of the end of the prior fiscal year.

Changes in EI Status
A new worksheet is required whenever the EI status changes. It is recommended that a copy of the worksheet also be kept with official site files. Submit the new worksheet to OSRTI, and update WasteLAN within 30 days of knowing that the EI status has changed.

No Change in EI Status
If there is no change in the status of the HE EI, update the "Last Review Date" in WasteLAN for the appropriate indicator on the Site Characterization Screen.

New Listings on the NPL
For sites that are placed on the NPL after FY 2002, complete and submit a worksheet to OSRTI and update WasteLAN within one year of NPL site listing as Final.

Detailed data entry instructions for assigning a site determination in WasteLAN are discussed in Appendix B.

5.3 FREQUENTLY ASKED QUESTIONS - HUMAN EXPOSURE UNDER CONTROL

Step 1: Based on the most current data for the site, has all available information on media contamination been considered in this EI determination?		
Question		**Answer**
1-1	What are the best sources of information for me to consider for this EI determination?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, Five-Year Reviews, etc. are good sources of information.
1-2	There may be several different sources of information (e.g., State, EPA, PRP). Do I need to review all of this information to answer "yes" to this question?	You need to review and consider only that information that is: 1) pertinent to evaluation of human exposure; and 2) available to you. If the information from other sources is both relevant and available to you, it should be reviewed and considered when making this determination.
1-3	Volumes of data may be available for a site. I've got other priorities. Do I need to review all of this information to answer "yes" to this question?	You need to review and consider only that information that is pertinent to evaluation of human exposure. Focus your time on existing data or reports that address human health risk. This indicator does not require that you perform any new analyses but, rather, that you reflect analyses that have already been done.
1-4	What if a PRP has drawn different conclusions than EPA regarding the status of the HE? Do I need to consider the PRP's data?	Yes. To answer "yes" under Step 1, you need to consider the PRP data that is available to you. When answering the questions in Steps 2 through 4, you can decide what weight to place on the PRP's conclusions.
1-5	What if I am aware of information that another Agency or a PRP has collected but cannot obtain a copy of it? Should I answer "no?"	No. This step assures that you have considered that information that is available to you. If the information is <u>not</u> available for your review and consideration, you can still answer "yes" to this question.
1-6	We have yet to start the RI, and there is little information available regarding exposure pathways. How should I answer this question?	If data are unavailable or insufficient to make the HE EI determination, answer "data incomplete" and select "Insufficient Data" in WasteLAN.
1-7	How is a "no" answer for Step 1 recorded in WasteLAN?	You must answer either "yes" or "data unavailable" in Step 1. If you answer "no," re-evaluate the available data to make a determination for this EI.

Step 2: Are ground water, soil, surface water, sediments, or air **media** known or reasonably suspected to be "contaminated" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from known contaminants?		
Question		**Answer**
2-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, Five-Year Reviews, etc. are good sources of information.
2-2	Actions have reduced contamination in the contaminated medium of greatest concern (e.g., ground water) to below risk-based levels. Should I answer "no" to this question (i.e., media is not contaminated above risk-based levels)?	Only if this medium (e.g., ground water) was the only contaminated medium. The indicator reflects a site-wide determination, so contamination in all media must be below appropriately protective risk-based levels to answer "no" in Step 2.
2-3	Activities to date have focused on the most significantly contaminated medium (e.g., soil) and have reduced contamination to below risk-based levels. There is a possibility that another medium (e.g., sediment) is contaminated but we have yet to assess this. Should we count this as "reasonably suspected?"	In the absence of sampling and analytical data, you will need to use your best judgment. If the conceptual site model indicates that there is a reasonable possibility of contamination in the medium yet to be investigated (e.g., sediment), you should answer either "yes" or "insufficient data." The EI requires that you make your determination with "reasonable certainty."
2-4	How do I answer this question if some contaminant levels are below their respective risk-based levels and others are above?	If the concentration of any contaminant in a medium of concern exceeds its appropriately protective risk-based level, answer "yes" "to this question.
2-5	Does a single "hit" of contamination mean that I should answer "yes" to this question or should I use average, UCL on the mean, or another type of concentration when answering this question?	Base your determination on the information and approach being used for risk-based decisions at the site. If you are in the early stages of the investigation, with limited data, a single hit may be enough to make a "yes" determination if multiple lines of evidence corroborate this conclusion. If you are at a later stage and the UCL is being used as the exposure point concentration, use this to answer this question.
2-6	Concentrations of all of the contaminants in the medium of concern for which I have risk-based levels are below those levels. For the remaining contaminants, I do not have risk-based levels and plan to develop them at a later date. How do I answer this question?	In the interest of providing as accurate a program measure as possible, please skip this Step (i.e., answer "yes") and base your determination on Steps 3 and 4. Alternatively, you could answer "insufficient data."
2-7	Should I always use MCLs as basis for answering this question for ground water?	Only if the aquifer is currently being used as a drinking water supply and: 1) contaminated wells are being used; or 2) the plume is not contained and is likely to reach drinking water wells within a year unless actions are taken.

Step 2: Are ground water, soil, surface water, sediments, or air **media** known or reasonably suspected to be "contaminated" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from known contaminants?		
Question		**Answer**
2-8	How should I answer this question if the contaminant levels are above PRGs but below final cleanup levels?	Use the risk-based levels that are consistent with the most recent stage of the response action. In this case, assuming that they are appropriate for current exposures, use the final cleanup levels.
2-9	What should I use as the "risk-based levels" if all of the final cleanup levels in the ROD are based on future land or ground water use conditions that are different than current use conditions?	If the cleanup levels were developed during the FS for both current and future conditions, use the levels that would apply under current use conditions. In the absence of this, use other risk-based levels (e.g., PRGs, SSLs) that are appropriate based on current conditions. If none of these are available or appropriate, please skip this Step (i.e., answer "yes") and base your determination on Steps 3 and 4 (preferred) or answer "insufficient data." The EI requires that you make your determination with "reasonable certainty."
2-10	What should I do if the risk-based levels that I used to answer this question change as we learn more about the site?	If risk-based levels change, consider whether the change would effect the HE EI determination for the site. If so, update the EI determination to reflect the new information.
2-11	What should I do if the COCs in a medium change or contaminant concentrations are re-evaluated as we learn more about the site?	If COCs in the medium change or contaminant concentrations are re-evaluated based on new data, consider whether the change would effect the HE EI determination for the site. If so, update the EI determination to reflect the new information.

Step 3: Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the **current** (land- and ground water-use) conditions?		
Question		**Answer**
3-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, Five-Year Reviews, etc. are good sources of information.
3-2	How do I answer this question if the only complete exposure pathways exist for media in which none of the contaminants exist above appropriately protective risk-based levels?	Answer "no." The questions in Steps 2 and 3 (and 4) are related by medium. Only those media identified as "contaminated" above appropriately protective risk-based levels under Step 2 should be considered in Step 3.
3-3	Actions have been taken to eliminate exposure to the contaminated medium of primary concern (e.g., ground water) based on current conditions. Should I answer "no" to this question (i.e., human exposures are not reasonably expected under current conditions)?	If this is the only medium in which contaminants exist above appropriately protective risk-based levels, answer "no." This EI reflects a site-wide determination. If complete exposure pathways exist for other media that are contaminated above risk-based levels, answer "yes."
3-4	Activities to date have focused on the most significantly contaminated medium (e.g., soil) and have eliminated all exposure pathways associated with this medium based on current conditions. There is a possibility that another contaminated medium (e.g., sediment) poses a risk. Should I include this in the determination?	In the absence of a complete exposure assessment, you will need to use your best judgment. If the conceptual site model indicates that there is a reasonable expectation of exposure to a medium for which an exposure assessment has yet to be completed (e.g., sediment), you should answer either "yes" or "insufficient data." The EI requires that you make your determination with "reasonable certainty."
3-5	Should I consider the indoor air inhalation pathway (associated with vapor intrusion) and food chain exposure pathway when answering this question?	Consider all exposure pathways of concern identified in the baseline risk assessment. If these pathways are pathways of concern, they should be considered in your answer. If an exposure assessment has yet to be completed, use your best judgment and make your determination with reasonable certainty.
3-6	If the only complete exposure pathway for the entire site (all media) is for the "trespasser" scenario, should I still answer "yes" to this question?	If exposure to a contaminated medium (i.e., medium contaminated above risk-based levels) can be reasonably expected under any current exposure scenario, answer "yes" under Step 3.
3-7	At present, no drinking water wells have been impacted by contaminated ground water, but the wells could be impacted in the near future? Should we answer "no" now and change our response to "yes" if and when the plume reaches the wells?	If the plume is not contained and is migrating such that it is likely to reach drinking water wells within a year unless actions are taken, answer "yes."

Step 3: Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the **current** (land- and ground water-use) conditions?		
Question		**Answer**
3-8	The exposure scenarios driving the remedy, as presented in the ROD, are based on future land or ground water use conditions that are different than current use conditions. Should I base this EI determination on current use scenarios that are not driving the remedy.	Yes. Use the exposure scenarios that consider current use, as developed in the baseline risk assessment, to make this determination.
3-9	A fishing advisory is in place to eliminate exposure to contaminated fish. Should I answer "no" to this question if this was the only remaining complete pathway prior to this action?	Only if you are reasonably certain that the fishing advisory is effective. This determination requires that you consider not only the presence of controls intended to eliminate exposure potential, but also their effectiveness. If evidence suggests that some people are catching and eating fish despite the advisory, this remains a complete pathway, and you should answer "yes."
3-10	What should I do if new complete exposure pathways are identified or complete exposure pathways are eliminated due to response actions or a better understanding of the site?	If exposure pathway information changes based on new data, consider whether the change would effect the HE EI determination for the site. If so, update the EI determination to reflect the new information.

Step 4: Are the potential exposures from Step 3 within the acceptable limits under current (land and ground water use) conditions (e.g., within the cancer risk range or HI=1)?		
Question		**Answer**
4-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, Five-Year Reviews, etc. are good sources of information.
4-2	Actions have been taken to reduce potential exposures to the contaminated medium of primary concern (e.g., ground water) to within acceptable limits under current conditions. Should I answer "yes" to this question (i.e., potential exposures are within acceptable limits)?	Only if this was the only medium for which exposures above acceptable limits exist. The indicator reflects a site-wide determination, so exposures via all media must be within acceptable limits to answer "yes" in Step 4.
4-3	Activities to date have focused on the most significantly contaminated medium (e.g., soil) and have reduced potential exposures associated with this medium to within acceptable limits based on current conditions. There is a possibility that another contaminated medium (e.g., sediment) poses a risk. Should I include this in the determination?	In the absence of a completed risk assessment, you will need to use your best judgment. If the conceptual site model indicates that potential exposures to a contaminated medium for which risk has yet to be characterized (sediment) could represent an unacceptable risk, you should answer either "yes" or "insufficient data." The EI requires that you make your determination with "reasonable certainty."
4-4	We have yet to complete a baseline risk assessment for the site; however, some contaminant concentrations exceed appropriately protective risk-based levels in media for which complete pathways are reasonably expected under current conditions. Can I answer this question without a risk assessment?	In the absence of a completed risk assessment, base your determination on the best available information. If the medium is contaminated above the risk-based levels that have been identified at this stage of the assessment and complete exposure pathways are reasonably expected, you could answer "yes"or "insufficient data," based on your knowledge of the site and best judgment.
4-5	What risk "limits" should be used to make this determination? Should we use 10^{-6} or 10^{-4} excess lifetime cancer risk?	Base your determination on the risk limits being used for risk-based decisions at the site. For sites with a ROD, use the risk value used to establish cleanup levels. If a ROD has not been signed, use the protocol typically applied in the Region for pre-ROD sites (e.g., use state ARARs, NCP risk range, etc.). If the appropriate risk limit is uncertain, answer "insufficient information."
4-6	How do I answer this question if the risks from exposure to some contaminants are above acceptable limits and others are within acceptable limits?	If the potential exposures to any contaminant represent an unacceptable risk, answer "no" to this question.

Step 4: Are the potential exposures from Step 3 within the acceptable limits under current (land and ground water use) conditions (e.g., within the cancer risk range or HI=1)?		
Question		**Answer**
4-7	The potential exposures to individual contaminants are within acceptable limits under current conditions; however, cumulative risks under current conditions are above acceptable limits. Should I use single contaminant or cumulative risk as the basis for this determination?	Base your determination on the approach being used for risk-based decisions at the site. For example, if remedial actions to address current exposures are being driven by an assessment of cumulative risk, base your determination on the cumulative effects of exposure to multiple stressors.
4-8	The risks resulting from potential exposures vary depending on the exposure assumptions and the approach used to estimate the exposure point concentrations. What approach should be used to assess the risk from potential exposures to make this EI determination?	Base your determination on the approach being used for risk-based decisions at the site. Use the same exposure assumptions and approach to determining exposure point concentrations as are used in the risk assessment for the site – do not create any new information in order to answer this question. Note that the exposure scenarios considered in this step may be different than those considered in the baseline risk assessment, for example, if a pathway was eliminated in Step 3 due to the presence of effective ICs (which are not considered in the baseline risk assessment).
4-9	If the only unacceptable potential exposures for the entire site (all media) are associated with the "trespasser" scenario, should I still answer "no" to this question?	Yes. If potential exposures are not within acceptable limits for any scenario, based on current conditions, answer "no" under Step 4.
4-10	At present, contamination in drinking water wells does not present an unacceptable risk, but contaminant concentrations could be rising. Should I answer "yes" now and change the response to "no" if and when the contaminant concentrations reach a level such that exposure would represent an unacceptable risk?	If the plume is not contained and is migrating such that contaminant concentrations are expected to reach unacceptable levels within a year unless actions are taken, answer "no."
4-11	The exposure scenarios driving the remedy, as presented in the ROD, are based on future land or ground water use conditions that are different than current use conditions. Should I base this EI determination on current use scenarios that are not driving the remedy?	Yes. Use the exposure scenarios that consider current use, as developed in the baseline risk assessment, to make this determination.
4-12	What should I do if the degree of risk from potential exposures based on current conditions is re-evaluated as we gain a better understanding of the site?	If the degree of risk is re-evaluated based on new data, consider whether the change would effect the HE EI determination for the site. If so, update the EI determination to reflect the new information.

6.0 MIGRATION OF CONTAMINATED GROUND WATER UNDER CONTROL EI

The GM EI documents whether contamination is below protective, risk-based levels or, if not, whether the migration of contaminated ground water is stabilized and there is no unacceptable discharge to surface water and monitoring will be conducted to confirm that affected ground water remains in the original area of contamination. This indicator is limited to NPL sites with known or reasonably suspected ground water contamination above appropriately protective risk-based levels.

A positive determination of "migration of contaminated ground water under control" indicates that all information on known and reasonably expected ground water contamination has been reviewed and the above conditions are met.

6.1 MAKING THE MIGRATION OF CONTAMINATED GROUND WATER UNDER CONTROL DETERMINATION

Observe the following guidelines when making the GM determination:

- This determination needs to be made only for those sites with past or present ground water contamination. It is necessary to capture data for sites where ground water was previously contaminated but has been cleaned up to ensure that the indicator accurately records program progress.
- This determination is made on a site-wide basis, looking at distinct plumes across the entire site.
- The determination must be made with "reasonable certainty" (i.e., based on the most current data for the site). Documents such as RODs, Action Memoranda, POLREPS, Five-year Reviews, periodic ground water and surface water monitoring reports, and Close Out Reports are good sources of data and often provide the information necessary in making a determination with reasonable certainty. As new data become available, the determination can be revised.
- The determination is based on the existing plume boundary (not property boundary or projected exposure point).
- Ongoing monitoring is required to document both stabilization of migration and the status of impacts to surface water by contamination.
- Limited migration is permissible if it is part of a formal natural attenuation remedy.

Use the step-by-step process and worksheet on the following pages to make a determination of "Yes", "No", or "Insufficient Data" for the GM EI.

Superfund Migration of Contaminated Ground Water Under Control Worksheet

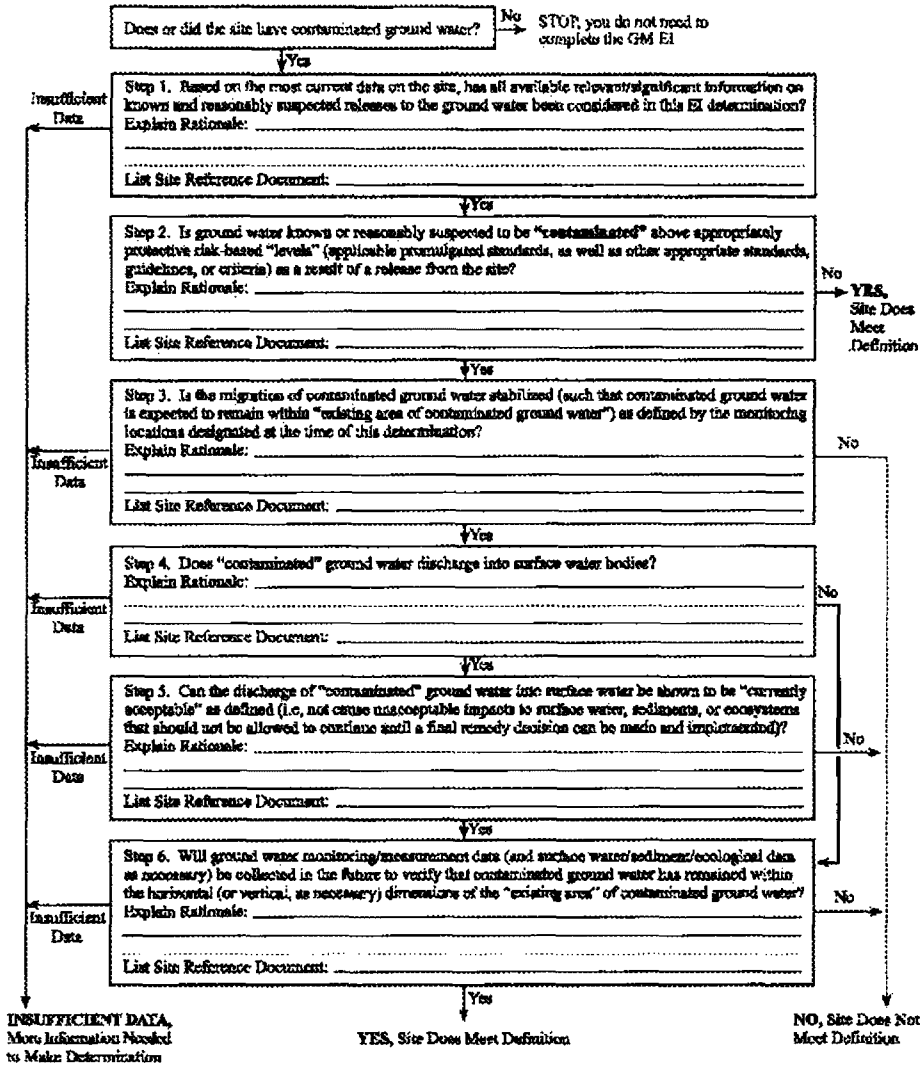
Definition: The migration of contaminated ground water from the site is being controlled through engineered or natural processes.

Region: _____

State: _____

EPA ID: _____

Site Name: _____



Detailed instructions for completing the worksheet and determining the appropriate response to enter into WasteLAN are as follows:

- **(Step 1)** Based on the most current site data, has all available relevant/significant information on known and reasonably suspected releases to the ground water been considered in this EI determination?

  - If **no**, re-evaluate existing data.
  - If **data are unavailable** or are insufficient to make this determination, select "Insufficient Data" in WasteLAN.
  - If **yes**, proceed to Step 2.

  Tips for completing rationale:

  - *"Current data for the site" are those that describe conditions that are known or suspected at the time the EI determination is made.*
  - *Review and consider only that information that is pertinent to the evaluation of contaminated ground water migration. Consider all available sources, even if you decide to base the indicator determination on one source or a subset of sources.*

- **(Step 2)** Is ground water known or reasonably suspected to be "contaminated" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, or criteria)?

  - If **no**, site meets definition of GM. Select "**No**" in WasteLAN.
  - If **yes**, proceed to Step 3.
  - If **insufficient data** are available, select "Insufficient Data" in WasteLAN.

  Tips for completing rationale:

  - *"Contaminated" refers to concentrations of contaminants that exceed appropriately protective risk-based levels such as chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs) or health-based levels developed in a risk assessment or Record of Decision.*
  - *All contaminants of potential concern present at the site above risk-based screening levels must be considered for sites without a ROD. For sites with a ROD, consider contaminants of concern identified in the Risk Assessment.*

- **(Step 3)** Is the migration of contaminated ground water stabilized (such that contaminated ground water is expected to remain within "existing area of contaminated

ground water") as defined by the monitoring locations designated at the time of this determination?

- If **no**, site does not meet definition of GM. Select "No" in WasteLAN.
- If **yes**, proceed to Step 4.
- If **insufficient data** are available, select "Insufficient Data" in WasteLAN.

Tips for completing rationale:

- *The "existing area of contamination" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant ground water contamination associated with this determination, and is defined by designated locations proximate to the outer perimeter of "contamination" that can and will be monitored in the future to physically verify that all "contaminated" ground water remains within this area.*
- *Determination of plume stability is based on expectations that the plume will remain in the "existing area of contaminated ground water" and should consider all available data. For P&T remedies, the determination should be based on multiple lines of evidence for ground water capture (see* Elements for Effective Management of Operating Pump and Treat Systems*).*
- *If monitored natural attenuation (MNA) is the selected remedy for the site, a positive determination of GM can be made if post-selection monitoring results are consistent with the assumptions used to support the MNA remedy selection (see Section 6.2).*

- **(Step 4)** Does "contaminated" ground water discharge into surface water bodies?
  - If **no**, proceed to Step 6.
  - If **yes**, proceed to Step 5.
  - If **insufficient data** are available, select "Insufficient Data" in WasteLAN.

Tips for completing rationale:

- *"Surface water bodies" include lakes, rivers, estuaries, etc. and related sediment and ecosystems.*
- *Base answer for this step on hydraulic information, considering contaminant information only to the extent that it demonstrates with reasonable certainty that there is no hydraulic connection between the contaminated ground water and surface water.*

- *Consider both constant and intermittent (e.g., seasonal) discharges – any expected discharge, constant or intermittent, would result in a "yes" determination.*

- **(Step 5)** Can the discharge of "contaminated" ground water into surface water be shown to be "currently acceptable" (i.e., not cause unacceptable impacts to surface water, sediments, or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented)?

  - If **no**, site does not meet definition of GM. Select "No" in WasteLAN.
  - If **yes**, proceed to Step 6.
  - If **insufficient data** are available, select "Insufficient Data" in WasteLAN.

  Tips for completing rationale:

  - *Consider surface water, sediments, and ecosystems to determine whether unacceptable impacts exist at the site.*
  - *Assessment and measurement endpoints should be the same as those being used to make risk management decisions for the site.*
  - *Aquifer contaminant levels identified or developed specifically for the protection of surface water can be used to make this determination.*

- **(Step 6)** Will ground water monitoring/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated ground water has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated ground water"?

  - If **no**, site does not meet definition of GM. Select "No" in WasteLAN.
  - If **yes**, site meets definition of GM. Select "Yes" in WasteLAN.
  - If **insufficient data** are available, select "Insufficient Data" in WasteLAN.

  Tips for completing rationale:

  - *Review ground water and surface water monitoring reports on a regular basis (i.e., at the same frequency as monitoring - e.g., quarterly, annually, etc.) and compare to historical data to evaluate the status of the EI determination.*
  - *To make a positive determination for this indicator, monitoring will be required to verify that the ground water contamination remains within the "existing area of contaminated ground water" and ensure that surface water impacts remain acceptable, if applicable.*

- *This question is focused on the future. Consider whether there are plans for monitoring, not whether monitoring has been completed in the past. "Plans for monitoring" will usually be documented in the remedy decision (e.g., ROD), remedial design, Interim RA, PCOR, or similar document.*

Data entry instructions for assigning a site determination in WasteLAN are discussed in Appendix B.

6.2 Considering Monitored Natural Attenuation Remedies

A positive determination for the GM EI can be made if Monitored Natural Attenuation (MNA) is the selected remedy for the contaminated ground water at the site. Decisions to employ MNA as the sole remedy or a component of the remedy should be thoroughly and adequately supported with site-specific characterization and analysis. MNA should not be used when it would result in plume migration or unacceptable impacts to environmental resources.

EPA recognizes that a plume boundary is more realistically defined by a zone rather than a line. Fluctuations within this zone are likely to occur due to a number of factors (e.g., analytical, spatial, or seasonal variability), which may or may not be indicative of a trend in plume migration. Limited plume migration can be acceptable as part of the MNA remedy and, if it is determined that such migration does not indicate a trend, a positive determination of GM can be achieved as long as all other conditions for this determination are met. However, if post-selection monitoring results suggest that the contamination is not attenuating as expected, the remedy decision will need to be reviewed, and a positive determination of GM should not be made.

6.3 Information Update and Reporting Requirements

Complete the GM EI worksheet in WasteLAN after a site is first listed as Final on the NPL (data can first be entered when the site is Proposed), and update the GM EI as soon as a change in the determination is warranted. Data updates are required by October 15 of each year or as required by the current year SPIM, to reflect the status at each site as of the end of the prior fiscal year.

Changes in EI Status
A new worksheet is required whenever the EI status changes (a copy of the worksheet is contained in Appendix E). It is recommended that a copy of the worksheet also be and kept with official site files. Submit the new worksheet to OSRTI, and update WasteLAN within 30 days of knowing that the EI status has changed.

No Change in EI Status
If there is no change in the status of the GM EI, update "Last Review Date" in WasteLAN for appropriate indicator on the Site Characterization Screen.

New Listings on the NPL
For sites that are placed on the NPL after FY 2002, complete and submit a worksheet to OSRTI, and update WasteLAN within one year of NPL site listing as Final.

6.4 FREQUENTLY ASKED QUESTIONS - MIGRATION OF CONTAMINATED GROUND WATER UNDER CONTROL

Step 1: Based on the most current data for the site, has all available information on media contamination been considered in this EI determination?

Question		Answer
1-1	What are the best sources of information for me to consider for this EI determination?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, annual or periodic ground water and surface water monitoring reports, Five-Year Reviews, etc. are good sources of information.
1-2	No known ground water contamination exists at the site. Do I need to make a determination for this EI?	Do not consider this EI if no known *or suspected* ground water contamination exists or has existed in the past at the site. If ground water contamination is known or suspected or if contamination once was present but has since been cleaned up, you should complete all appropriate steps in making this determination.
1-3	There may be several different sources of information (e.g., State, EPA, PRP). Do I need to review all of this information to answer "yes" to this question?	You need to review and consider only that information that is: 1) pertinent to evaluation of migration of contaminated ground water; and 2) available to you. If the information from other sources is both relevant and available to you, it should be reviewed and considered when making this determination.
1-4	Volumes of data may be available for a site. I've got other priorities. Do I need to review all of this information to answer "yes" to this question?	You need to review and consider only that information that is pertinent to evaluation of ground water migration. Focus your time on existing data or reports that address ground water contamination. This indicator does not require that you perform any new analyses but, rather, that you reflect analyses that have already been done.
1-5	What if a PRP has drawn different conclusions than EPA regarding the status of contaminated ground water migration? Do I need to consider the PRP's data?	Yes. To answer "yes" under Step 1, you need to consider the PRP data that is available to you. When answering the questions in Steps 2 through 5, you can decide what weight to place on the PRP's conclusions.
1-6	What if I am aware of information that another Agency or a PRP has collected but cannot obtain a copy of it? Should I answer "no?"	No. This step assures that you have considered that information that is available to you. If the information is <u>not</u> available for your review and consideration, you can still answer "yes" to this question.
1-7	The pump and treat remedy has been operating for only a short time, and it is unknown whether the plume has been captured. How should I answer this question?	If data are unavailable or insufficient to make the HE EI determination, answer "data incomplete" and select "Insufficient Data" in WasteLAN.

Step 1: Based on the most current data for the site, has all available information on media contamination been considered in this EI determination?		
Question		**Answer**
1-8	The site investigation is in the early stages and it is unknown whether the plume is naturally attenuating (i.e., contained). How should I answer this question?	If data are unavailable or insufficient to make the HE EI determination, answer "data incomplete" and select "Insufficient Data" in WasteLAN.
1-9	How is a "no" answer for Step 1 recorded in WasteLAN?	You must answer either "yes" or "data unavailable" in Step 1. If you answer "no," re-evaluate the available data to make a determination for this EI.

Step 2: Is ground water known or reasonably suspected to be "contaminated" above appropriately protective risk-based levels as a result of a release from the site?		
Question		**Answer**
2-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, annual or periodic ground water and surface water monitoring reports, Five-Year Reviews, etc. are good sources of information.
2-2	What risk-levels should I use in this step?	Use risk levels that are consistent with the most recent stage of the response action. Risk-based levels such as chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs) or health-based levels developed in a risk assessment or Record of Decision are appropriate.
2-3	How should I interpret whether ground water is "reasonably suspected" to be contaminated if my sampling data are limited?	In the absence of extensive sampling and analytical data, you will need to use your best judgment. If evidence–even limited evidence–indicates that there is a reasonable possibility of ground water contamination, you should answer either "yes" or "insufficient data." The EI requires that you make your determination with "reasonable certainty."
2-4	How do I answer this question if some ground water contaminant levels are below their respective risk-based levels and others are above?	If the concentration of any contaminant in ground water exceeds its appropriately protective risk-based level, answer "yes" "to this question.
2-5	Does a single "hit" of contamination mean that I should answer "yes" to this question?	Base your determination on the information and approach being used for risk-based decisions at the site. If you are in the early stages of the investigation, with limited data, a single hit may be enough to make a "yes" determination if multiple lines of evidence corroborate this conclusion. Use professional judgement to make a determination with reasonable certainty. If data do not allow you to make a judgement with reasonable certainty, answer "insufficient data" to this question.
2-6	Should I use average, UCL on the mean, or another type of concentration when answering this question?	Base your determination on the information and approach being used for risk-based decisions at the site. If you are at a later stage in the cleanup process and the UCL is being used as the exposure point concentration, use this to answer this question.

Step 2: Is ground water known or reasonably suspected to be "contaminated" above appropriately protective risk-based levels as a result of a release from the site?		
Question		**Answer**
2-7	How should I answer this question if the contaminant levels are above PRGs but below final cleanup levels?	Use the risk-based levels that are consistent with the most recent stage of the response action if they are appropriate for current exposures. If final cleanup levels are the most recent risk-based numbers, base your answer on comparison of current conditions to final cleanup levels. If PRGs are the most recent risk-based levels, base your answer on comparison of current conditions to PRGs.
2-8	If more than one distinct contaminated plume exists at a site, should I make the determination based on only one plume or multiple plumes?	If more than one distinct plume exists at a site and only one plume contains contaminants above risk-based levels, answer "yes" to this question and continue with step 3. Ultimately, if you determine migration of contaminated ground water plume is under control for one plume but not another, the site does not meet the definition for this EI. Answer "no" in WasteLAN if any plume does not meet the definition as defined in steps 2-6.
2-9	If multiple distinct plumes exist at the site, do I consider each plume separately?	Evaluate each plume separately, to the extent that the plumes can be separately identified. If you answer "yes" for a ground water plume in this step, answer step 3 (and subsequent steps, if applicable) for that plume. If you answer "no" for a plume in this step, this plume can be dropped from further consideration under this EI. Ultimately, if you determine migration of contaminated ground water plume is under control for one plume but not another, the site does not meet the definition for this EI.
2-10	What should I do if the risk-based levels that I used to answer this question change as we learn more about the site?	If risk-based levels change, consider whether the change would effect the contaminated ground water migration under control EI determination for the site. If so, update the EI determination to reflect the new information.
2-11	What should I do if the COCs in ground water change or contaminant concentrations are re-evaluated as we learn more about the site?	If COCs in ground water change or contaminant concentrations are re-evaluated based on new data, consider whether the change would effect the EI determination for the site. If so, update the EI determination to reflect the new information.

Step 3: Is the migration of contaminated ground water stabilized as defined by the monitoring locations designated at the time of determination?		
Question		**Answer**
3-1	Where should I find information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, annual or periodic ground water and surface water monitoring reports, Five-Year Reviews, etc. are good sources of information.
3-2	If monitored natural attenuation has been selected as the remedy for a site, can I answer "yes" to this question?	Monitored natural attenuation does not preclude you from answering "yes" to this question. If the selected remedy is monitored natural attenuation and the plume meets conditions set forth in steps 1-3, you can answer "yes" to this question and proceed to step 4.
3-3	If one monitoring location shows a single "hit" of a contaminant of concern, should I answer "no" to this question?	Generally, the determination that migration has stabilized will require consideration of site characteristics and multiple rounds of sampling to assess any trends. A single "hit" should be considered in the context of this other data. If the data are limited, use your best professional judgement to answer the question with reasonable certainty. If uncertainty persists, answer "insufficient data."
3-4	How is the "existing area of contamination" determined?	The existing area of contamination is defined by designated locations proximate to the outer perimeter of contamination that can and will be monitored in the future to physically verify that all contamination remains in this area. Note that monitoring wells used to make this determination can be located inside the area of contamination (they do not have to be "clean" wells). You do not need to continue to monitor wells that show consistently low levels of contamination solely for the purposes of this EI. Use that data that you would normally collect to monitor site conditions when making this EI determination.
3-5	I have very limited data on which to make judge stability of the plume. Can I answer "insufficient data" to this question? What is "sufficient?"	Yes, you can answer "insufficient data" in such an instance. Each site is unique, so there is no common definition of "sufficiency." Use your best professional judgement and determine your answers based on "reasonable certainty.".
3-6	Evidence indicates contamination beyond the existing area, but the contamination is below risk-based levels. How would this question be answered for this scenario?	Contamination levels outside of the area of contamination need not exceed risk-based levels to show migration of the plume. If contamination has been identified outside of the existing area of contamination, consider all of the information available, including capture zone analyses (for P&T remedies) and use your best judgment to assess whether migration of the plume is stabilized.

Step 3: Is the migration of contaminated ground water stabilized as defined by the monitoring locations designated at the time of determination?		
Question		**Answer**
3-7	Only some contaminants (COPCs or non-COPCs) associated with a site were detected outside the area of existing contamination. Should I consider the plume not stable?	Any contaminant–COPC or non-COPC– associated with the ground water plume that has migrated beyond the area of existing contamination, could be an indication that the plume is not stabilized. Consider all available analytical and hydraulic information and use your best judgment to assess whether migration of the plume is stabilized.
3-8	Multiple plumes exist at a site. At least one is stabilized. How do I record this for this EI step?	The EI determination is made on a site-wide basis. If any plume for which you answered "yes" in step 2 is not stable, the site does not meet the definition of contaminated ground water migration under control. Answer "no" to this question.
3-9	What should I do if the COCs in ground water change or contaminant concentrations are re-evaluated as we learn more about the site?	If COCs in ground water change or contaminant concentrations are re-evaluated based on new data, consider whether the change would effect the EI determination for the site. If so, update the EI determination to reflect the new information.
3-10	What if monitoring locations change in the future?	If monitoring locations for the existing area of contamination change, you need not update this EI unless contamination is found outside of the area of contamination as determined by those monitoring locations. If so, update the EI determination to reflect the new information.

Step 4: Does contaminated ground water discharge into surface water bodies?		
Question		**Answer**
4-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, annual or periodic ground water and surface water monitoring reports, Five-Year Reviews, etc. are good sources of information.
4-2	If surface water data are limited (*e.g.*, no surface water samples have been collected), how should I make this determination?	In the absence of a complete characterization of the ground water to surface water pathway, you will need to use your best judgment. Ground water and hydrological investigations collected during the RI may provide enough information to make your determination with "reasonable certainty." You could also consult the CSM to determine whether it would be reasonable to assume groundwater discharge. If no information is available, you should answer either "no" or "insufficient data."
4-3	Ground water to surface water discharge is not constant or is very sporadic. Should I answer "yes" to this question?	If ground water has been documented to discharge to surface water at any time, answer "yes" to this question.
4-4	Ground water to surface water discharge has been documented; however, sampling did not show contamination in the surface water at the discharge point. Therefore, I cannot assume "contaminated" ground water is discharging at this point. Should I answer "no" to this question?	You should base your answer on "reasonable certainty." If you are reasonably certain no contaminated ground water is discharging to surface water, answer "no" to this question. However, if you are unsure or your professional judgment leads you to think contaminated ground water is discharging to surface water (e.g., contamination exists at the ground water table just upgradient of the surface water body), answer "insufficient data" or "yes" based on your level of certainty.
4-5	Multiple plumes exist at the site. Only one plume discharges contamination into a surface water body. How do I answer this question?	The EI determination is made on a site-wide basis. If contaminated ground water associated with a plume for which you answered "yes" in step 3 discharges into surface water, answer "yes" to this question and answer question 5 for this plume.
4-6	Should future/past discharges be considered when making this determination?	Because ground water levels and discharge to surface water can fluctuate throughout the year, future or past discharges should be considered when answering this question. If there is evidence of past discharges, or likelihood of future discharges, answer "yes" to this question regardless of current conditions. If conditions change, preventing future discharge answer "no" to this question. (See question 4-7).

Step 4: Does contaminated ground water discharge into surface water bodies?		
Question		**Answer**
4-7	What if conditions change and a remedy prevents future discharges?	Reevaluate the answer to this question if conditions change. If a remedy addresses contaminated ground water discharge into surface water so that surface water is unlikely to receive future ground water discharge, answer "no" to this question.

Step 5: Can the discharge of contaminated ground water into surface water be shown to be currently acceptable as defined (*i.e.*, not cause unacceptable impacts to surface water, sediments, or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented)?		
Question		**Answer**
5-1	Where can I find the information to answer this question?	Documents such as RI/FS reports, RODs, Action Memoranda, POLREPS, Close Out Reports, annual or periodic ground water and surface water monitoring reports, Five-Year Reviews, etc. are good sources of information.
5-2	Should I use ground water contaminant levels (identified in step 2) to determine if discharge of contaminated ground water to surface water is within currently acceptable limits?	No. Base your decision on contaminant levels identified or developed specifically for the protection of surface water (*e.g.*, AWQC). Use those surface water standards or other contaminant levels being used for risk-based decisions for the site.
5-3	What if surface water contaminant levels are above one standard, but below another? How should I answer this question?	Based your answer on the standards being used for risk based decisions for the site. If contaminant levels are above a standard that has been deemed the "acceptable" level for a site, answer "no" to this question.
5-4	Water quality standards (e.g., TMDLs, AWQC) have not been developed for any contaminants at the site. How should I make this determination?	In the absence of water quality standards, base your determination on the best available information. If evidence suggests that ground water discharge has resulted in unacceptable impacts on surface water (e.g., if remedial actions are planned for the surface water pathway), answer "no" to this question.
5-5	At present, discharge of contaminated ground water to surface water is acceptable. Should I answer "yes" now and change the response to "no" if and when the surface water contaminant concentrations reach a level such that the surface water, sediment, or ecosystems are negatively impacted?	Use your professional judgment or consult the risk assessment for aid in making this decision with reasonably certainty. Answer "no" only if future impacts to surface water are imminent (i.e., are expected to occur before remedial actions can be implemented).
5-6	The only contaminants detected in the surface water are not present in the ground water plume. If these contaminants are above acceptable levels, but might not be related to the ground water plume, should I answer "yes?"	Use your professional judgment and consider all aspects of the site, including the extent of sampling conducted at the time of determination, in order to determine the answer. If the contaminants are clearly not related to ground water, answer "yes" to this question and continue with the worksheet.
5-7	Some contaminants in surface water are at acceptable levels, others are not. How should I answer this question?	If any contaminant associated with the discharge of ground water is found in surface water above acceptable limits, answer "no" to this question.

Step 5: Can the discharge of contaminated ground water into surface water be shown to be currently acceptable as defined (*i.e.*, not cause unacceptable impacts to surface water, sediments, or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented)?		
Question		**Answer**
5-8	Contaminants associated with ground water discharge were found in sediment samples at unacceptable levels, but not in surface water samples. Is it appropriate to answer "no" to this question if only sediment contamination is found?	Yes. Sediments are to be considered when making this determination. Past releases can be "trapped" in sediments after surface water contamination has been cleared. Because of this, sediment contaminant levels may not correlate directly with surface water contaminant levels. It is conceivable that sediment contamination may be measured even if surface water contamination is not detected. Therefore, assuming the contamination can be associated with present or past ground water discharge (see questions 4-6 and 4-7), answer "no" to this question.
5-9	How do I answer this question if contaminant levels in surface water/sediment/ecosystems have decreased to acceptable limits?	If ground water discharge continues, yet surface water contaminant levels are within currently acceptable limits, answer "yes" to this question and continue to step 6.

Step 6: Will ground water monitoring/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated ground water has remained within the horizontal (or vertical, as necessary) dimensions of the existing area of contaminated ground water?		
Question		**Answer**
6-1	Where can I find the information to answer this question?	Documents such as RODs, Action Memoranda, POLREPS, Close Out Reports, Five-Year Reviews, etc. are good sources of information.
6-2	How should the existing area of contaminated ground water be determined?	Base the existing area of contaminated ground water consistent with step 3.
6-3	What if future monitoring shows migration of the ground water plume?	Your answer to this step should be based only on whether or not monitoring is planned for the future. If the plume characteristics change in the future, the EI will need to be re-evaluated.
6-4	Contaminated ground water discharges to surface water at the site. However, adverse surface water impacts have not been shown from discharging contaminated ground water. No future monitoring is planned. Should I answer "no" to this question, even if future impacts to surface water are possible?	The decision not to monitor surface water suggests that future impacts are unlikely; therefore, there is no need to consider whether surface water monitoring is planned when answering this question. However, if future ground water monitoring suggests changing conditions that could result in surface water impacts, the EI determination should be reconsidered.
6-5	No vertical dimensions have been estimated for the plume. Does the future monitoring need to consider vertical dimension?	If vertical dimensions have not been established for the existing area of contamination, future monitoring does not need to consider vertical dimensions in order for you to answer "yes" to this step.
6-6	The ground water contamination has been cleaned up and monitoring efforts are ceasing. Should I answer "no" to this question if EPA ceases monitoring in the future?	If the site has been cleaned-up or otherwise addressed, ground water will likely be below protective risk-based levels. If this is the case, you would answer "no" to step 2 and the site would meet the definition for migration of contaminated ground water under control.
6-7	Monitoring efforts are being halted (by outside agency, state, etc); however, contamination still exists at the site. How do I answer this question if site conditions are thus changed?	If site conditions do not allow you to answer "no" to step 2, continue with worksheet. In step 6, you need to evaluate your answer based on current known decisions. If monitoring is being ceased in the future, answer "no" to this question.

SUPERFUND ENVIRONMENTAL INDICATORS GUIDANCE MANUAL

APPENDICES - DATA VIEWING AND ENTRY

Office of Superfund Remediation and Technology Innovation
U.S. Environmental Protection Agency
Washington, D.C. 20460

September 2004

APPENDIX A - EI DATA VIEWING AND ENTRY

The purpose of the Data Viewing/Entry guide is to describe the methods used to view and enter current Environmental Indicator data in WasteLAN. These data will serve as an effective tool to help the Regions monitor their cleanup progress, support Government Performance and Results Act (GPRA) reporting, and construct accurate fact sheets. The frequency of data entry should, at a minimum, be one per year. However, by entering data at more frequent intervals, the EI module will serve as a better tool for the Regions to monitor their progress. Covered in Appendix A is the step-by-step process to view and enter data for the following Environmental Indicators:

POPULATIONS PROTECTED—The Populations Protected Superfund EI was developed to measure the progress made in protecting individuals living at or near Superfund sites from immediate threats of exposure to contaminated media. Specifically, this EI measures the number of individuals protected through the provision of alternate drinking water and the number of individuals temporary or permanently relocated in response to contamination.

CLEANUP VOLUMES—The Cleanup Volumes indicator reports the amount of contaminated materials that have been treated, stabilized, or disposed of at Superfund sites through the user of risk management, engineering technologies, and institutional controls.

HUMAN EXPOSURE UNDER CONTROL—Describes whether contamination is below protective, risk-based levels or, if not, whether adequate controls are in place to prevent unacceptable human exposure to contamination based on current land and ground water use conditions at NPL sites.

MIGRATION OF CONTAMINATED GROUND WATER UNDER CONTROL—Describes whether contamination is below protective, risk-based levels or, if not, whether the following conditions are met at NPL sites:

- migration of contaminated ground water is stabilized;.
- there is no unacceptable discharge to surface water; and
- monitoring will be conducted to confirm that affected groundwater remains in the original area of contamination.

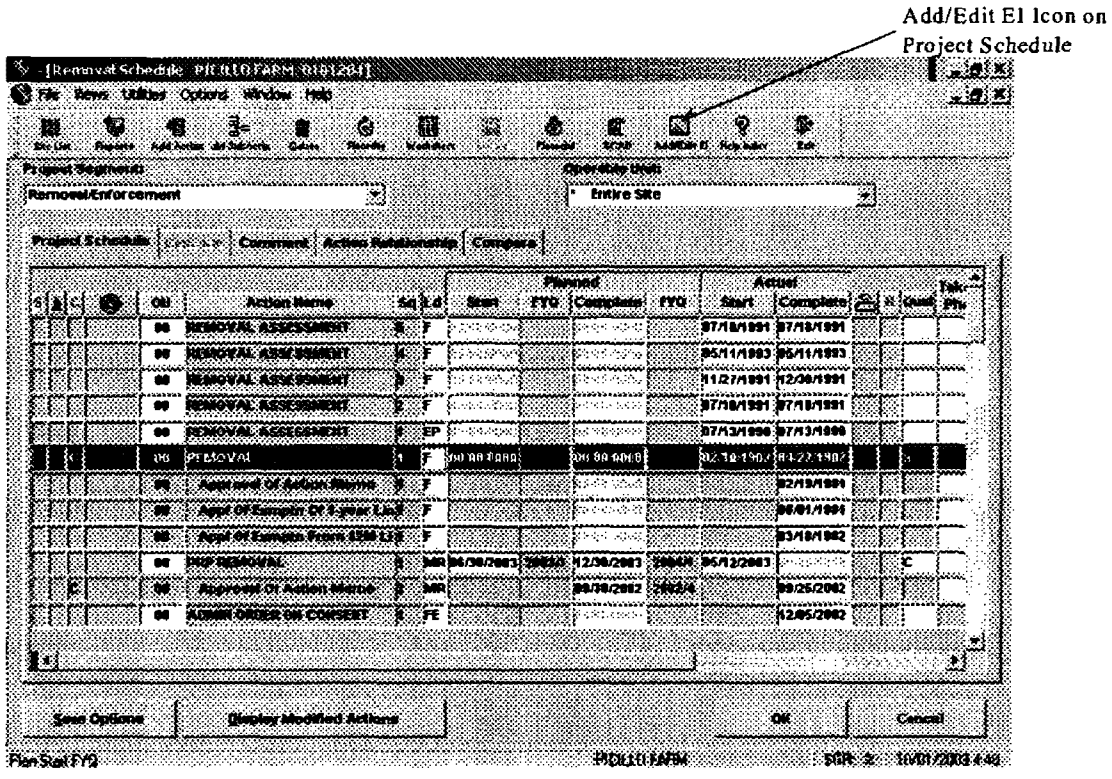
APPENDIX A - EI DATA VIEWING AND ENTRY

A.1. ACCESSING AND VIEWING THE ENVIRONMENTAL INDICATORS MODULE IN WASTELAN

- From the Views menu, select Program Management, then **Environmental Indicators.**

OR

- From the Removal or Remedial Schedule, the **Add/Edit EI icon** can be selected when one of the following actions are highlighted on the schedule: Removal; PRP Removal; FF Removal; Remedial Action; PRP RA; FF RA; PRP Emergency Removal; and Initial Remedial Measure.



APPENDIX A - EI DATA VIEWING AND ENTRY

A.2. ENVIRONMENTAL INDICATOR TABS - DATA VIEWING AND ENTRY

The Environmental Indicators (EI) Module displays and allows for data entry of the Human Exposure Under Control, Migration of Contaminated Ground Water Under Control, Cleanup Volumes, and Populations Protected Environmental Indicators. The EI Module consists of five tabs including:

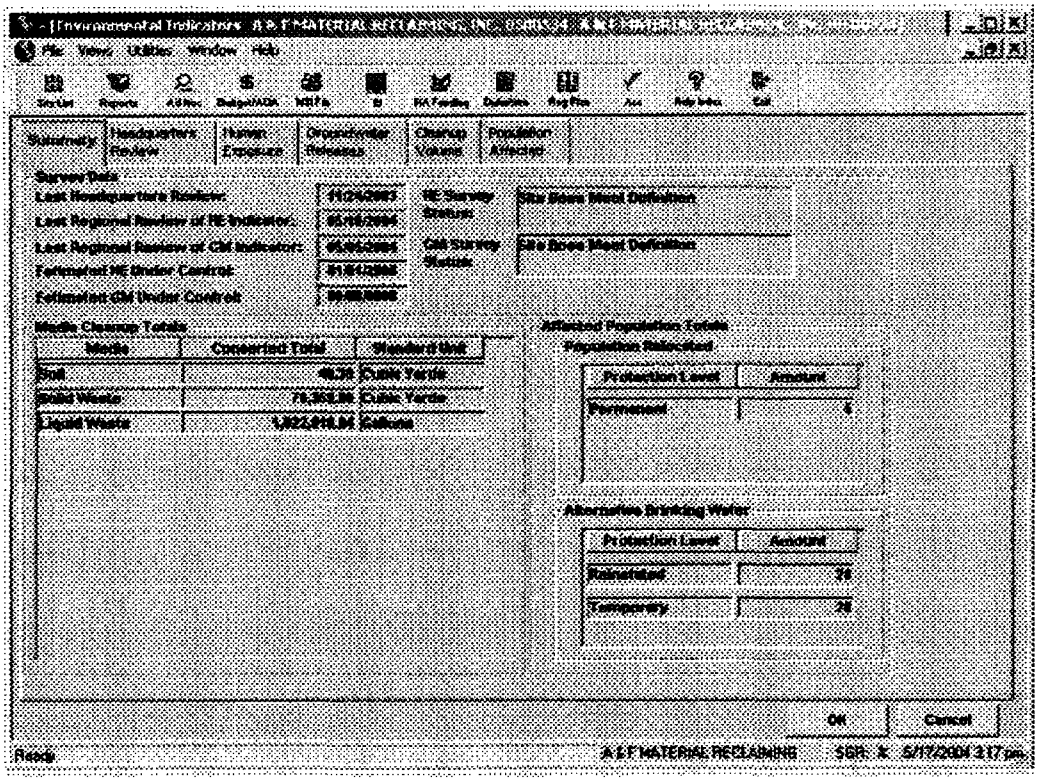
- Summary;
- Headquarters Review/Summary;
- Human Exposure Under Control;
- Migration of Contaminated Ground Water Under Control;
- Cleanup Volumes; and
- Populations Protected

APPENDIX A - EI DATA VIEWING AND ENTRY

A.3. ENVIRONMENTAL INDICATORS SUMMARY TAB - DATA VIEWING/ENTRY

The Summary tab is the first tab that appears when entering the EI Module. All fields on the Summary screen are greyed out and uneditable. The following data is displayed on the Summary Screen:

- Cumulative totals of Cleanup Volumes and Populations Protected data for all actions selected at a site as well as a summary of the HE and GM determinations, last Regional and HQ review dates, and estimated controlled data.
- The Cleanup Volumes data is displayed by media, volume and standard unit (gallons or cubic yards).
- The Populations Protected portion of the Summary tab displays the protection level (permanent, temporary, or returned/reinstated).



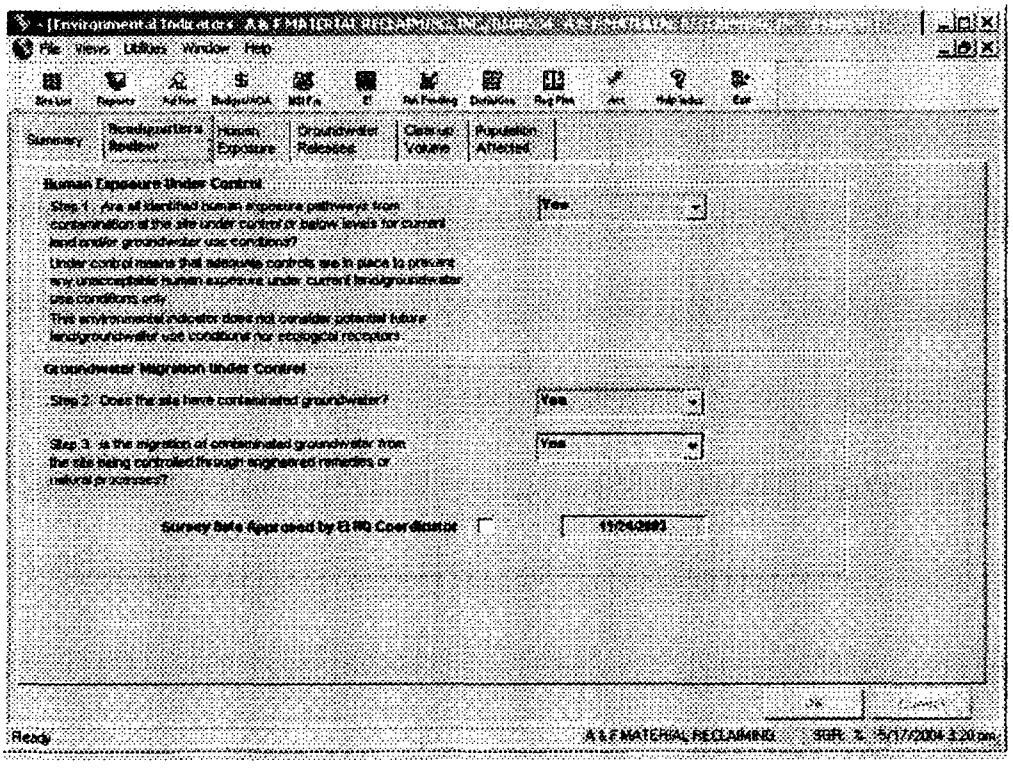
APPENDIX A - EI DATA VIEWING AND ENTRY

A.4. HEADQUARTERS REVIEW/SUMMARY TAB - DATAVIEWING/ENTRY

The Headquarters Review/Summary tab is the second tab that appears in the EI module. This tab is named Headquarters Review in the Headquarters instance of WasteLAN and the Summary tab in the Regional instances of WasteLAN.

All fields on the Headquarters Review/Summary screen are greyed out and uneditable. This screen is used by the Headquarters Environmental Indicators Coordinator to approve and make a final HE and GM determination based upon the data entered by the Regions on the Human Exposure and Ground Water Releases tabs.

Headquarters Review/Summary Tab



APPENDIX A - EI DATA VIEWING AND ENTRY

A.5. HUMAN EXPOSURE TAB - DATA VIEWING/ENTRY

The Human Exposure tab allows the user to complete, or save as draft, the Human Exposure survey for the selected site. This tab documents whether contamination is below protective, risk-based levels or whether adequate controls are in place to prevent human exposure to contamination based on current land and groundwater use conditions.

1. Each question consists of a drop-down and a text box. To answer a question, simply click on the drop-down and select from the list of possible answers. Answers consist of Yes, No, and Insufficient Data.

2. Once you have answered the question, enter reference documents in the text box. Documents such as RODs, Action Memorandums, POLREPS, and Close Out Reports often provide necessary information.

3. Once all information has been entered, the results of the responses will be displayed in the Survey Status box on the Headquarters Review tab.

4. Once all data has been entered, and the survey has been certified by the appropriate person(s), click on the RPM Certified checkbox.

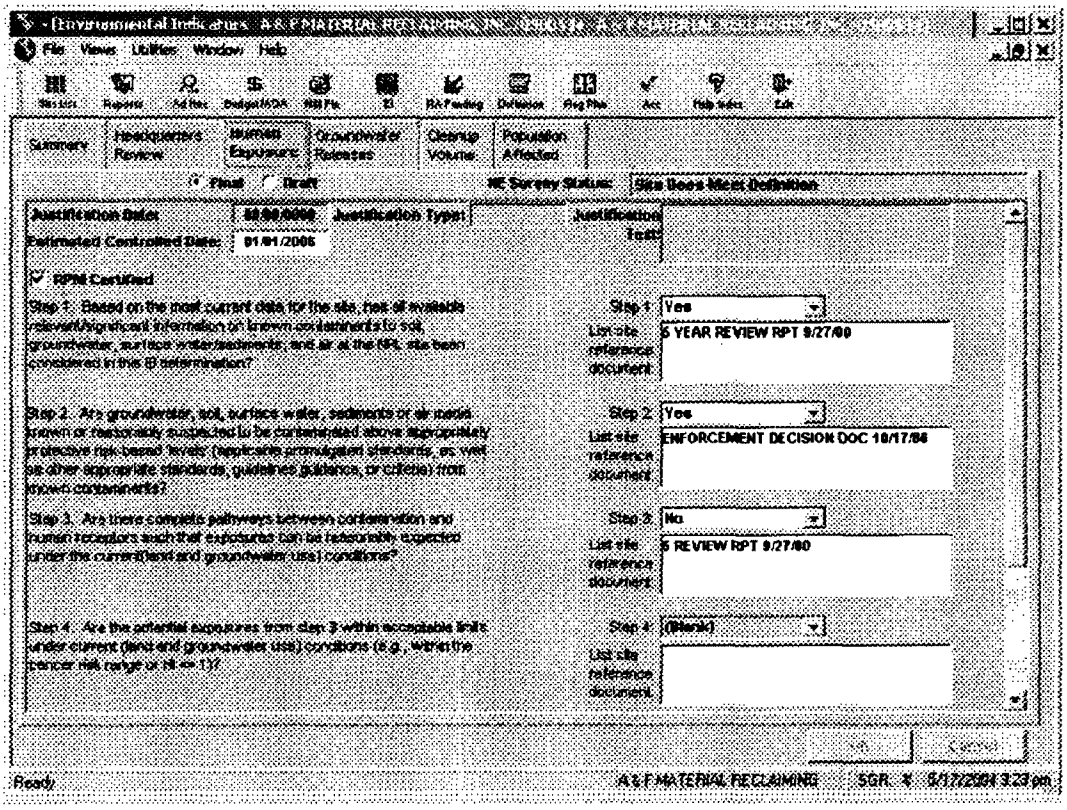
5. Select either the "Final" or "Draft" radio button. Please note: The "Draft" option is not meant to be a substitute for cases when insufficient data is available at a site. It is included in the survey with the intention of functioning as a short-term placeholder for cases where the user has not completed the survey and wishes to save without losing information. Once a survey is saved as "Draft," the survey will display the determination of "Online Worksheet saved as Draft". Once the user is able to complete the survey, the "Final" radio button should be selected.

6. If the survey determination is either "Site Does Not Meet Definition" or "Insufficient Data Needed to Make a Determination," enter an estimated date at which Human Exposure at the site will be under control.

7. In cases where the Human Exposure Under Control survey determination is changed from "Site Does Meet Definition" to one of the following: "Site Does Not Meet Definition"; "Insufficient Data Needed to Make Determination"; or "Online Worksheet Saved as Draft", you will be required to enter a justification of why the site determination is no longer "Under Control".

APPENDIX A - EI DATA VIEWING AND ENTRY

Human Exposure Tab



APPENDIX A - EI DATA VIEWING AND ENTRY

A.6. GROUNDWATER RELEASES TAB - DATA VIEWING/ENTRY

The Groundwater Releases tab allows the user to complete, or save as draft the Ground Water Releases survey for the selected site. This tab documents whether contamination is below protective, risk-based levels, or if not, whether the migration of contaminated ground water is stabilized and there is no unacceptable discharge to surface water. It also document whether monitoring will be conducted to confirm that affected ground water remains in the original area of contamination. This determination should be make on a site-wide basis, with reasonable certainty, based on the existing plume, with on-going monitoring, and limited migration.

1. Each question consists of a drop-down and a text box. To answer a question, simply click on the drop-down and select from the list of possible answers. Answers consist of (Blank), Yes, No, and Insufficient Data.

2. Once you have answered the question, enter reference documents in the text box.

3. Once all information has been entered, the results of the responses will be displayed in the Survey Status box on the Headquarters Review tab.

4. Once all data has been entered, and the survey has been certified by the appropriate person(s), click on the RPM Certified checkbox.

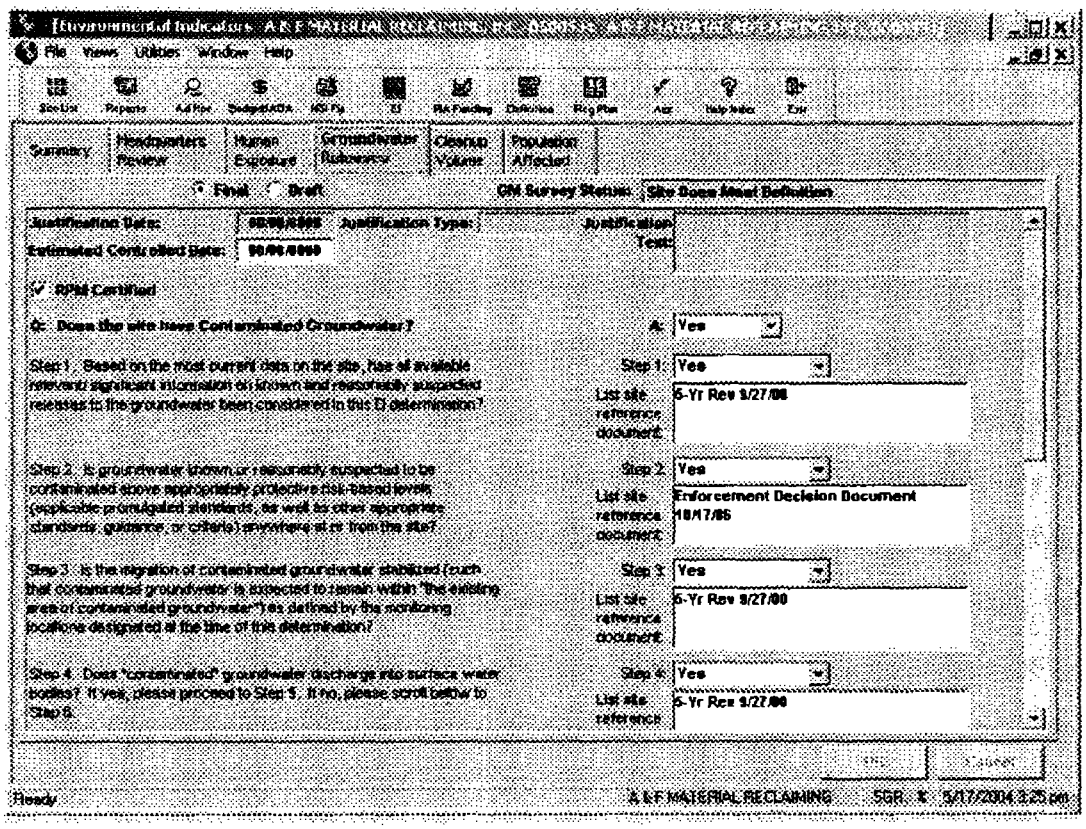
5. Select either the "Final" or "Draft" radio button. Please note: The "Draft" option is not meant to be a substitute for cases when insufficient data is available at a site. It is included in the survey with the intention of functioning as a short-term placeholder for cases where the user has not completed the survey and wishes to save without losing information. Once a survey is saved as "Draft," the survey will display the determination of "Online Worksheet saved as Draft". Once the user is able to complete the survey, the "Final" radio button should be selected.

6. If the survey determination is either "Site Does Not Meet Definition" or "Insufficient Data Needed to Make a Determination," enter an estimated date at which Migration of Contaminated Ground Water at the site will be under control.

7. In cases where the Migration of Contaminated Ground Water Under Control survey determination is changed from "Site Does Meet Definition" to one of the following: "Site

Does Not Meet Definition"; "Insufficient Data Needed to Make Determination"; or "Online Worksheet Saved as Draft", you will be required to enter a justification of why the site determination is no longer "Under Control".

Groundwater Releases Tab



APPENDIX A - EI DATA VIEWING AND ENTRY

A.7. CLEANUP VOLUME TAB - DATA ENTRY/VIEWING

The Cleanup Volumes tab displays and allows for entry of incremental cleanup data. This incremental data is then rolled up on the Summary tab as a cumulative number.

*Note: When entering a new cleanup volume, it is important to enter a new row rather than edit an existing cleanup value. This screen is different than the previous Add/Edit EI module in that new volumes **should be entered separately**, not added to an existing volume for a particular action. The original amount and unit fields were designed to be editable in the case an incorrect volume was entered.*

1. Select the action from the **Action drop-down menu** for which the cleanup volume you wish to enter has been applied. (Note: Selecting "All" from the Action Drop-down will display all actions and corresponding media at a site).

2. Once the relevant action has been selected, select "Add Row". A blank row will appear.

3. Once you have selected the appropriate action or have chosen to view all actions, enter the date the volume was cleaned up in the **Cleanup Date field**.

4. Select the **Media Name drop-down menu** and select the appropriate **Media Name** and **Media Type** for the particular action for which you wish to enter a volume. (Note: if the media name for which the cleanup volume was applied is not available for the particular action you selected, it must be entered on the Add/Edit Media screen via the SCAP or Remedy screens. Once entered, it will then be available on the Media Name drop-down menu).

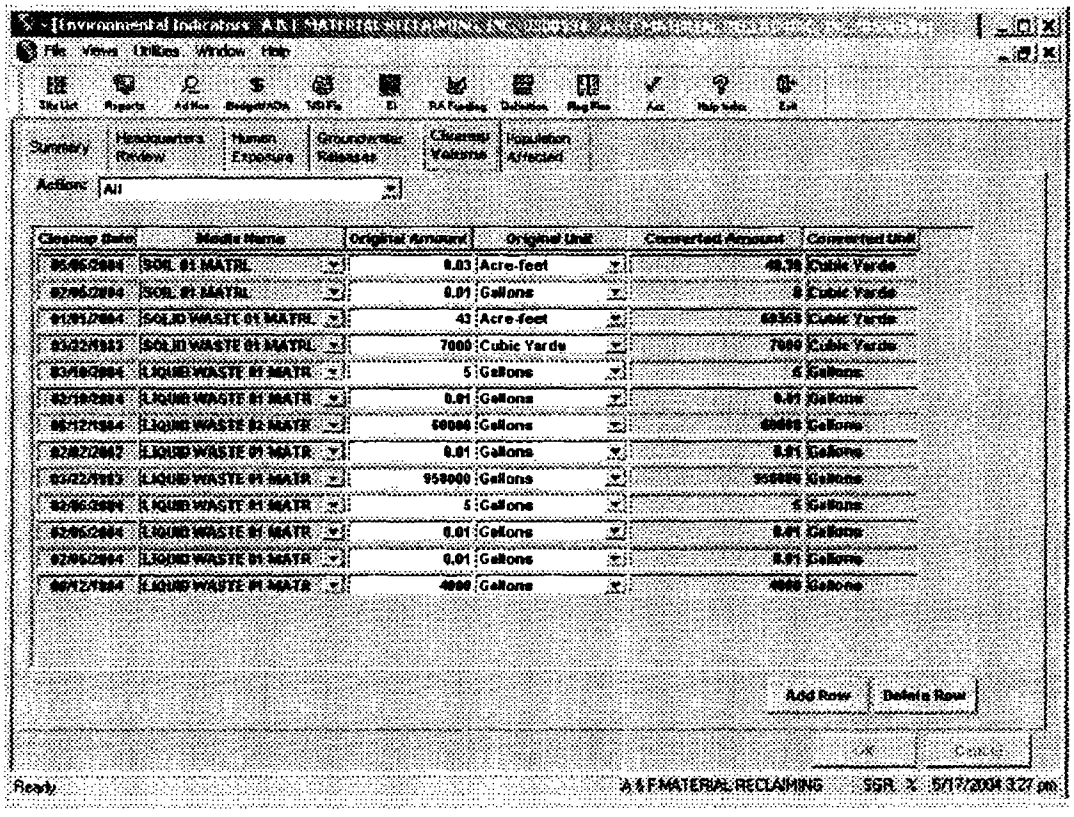
5. Enter the volume of waste treated for the particular action and media name in the **Original Cleanup Amount** and **Original Unit** fields. Units can be entered as "non-standard" units as they are automatically converted to standard units of gallons or cubic yards, once selected in the **Converted Amount** and **Converted Unit** fields. (Note: Non-standard units available from the "Original Unit" drop-down include: (Cubic Feet; Drums; Liters; Tons; Pounds; Cubic Meters; Tanks; Cylinders; and Battery Casings).

6. To save a new entry, select the "Summary" tab and click on the "OK" button. Cumulative volumetric totals can be viewed on the "Summary" tab.

APPENDIX A - EI DATA VIEWING AND ENTRY

Note: An action must be selected from the action drop-down in order to enter a cleanup volume. If the action for which you wish to enter a volume is not available on the drop-down, it must be entered on the Add/Edit Response Action screen via the SCAP screens.

Cleanup Volumes Tab



APPENDIX A - EI DATA VIEWING AND ENTRY

A.8. POPULATIONS PROTECTED TAB - DATA VIEWING/ENTRY

The Populations Affected tab allows for the data entry of the number of people supplied alternative drinking water and the population relocated at a particular site. The Populations Affected tab displays incremental population numbers by action, while the Summary screen displays the site-wide cumulative population relocated and/or provided alternative drinking water at a site. As such, it is important to add a row for entry of new Populations Protected data rather than editing existing data.

1. Select an action from the **Action drop-down menu** for which the Population Relocated or Alternate Drinking Water Supplied response was applied. (**Note:** Unlike on the Cleanup Volume tab, data entry is not permitted when "All" is displayed on the **Action drop-down** box. This is due to the fact that on the Cleanup Volume tab you are still required to select an action associated to a medium on the Media Name drop-down-box. Because Population Protected data is not associated with a Medium, you are required to select a specific action (rather than "All") to which either population relocated or alternate drinking water supplied data is associated).

2. Select the **Add Row button**. (Note: You may receive a data warning message stating "No Populations Relocated Response Actions Currently Exist for this Site or No Alternative Drinking Water Response Actions Currently Exist for this Site". If this message appears, you will still be permitted to enter data, however for data quality purposes, the applicable population relocated and/or alternate water supplied response action should be entered on the Add/Edit Response Actions screen via the SCAP or Remedy Screens.).

3. Enter the **Affected Date** the population was either relocated or provided alternative drinking water.

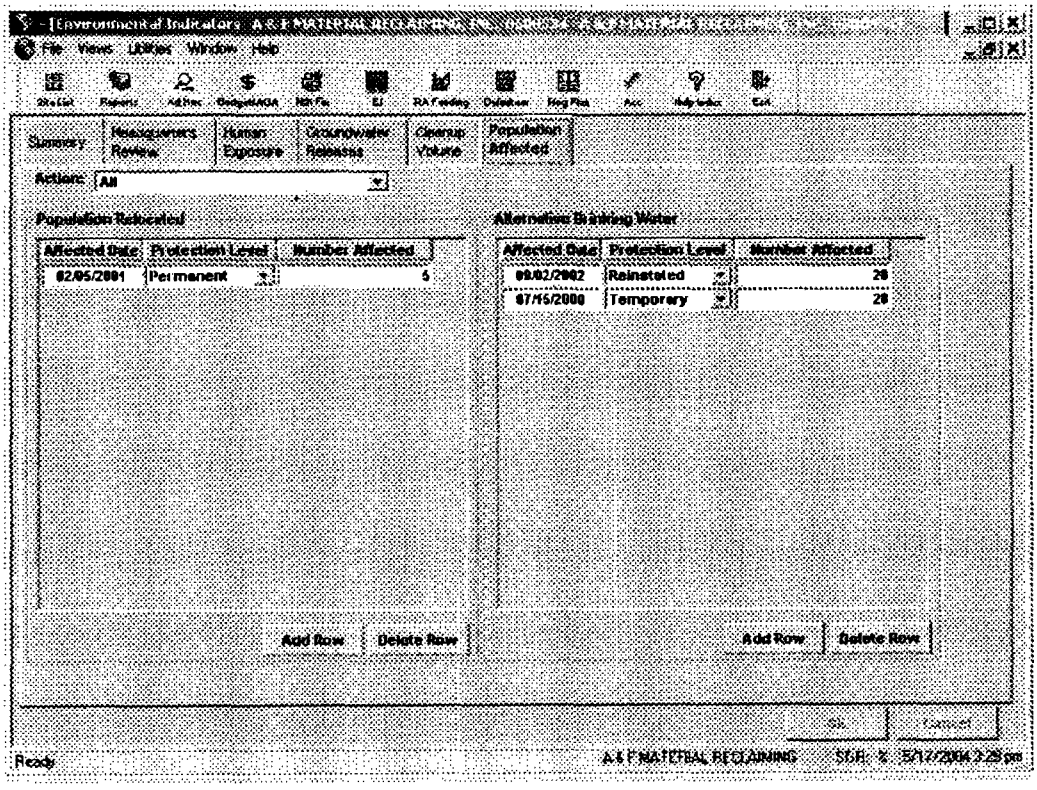
4. Enter the **Protection Level** (either Permanent, Temporary or Returned/Reinstated) applied toward the population.

5. Enter the number of individuals relocated or receiving alternative drinking water in the **Number Affected** field.

6. To save a new entry, select the **Summary tab** and click on the **OK button**. Cumulative Population Relocation and Alternative Drinking Water Supplied data can be viewed on the "Summary" tab.

APPENDIX A - EI DATA VIEWING AND ENTRY

Populations Affected Tab



APPENDIX B - ENVIRONMENTAL INDICATOR REPORTS

B.1 ENVIRONMENTAL INDICATOR REPORTS

As described in Section 2.7 of the Guidance, a number of EI Reports are available at both the Regional and National levels.

These include:

PGMT-08 Environmental Indicators Audit Report
Displays sites were there is incomplete Cleanup Volume data. This report can be used to identify discrepancies in Cleanup Volume data at the National, Regional, State, or site-specific levels.

PGMT-09 Data Compilation Report
Summary of site Population Protected and Cleanup Volume data. This report can be used to ensure that all data for a site are entered completely and accurately.

PGMT-10 Site Turnaround Report
Summary of site Population Protected and Cleanup Volume data. This report was designed to be used in conjunction with the PGMT-09 as a data entry guide.

PGMT-11 Environmental Indicators HE/GM Report
Site summary detail and Regional summary count of HE and GM determinations and last Regional and Headquarters review dates.

PGMT-12 Environmental Indicators HE/GM Error Report
Displays a site summary of data gaps and potential reporting errors for the Human Exposure and Migration of Contaminated Ground Water Under Control EI's.

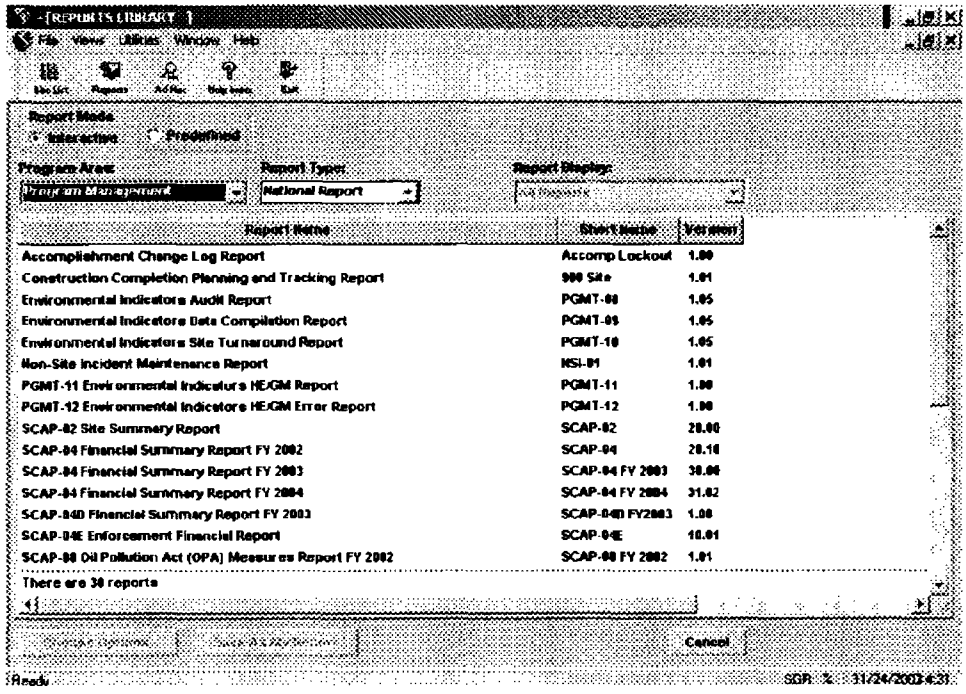
PGMT-13 Environmental Indicators Summary Report
Quick reference cumulative summary of all EI data–Populations Protected, Cleanup Volumes, Human Exposure Under Control, and Migration of Contaminated Ground Water Under Control.

APPENDIX B - ENVIRONMENTAL INDICATOR REPORTS

B.4 ACCESSING ENVIRONMENTAL INDICATOR REPORTS

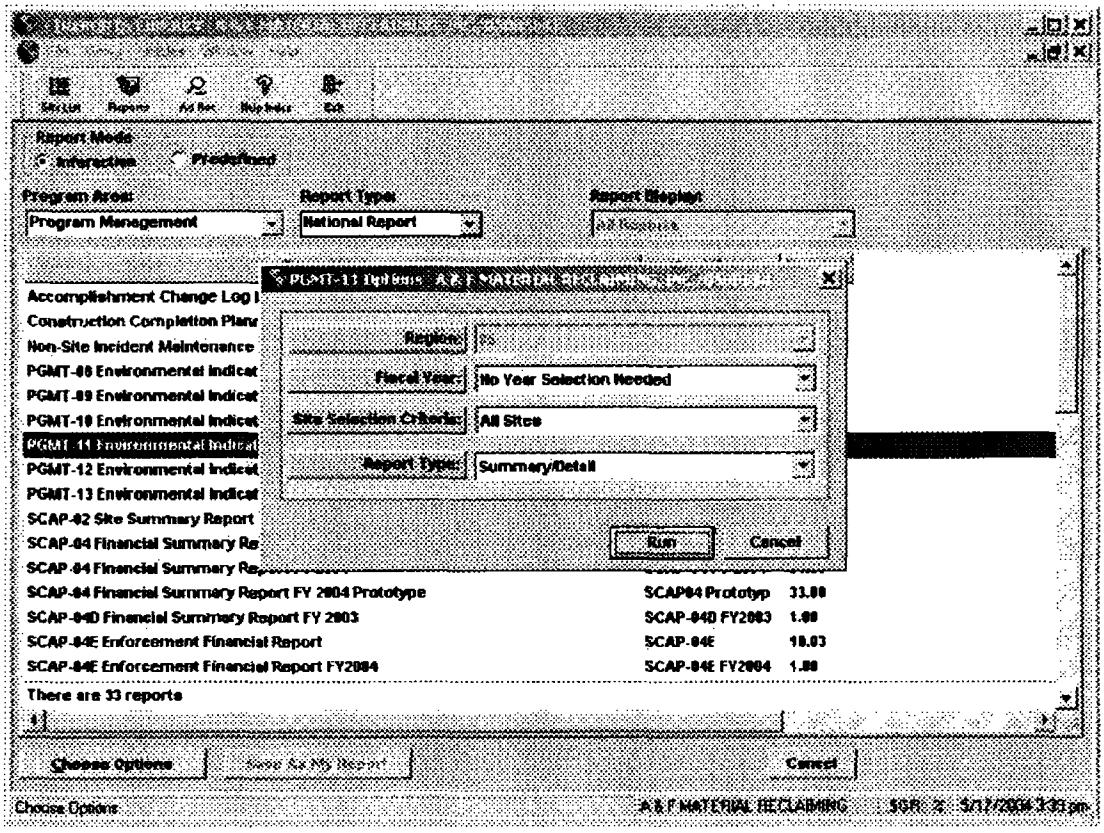
1. Select the **Reports** icon located on the CERCLIS toolbar.

2. After the "Reports Library" screen is displayed, select "Program Management" in the Program Area filter. This will display the list of reports associated with "Program Management".



APPENDIX B - ENVIRONMENTAL INDICATOR REPORTS

3. By highlighting and selecting any of the PGMT reports described above, the "Options" menu will appear.

4. Select applicable Region, fiscal year, selection criteria, and report type (summary or detail).

5. Once the criteria is selected, click "Run".