



**CONTRACTORS GUIDANCE DOCUMENT**

**SITE INVESTIGATION AND REMEDIAL ACTION**  
**AT**  
**FUND ELIGIBLE DRYCLEANING SITES**

A guidance document to assist environmental consultants in understanding the Illinois Drycleaning Environmental Response Trust Fund technical requirements for reimbursement of site investigation and remedial action costs at eligible drycleaning sites.

**December 2003**

## TABLE OF CONTENTS

<b>SITE INVESTIGATION AND REMEDIAL ACTION AT DRYCLEANING SITES .....</b>	<b>3</b>
<b>BACKGROUND .....</b>	<b>3</b>
<b>SECTION 1 .....</b>	<b>4</b>
<b>SUBMITTAL, REVIEW AND APPROVAL OF BIDS, PLANS AND REPORTS.....</b>	<b>4</b>
<b>SECTION 2 .....</b>	<b>7</b>
<b>FUND INVESTIGATION REQUIREMENTS AND SUMMARY .....</b>	<b>7</b>
<b>FOCUSED SITE INVESTIGATION .....</b>	<b>7</b>
<b>DETERMINATION OF REMEDIATION OBJECTIVES .....</b>	<b>10</b>
<b>REMEDIAL ACTION OBJECTIVES REPORT .....</b>	<b>11</b>
<b>REMEDIAL ACTION PLAN .....</b>	<b>11</b>
<b>REMEDIAL ACTION COMPLETION REPORT .....</b>	<b>11</b>
<b>NO FURTHER REMEDIATION LETTER .....</b>	<b>12</b>
<b>SUPERVISION OF ACTIVITIES BY LICENSED PROFESSIONAL ENGINEER.....</b>	<b>12</b>
<b>APPENDIX A .....</b>	<b>13</b>
<b>FOCUSED PHASE II ESA .....</b>	<b>13</b>
<b>APPENDIX B .....</b>	<b>16</b>
<b>SEQUENCE OF COST APPROVAL PROCESS AND DOCUMENT SUBMITTAL .....</b>	<b>16</b>
<b>APPENDIX C .....</b>	<b>17</b>
<b>FOCUSED PHASE I ESA .....</b>	<b>17</b>
<b>APPENDIX D .....</b>	<b>19</b>
<b>MANUAL FOR CALCULATION OF CONTAINMENT DIKE(S) VOLUME.....</b>	<b>19</b>
<b>GUIDANCE DOCUMENT .....</b>	<b>21</b>

## SITE INVESTIGATION AND REMEDIAL ACTION AT DRYCLEANING SITES

### BACKGROUND

#### Illinois Drycleaner Environmental Response Trust Fund Act

The purpose of the Drycleaner Environmental Response Trust Fund (Fund) is to protect the health and safety of the citizens and natural resources of the State of Illinois by assisting qualified drycleaning facilities with remedial action costs of drycleaning solvent releases. ***The Fund provides the financial assistance and is not the regulatory agency for determining the cleanup requirements at sites contaminated by drycleaning solvent releases.***

For participation in the remedial or insurance programs of the Fund, a site investigation designed to identify soil and groundwater contamination resulting from the release of a drycleaning solvent must be completed. This investigation must be completed by June 30, 2006 for active and inactive drycleaning facilities wishing to participate in the remedial program. For drycleaning facilities that wish to participate in the insurance program, the site investigation must be completed by June 30, 2006 or a date prior to issuance of insurance coverage, whichever date is later. In addition, a budget proposal must be submitted to the Fund by June 30, 2005 for a Phase I and Focused Phase II to be eligible to file a claim by June 30, 2006. In order to file a claim, the facility must submit a completed claim form and provide documentation of a release by June 30, 2006.

Drycleaning sites contaminated with drycleaning solvents must follow a process that utilizes the requirements of the Illinois Environmental Protection Agency (IEPA) Site Remediation Program (SRP) and Tiered Approach to Corrective Action Objectives (TACO). ***The goal for all contaminated drycleaning sites participating in the Fund programs is to obtain a “No Further Remediation” letter from IEPA as to the drycleaning solvent contamination.***

Section 1 outlines the sequential phases of site investigation and remediation and the associated cost proposals, workplans, reports and related activities that must be submitted to the Fund for review and approval in order for eligible costs to be reimbursed by the Fund.

Section 2 highlights the Fund’s investigation requirements and the requirements of the Site Remediation Program (SRP).

## SECTION 1

### SUBMITTAL, REVIEW AND APPROVAL OF BIDS, PLANS AND REPORTS

Cost proposals, plans, reports and related activities must be submitted to the Fund for review and approval prior to site investigation and remediation costs being incurred in order for the costs to be eligible for reimbursement by the Fund.

The cost proposals, plans, reports, and related activities which the Fund may review and approve include, but are not limited to:

- site assessment/investigation reports and related activities,
- remediation objectives reports,
- remedial action plans and related activities, and
- remedial action completion reports and related activities.

#### **Sequence of Cost Approval Process and Document Submittal**

To facilitate a time sensitive and cost effective site investigation and remediation, the Fund shall require cost proposals, investigation reports, remediation objectives report and remedial action plans to be submitted in the following sequence:

**Step 1a: The claimant must obtain and submit to the Fund an independent cost proposal (bid) to conduct a:**

- **Focused Site Investigation (Phase I and Focused Phase II),**
- **Remediation Objectives Report with the determination of remediation objectives**

The bid submittals should present individual costs for the Phase I and Focused Phase II Site Investigation and for the Remediation Objectives Report. The bid submittal should also present a “total cost not to exceed”.

One bid will be required. The Fund reserves the right to request additional bids. Following the review of the bid, a budget approval letter outlining the approved budget and scope of work will be issued. Costs in excess of those approved in the budget approval letter will not be eligible for reimbursement unless approval of the excess costs was obtained from the Fund prior to being incurred.

**Step 1b: Conduct investigation activities, and then prepare a Focused Site Investigation Report and a Remediation Objectives Report.**

The submittal should include individual reports for the Focused Site Investigation and the Remediation Objectives Report. The Remediation Objective Report must address the determination of remediation objectives. All reports must contain the required information and data in accordance with 35 IAC 740 and 742 prior to submission to the IEPA.

The reports should establish continuity between each subsequent reporting phase.

The reports must be reviewed and approved by the IEPA and by the Fund. Following the review and approval, the reports will be the basis for determining and designing the Remedial Action Plan.

**Step 2a: The claimant must obtain and submit three cost proposals (bids) to prepare a Remedial Action Plan.**

The cost proposal should utilize the data presented in the previously prepared site-specific Focused Site Investigation Report, the Remediation Objectives Report, and related documents, in order to prepare a technically and financially sound Remedial Action Plan.

Three bids will be required. The Fund reserves the right to request additional bids. Following the review of the bids, a budget approval letter outlining the approved budget and scope of work will be issued. Costs in excess of those approved in the budget approval letter will not be eligible for reimbursement unless approval of the excess costs was obtained from the Fund prior to being incurred.

**Step 2b: Prepare and submit a Remedial Action Plan.**

The Remedial Action Plan must be reviewed and approved by the IEPA and by the Fund. Following the review and approval, the Remedial Action Plan will be the basis for implementation of the Remedial Action Plan and preparation of the Remedial Action Completion Report.

**Step 3a: Claimant must obtain and submit three cost proposals (bids) to implement the Remedial Action Plan and to prepare a Remedial Action Completion Report.**

The cost proposal should utilize the data presented in the Remedial Action Plan. The Remedial Action Plan Report shall include a cost proposal for the Operations and Maintenance (O&M) budget. The report should also include a cost proposal for Site Monitoring for a period of one year when necessary.

Three bids will be required. The Fund reserves the right to request additional bids. Following the review of the bids, a budget approval letter outlining the approved budget and scope of work will be issued. Costs in excess of those approved in the budget approval letter will not be eligible for reimbursement unless approval of the excess costs was obtained from the Fund prior to being incurred.

**Step 3b: Submit a Remedial Action Completion Report.**

The Remedial Action Completion Report must be reviewed and approved by the IEPA and by the Fund.

**Step 3c: Submit a request for a “No Further Remediation” letter to the IEPA.**

*Please see Appendix B, for flowchart of sequence of cost approval process and document submittal.*

## SECTION 2

### FUND INVESTIGATION REQUIREMENTS AND SUMMARY OF ILLINOIS EPA'S SITE REMEDIATION PROGRAM REQUIREMENTS

#### FOCUSED SITE INVESTIGATION

##### Investigation Requirements

The Fund shall require that a Focused Site Investigation be conducted at the site. This investigation is designed to identify recognized environmental conditions and related contaminants of concern that may exist at a site, and to investigate the environmental conditions and contaminants of concern that are associated with drycleaning solvents.

The Fund's Focused Site Investigation shall be performed in two phases as described below.

1. A **Phase I Environmental Site Assessment (ESA)** shall be designed and implemented in accordance with the procedures for such assessments set forth in the "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM E 1527-00). The Phase I ESA shall determine the recognized environmental conditions or chemical contaminants of concern, including drycleaning solvents, that may be associated with the site.
  - a. There may be environmental issues or conditions at a property that parties may wish to assess, but these issues or conditions are outside the scope of the Phase I ESA. The Phase I ESA is exclusive of these non-scope considerations as stated in Section 12 of ASTM E 1527-00. There is no requirement, nor will there be reimbursement, for additional assessment issues outside this Standard Practice. This list of non-scope considerations is not intended to be all-inclusive:
    - i. asbestos-containing materials
    - ii. radon
    - iii. lead-based paint
    - iv. lead in drinking water
    - v. wetlands

- b. The environmental professional conducting the Phase I ESA shall verify the onsite presence of secondary containment devices around all drycleaning units, hazardous waste containers, wastewater containers, solvent storage tanks or containers, the hazardous waste hauler, and used filter/cartridge/screen containers, and any area in which drycleaning solvent is utilized. [Please refer to Appendix C. Phase I ESA Eligibility Requirements Questionnaire].
2. A **Focused Phase II ESA** shall be designed and implemented to address those environmental conditions or contaminants of concern identified by the Phase I ESA which are associated with drycleaning solvents.

The Focused Phase II ESA investigation shall generally follow those requirements which are applicable to the Phase II investigation as set forth in Section 740.420 (b) of the IEPA Site Remediation Program. Additionally:

- a. Soil and groundwater sample analyses are to be conducted during the site investigation as follows:
  - i. For a drycleaner using chlorinated solvents, all soil and groundwater laboratory analyses shall be conducted utilizing SW 846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") Method 8260B (or other IEPA approved Method), which is a complete Volatile Organic Compound (VOC) analyte screen. [This method is also commonly termed a "full VOC spectrum analysis implementing SW 846 Method 8260B"].
  - ii. For a drycleaner using hydrocarbon based solvents, all soil and groundwater laboratory analyses shall be conducted for VOCs (above) and Method 8270B, which is a complete semi-volatile organic compound (SVOC) analyte screens. [This method is also commonly termed a "full SVOC spectrum analysis implementing SW 846 Method 8270B" .
  - iii. Once the contaminants of concern have been identified, and if appropriate, the SVOC analyte screen can be reduced to a polynuclear aromatic (PNA) analyte screen using either USEPA Method 8270B or 8310.
- b. It is required that the procedures used in collecting and preserving soil samples be conducted by SW 846 Method 5035, referred to as the "Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples". Method 5035 identifies procedures to collect and prepare soil samples for VOC analysis. This method can be used for most volatile organic compounds that have boiling points below 200 degrees Celsius and are insoluble (or slightly soluble) in water.

Other methods can be utilized for soil and groundwater collection and analysis, provided that these methods are approved by IEPA.

- c. The Focused Phase II ESA should include information on the physical and chemical properties of the contaminants of concern associated with drycleaning solvents, as well as including all appropriate soil and groundwater physical parameters (e.g. soil organic content, hydraulic conductivity) necessary in calculating Tier 2 remediation objectives, as referenced in Section 742.610 of TACO, and also Appendix C: Tables B, D, and E in the TACO protocol.

[Please refer to Appendix A: Focused Phase II ESA Field Investigation Protocol for additional investigation requirements specifically required by the Illinois Drycleaner Environmental Response Trust Fund Act].

### Reporting Requirements

The Fund requires that site investigation results for both the Phase I ESA and Phase II ESA be presented in separate, “stand-alone” reports.

1. The Phase I ESA report shall be structured to generally follow the recommended report format and assessment requirements as set forth and in accordance with ASTM E 1527-00, “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, as referenced in Section 740.425 of the Site Remediation Program. However, the Fund program is unique in its additional Phase I ESA requirements to investigate and determine if the drycleaning facility has met certain requirements for the Fund program. The Fund will provide environmental professionals conducting Phase I ESA with a questionnaire to verify these requirements.

[Please refer to Appendix C: Phase I ESA Eligibility Requirements Questionnaire for requirements specifically required by the Illinois Drycleaner Environmental Response Trust Fund Act].

Other items the environmental professional conducting the Phase I ESA will need to provide in the Phase I ESA report are:

- a. Clear photographs of the following;
  - i. Front of the drycleaning machine and the secondary containment pan.
  - ii. Rear of the drycleaning machine and the secondary containment pan.
  - iii. Hazardous waste storage containers and the secondary containment pan.
  - iv. Virgin drycleaning solvent containers and the secondary containment pan.

- v. On-site waste water treatment equipment (such as a vaporizer) and the secondary containment pan.
  - vi. Appendices C & D (secondary containment volume calculations); and
  - vii. Legal description of the property.
2. The Focused Phase II ESA report shall be prepared to address those environmental conditions or contaminants of concern associated with drycleaning solvents. The Focused Phase II ESA investigation report shall generally follow those requirements set forth in Section 740.435 (b) of the IEPA Site Remediation Program.
  - a. As stated in Section 740.435 (b)(6)(D) of the IEPA Site Remediation Program, the Phase II ESA shall compare the concentrations of the contaminants of concern associated with drycleaning solvents to the corresponding Tier 1 remediation objectives noted in the IEPA Tiered Approach to Corrective Action Objectives (TACO). [Please refer to Appendix A: Focused Phase II ESA Field Investigation Protocol for additional investigation requirements specifically required by the Illinois Drycleaner Environmental Response Trust Fund Act]

## **DETERMINATION OF REMEDIATION OBJECTIVES**

If the Focused Site Investigation reveals evidence of the existence of one or more contaminants of concern associated with drycleaning solvents, remediation objectives shall be developed as stated in Section 740.440 of the IEPA Site Remediation Program, and in accordance with TACO.

These remediation objectives shall be determined by utilizing the Tier 1, the Tier 2, or the Tier 3 Evaluation process as set forth in TACO, and as summarized below:

1. The Tier 1 Evaluation presented in TACO: Subpart E, compares the concentration of each contaminant of concern associated with drycleaning solvents detected at the site, to the baseline remediation objectives provided in TACO: Appendix B, Tables A, B, C, D, and E.
2. The Tier 2 Evaluation set forth in TACO: Subparts F, G, H, remediation objectives are developed through use of equations, which allow site-specific data to be used.

3. The Tier 3 Evaluation presented in Subpart I of TACO, sets forth a flexible framework to develop remediation objectives outside of the requirements of Tier 1 and Tier 2. The consultant is encouraged to develop remediation objectives that are both protective of human health and the environment (as determined through the TACO regulations), and cost effective. It is anticipated that some of the sites which have contamination in excess of the Tier 1 remediation objectives will achieve “site closure” using TACO risk-based calculations and the elimination of exposure routes through engineered barriers and institutional controls.

### **REMEDIATION OBJECTIVES REPORT**

Upon completing the determination of remediation objectives, a Remediation Objectives Report shall be prepared that will meet the requirements of Section 740.445 of the Site Remediation Program, and any appropriate requirements as set forth in TACO.

### **REMEDIAL ACTION PLAN**

If the contamination levels detected at the site are in excess of the approved remediation objectives prior to any remedial action, a Remedial Action Plan shall be prepared. This Remedial Action Plan will describe the proposed remedy and evaluate its ability and effectiveness to achieve the remediation objectives approved for the site.

The Plan will generally satisfy the requirements set forth in Section 740.450 of the Site Remediation Program, and applicable requirements referenced in TACO.

### **REMEDIAL ACTION COMPLETION REPORT**

Upon completion of the remedial action, a Remedial Action Completion Report shall be prepared. The report shall demonstrate whether the remedial action was completed in accordance with the approved remedial action plan, and whether the remediation objectives, as well as any other requirements of the plan, have been attained. The report shall include, but not be limited to the requirements set forth in Section 740.455 of the Site Remediation Program, and the applicable requirements set forth in TACO.

## **NO FURTHER REMEDIATION LETTER**

The intent and primary objective of the Fund and the IEPA Site Remediation Program is to achieve “site closure”. This is attained by the issuance of a “No Further Remediation” (NFR) letter. However, for the Fund’s purposes, it may not require an NFR letter to be obtained in certain instances where the concentration of drycleaner solvent contaminants is only slightly elevated above the Tier 1 soil remediation objectives. This determination is at the discretion of the Council and will not prevent the claimant from pursuing a NFR if he feels the need to do so.

Subpart F of the Site Remediation Program provides for the issuance of a NFR letter following the satisfactory completion of investigative and remedial activities, and that the requirements of the Remedial Action Plan and the Remedial Action Completion Report were satisfied.

The Fund may require a “focused” NFR letter, which signifies a release from further responsibilities for only those specific conditions or contaminants of concern associated with drycleaning solvents. This “focused” NFR letter will be issued by IEPA upon determination that specific conditions or contaminants of concern associated with drycleaning solvents have been successfully remediated to a level that is protective of human health and the environment.

In the event the intrusive site investigation activities do not encounter drycleaning solvent contamination above the 35 IAC 742 Tier 1 soil and groundwater remediation objectives, the drycleaner facility is neither required nor recommended to be entered into the IEPA Site Remediation Program (SRP).

## **SUPERVISION OF ACTIVITIES BY LICENSED PROFESSIONAL ENGINEER**

Section 740.405 of the IEPA Site Remediation Program requires all site investigation and assessment activities to be conducted by, or under the supervision of, a Licensed Professional Engineer (LPE). Similarly, Section 740.410 of the Site Remediation Program, requires that all investigation and assessments reports submitted for review and evaluation shall be prepared by, or under the supervision of, a LPE.

## APPENDIX A

### FOCUSED PHASE II ESA FIELD INVESTIGATION PROTOCOL

Specific field investigation requirements required by the Illinois Drycleaner  
Environmental Response Trust Fund Act.

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A Focused Phase II ESA investigating soil and groundwater contamination shall provide information on the extent and severity of contamination associated with drycleaning solvents. A protocol is presented to establish a technical standard by which a satisfactory field investigation can be conducted.

The Focused Phase II ESA should consist of soil and groundwater contamination investigation. Soil sampling will be required to determine target contamination concentrations and subsurface characteristics. Monitoring wells will be required to collect representative groundwater samples. The monitoring wells will also be utilized to perform a slug test to calculate hydraulic conductivity, and to determine the direction of groundwater flow.

The location, number, and depth of soil borings and monitoring wells should be proposed and outlined based upon the Phase I ESA result. Phase II ESA Proposal should include detailed and itemized sampling plans. In the case of subsequent Proposals being submitted, these Proposals should include a brief summary of the results of the site investigation to date.

#### Location of Borings and Monitoring Wells

The actual onsite location of the borings and monitoring wells will be determined by site-specific conditions, and will be selected by, or under the supervision of, a LPE. The soil borings and monitoring wells should be located to most effectively ascertain the lateral and vertical extent of contamination, hydraulic conductivity, direction of groundwater flow, and subsurface geological / hydrogeological conditions.

At a minimum, one boring (or monitoring well) shall be located in the down-gradient direction. Similarly, one boring (or monitoring well) shall be located in the up-gradient direction.

Soil borings/monitoring wells should be located at, or adjacent to, current drycleaning equipment and waste storage areas. If the drycleaning equipment has been moved since the commencement of the facility operations, then one or more soil borings/monitoring wells should be located at, or adjacent to, the position where the drycleaning equipment was originally installed.

[Note: if the placement of the borings/monitoring wells is not possible due to interior building space restrictions, then borings/monitoring wells may be placed adjacent to the exterior of the building, however they should be located as close as possible to the drycleaning equipment].

### Facility Age and the Proposed Initial Site Investigation Guidelines

The purpose of initial site investigation is to identify whether the drycleaning operations at the facility have impacted the soil and/or groundwater. The soil boring locations should encompass the areas identified as potentially impacted by the past and current drycleaning operations. These areas are: the current and/or former locations of the drycleaning machine(s), former and current drycleaning waste storage area(s), sewer lines, catch basins, and if possible one boring should be placed at the front of the Facility and three of the soil borings should be placed at the consultants discretion.

The recommended Scope-of-Work Guidelines<sup>1</sup> for the performance of the field portion of the initial site investigation at participating drycleaner facilities are:

1. Current Day through 07/01/1999 (Date of compliance requirements) – modified Phase I ESA (including the Fund requirements);
2. 06/30/1999 to 07/01/1992 – Focused Phase I ESA, 4 to 5 soil borings 16 to 25 feet bgs, 1 or 2 monitoring wells (if groundwater is present), two soil contamination of concerns (COCs) analyses per boring will be performed;
3. 06/30/92 to 07/01/1987 – Focused Phase I ESA, 4 to 5 soil borings 16 to 25 feet bgs and 2 to 3 monitoring wells (if groundwater is present) two soil COC analyses per boring will be performed;
4. 6/30/87 to 7/01/82 - Focused Phase I ESA, 5 to 6 soil borings 16 to 25 feet bgs and 2 to 3 monitoring wells (if groundwater is present) two soil COC analyses per boring will be performed; and
5. 06/30/1982 and earlier – Focused Phase I ESA, 6 to 8 soil borings 16 to 25 feet bgs and 3 to 4 monitoring wells (if groundwater is present), and two soil COC analyses per boring.

### Determination of Groundwater Flow Direction

Groundwater flow direction shall be determined by installing a minimum of three temporary (or permanent) monitoring wells to the first saturated groundwater level. Placement should triangulate and be an equal distance or as close to an equal distance as possible around the perimeter of the drycleaning facility. Measurements of static groundwater levels shall be made to establish groundwater flow direction. The report should also include the elevation survey of the wells.

## Sampling Procedures

All field sampling activities relative to sample collection, documentation, preparation, labeling, storage, shipment and security, quality assurance and quality control, acceptance criteria, corrective action, and decontamination procedures shall be conducted in accordance with the requirements set forth in Section 740.415 (d)(1) of the IEPA Site Remediation Program.

All field measurement activities relative to equipment and instrument operation, calibration and maintenance, corrective action, and data handling shall be conducted in accordance with Section 740.415 (d)(2) of the IEPA Site Remediation Program.

It is required that the procedures used in collecting and preserving soil samples be conducted by SW 846 Method 5035, referred to as the "Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples". Method 5035 identifies procedures to collect and prepare soil samples for Volatile Organic Compound (VOC) analysis. This method can be used for most volatile organic compounds that have boiling points below 200 degrees Celsius and are insoluble (or slightly soluble) in water. Other methods can be utilized for soil and groundwater collection and analysis, provided that these methods are approved by IEPA.

## Analytical Procedures

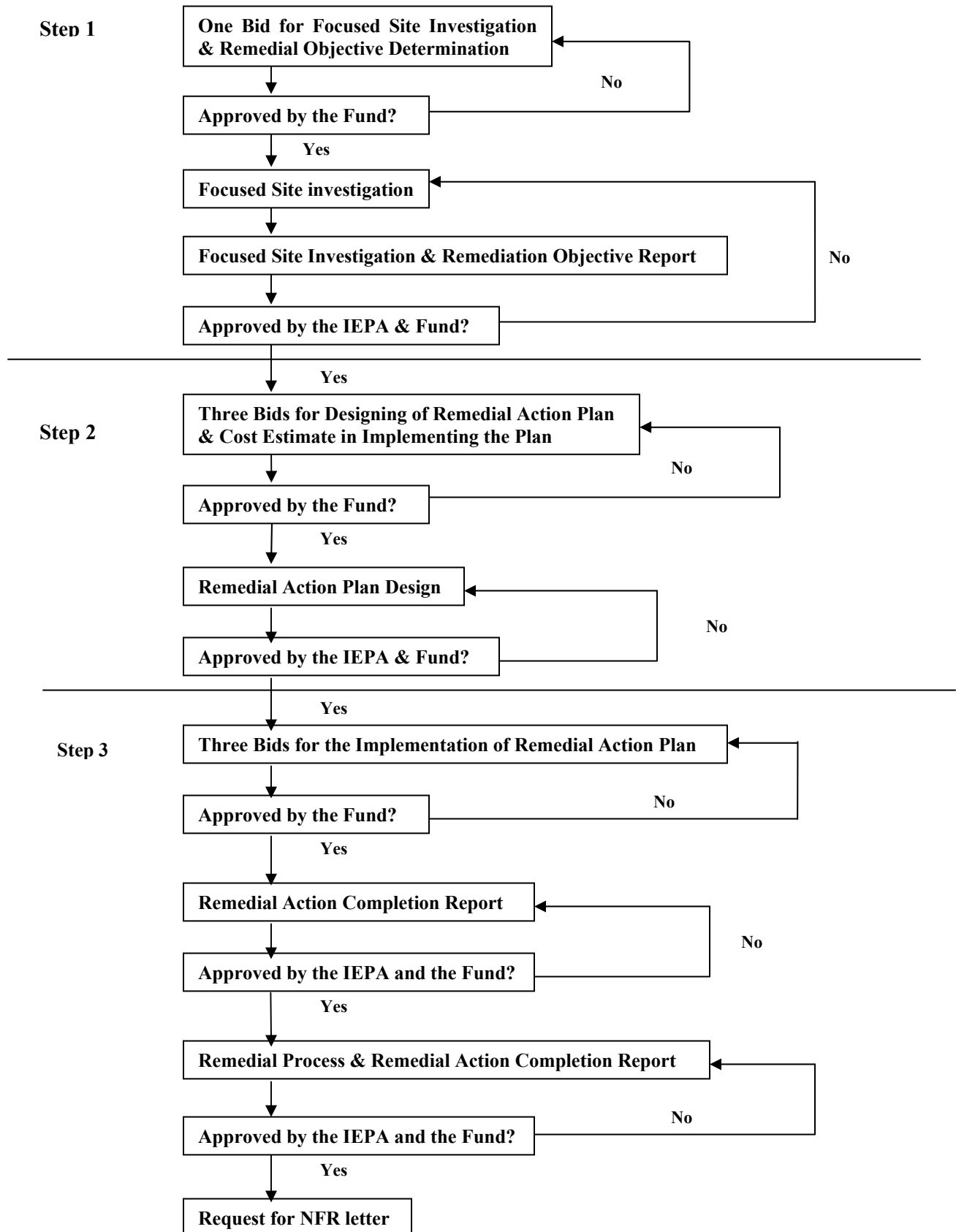
All laboratory analysis of samples, relative to equipment and instrumentation, operating procedures, sample management, test methods, equipment calibration and maintenance, quality assurance and quality control, corrective action, data reduction and validation, reporting, and records management, shall be performed in accordance with the requirements set forth in Section 740.415 (d)(3), 740.415 (d)(4), and 740.415 (d)(5) of the IEPA Site Remediation Program.

## Laboratory Analysis for Soil and Water Samples

Soil and Water samples must be analyzed for a complete Volatile Organic Compound (VOC) spectrum utilizing SW 846 Method 8260B.

In addition to VOC analysis, drycleaner sites where it is either known or suspected to be contaminated by petroleum-based solvents, soil and water samples should also be analyzed for Semi-volatile Organic Compounds (SVOCs) as listed in Section 732 Appendix B utilizing SW846 method 8270B.

**APPENDIX B**  
**SEQUENCE OF COST APPROVAL PROCESS AND DOCUMENT SUBMITTAL**



**APPENDIX C**

**FOCUSED PHASE I ESA  
ELIGIBILITY REQUIREMENTS QUESTIONNAIRE**

Information on specific eligibility requirements required by the Illinois Drycleaner  
Environmental Response Trust Fund Act.



1. What is the capacity (in pounds) of the drycleaning machine?

Unit 1: \_\_\_\_\_,      Unit 2: \_\_\_\_\_,      Unit 3: \_\_\_\_\_  
Unit 4: \_\_\_\_\_,      Unit 5: \_\_\_\_\_

Note:

2. What is the volume (in gallons) of the largest solvent storage tank in the drycleaning machine?

Unit 1: \_\_\_\_\_,      Unit 2: \_\_\_\_\_,      Unit 3: \_\_\_\_\_  
Unit 4: \_\_\_\_\_,      Unit 5: \_\_\_\_\_

Note:

3. What is the volume (in gallons) of the containment device beneath the drycleaning machine? (please refer to Appendix D to calculate the volume of the containment device)

Unit 1: \_\_\_\_\_,      Unit 2: \_\_\_\_\_,      Unit 3: \_\_\_\_\_  
Unit 4: \_\_\_\_\_,      Unit 5: \_\_\_\_\_

Note:

4. What is the volume (in gallons) of containers?

- a. Waste Solvent Container: \_\_\_\_\_
- b. Wastewater Container: \_\_\_\_\_
- c. Used Filter/Cartridge/Screen Container: \_\_\_\_\_
- d. Solvent Storage Tank Container: \_\_\_\_\_
- e. Others (specify): \_\_\_\_\_

Note:

5. List the containers stored in the secondary containment device(s) and the volume (in gallons) of these secondary containment devices.

	Containers	Volume
Secondary Containment Device 1:	_____	_____
Secondary Containment Device 2:	_____	_____
Secondary Containment Device 3:	_____	_____
Secondary Containment Device 4:	_____	_____
Secondary Containment Device 5:	_____	_____

Note:

6. Is the indoor facility floor treated with solvent resistant impervious coating?

Yes: \_\_\_\_\_ Treated Date (month/year): \_\_\_\_/\_\_\_\_  
No: \_\_\_\_\_ Expected Treatment Date (month/year): \_\_\_\_/\_\_\_\_

7. How is the wastewater from the drycleaning machine being treated/disposed?

Boil/Evaporation method: \_\_\_\_\_

Vaporizer: \_\_\_\_\_

Others (please explain the treatment or disposal methods in details): \_\_\_\_\_

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Note:

## APPENDIX D

### MANUAL FOR CALCULATION OF CONTAINMENT DIKE(S) VOLUME

#### SITUATION 1:

If your drycleaning machine is the only thing setting within your containment dike and it is setting on the floor of the dike, you must gather the following information and put the numbers in the steps listed below:

- 1) Measure the length of the dike wall \_\_\_\_\_ (in inches) = "a" in the formula
- 2) Measure the width of the dike wall \_\_\_\_\_ (in inches) = "b" in the formula
- 3) Measure the height of the dike wall \_\_\_\_\_ (in inches) = "c" in the formula
- 4) Number of gallons the largest storage tank in your drycleaning machine holds \_\_\_\_\_ (in gallons) = "d" in the formula
- 5) Measure the length of the machine \_\_\_\_\_ (in inches) = "e" in the formula
- 6) Measure the width of the machine \_\_\_\_\_ (in inches) = "f" in the formula

Step 1: Take the answer for "d" and put it in the blank below and multiply it by the number indicated to obtain the minimum amount that your dike is required to hold in gallons:

$$\underline{\quad (d) \quad} \times 1.1 = \underline{\quad (g) \quad}$$

Step 2: Take the answer for "a" and "b" and multiply them together:

$$\underline{\quad (a) \quad} \times \underline{\quad (b) \quad} = \underline{\quad (h) \quad}$$

Take the answer for "e" and "f" and multiply them together:

$$\underline{\quad (e) \quad} \times \underline{\quad (f) \quad} = \underline{\quad (i) \quad}$$

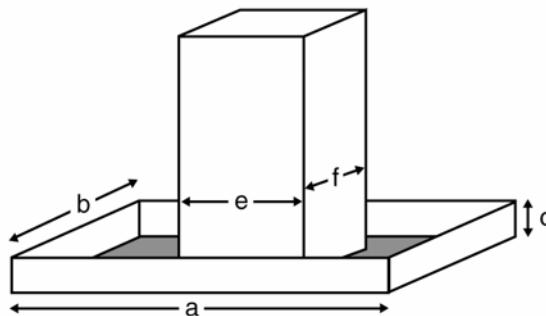
Then, we subtract the area of the machine from the area of the dike. This is multiplied by the height of the dike to obtain the available volume to hold drycleaning solvent if released from the machine and convert to gallons:

$$\underline{\quad (h) \quad} - \underline{\quad (i) \quad} = \underline{\quad (k) \quad}, \text{ then take } \underline{\quad (k) \quad} \times \underline{\quad (c) \quad} = \underline{\quad (m) \quad}, \text{ then take } \underline{\quad (m) \quad} \times 0.00432 = \underline{\quad (n) \quad}$$

Step 3: Compare the answer in Step 1=(g) to the answer in Step 2=(n) to determine if the dike will hold 110% of the solvent in the largest storage tank in your drycleaning machine.

Answer (n) must be > (greater than or equal to) answer (g). If it is, then your containment area is large enough.

$$\underline{\quad (n) \quad} > \underline{\quad (g) \quad}$$



(over)

SITUATION 2:

If your drycleaning machine is the only thing setting within your containment dike and it is NOT setting on the floor of your dike but above the height of the dike walls, you must gather the following information and put the numbers in the steps listed below:

- 1) Measure the length of the dike wall \_\_\_\_\_ (in inches) = "a" in the formula
- 2) Measure the width of the dike wall \_\_\_\_\_ (in inches) = "b" in the formula
- 3) Measure the height of the dike wall \_\_\_\_\_ (in inches) = "c" in the formula
- 4) Number of gallons the largest storage tank in your drycleaning machine holds \_\_\_\_\_ (in gallons) = "d" in the formula

Step 1: Take the answer for "d" and put it in the blank below and multiply it by the number indicated to obtain the minimum amount of volume that your dike is required to hold in gallons:

$$\underline{\hspace{1cm}} \text{ (d)} \times 1.1 = \underline{\hspace{1cm}} \text{ (e)}$$

Step 2: Take the answer for "a", "b" and "c" and multiply them all together:

$$\underline{\hspace{1cm}} \text{ (a)} \times \underline{\hspace{1cm}} \text{ (b)} \times \underline{\hspace{1cm}} \text{ (c)} = \underline{\hspace{1cm}} \text{ (f)}$$

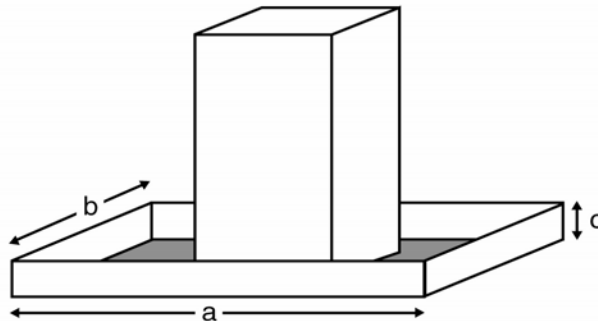
Then, multiply your answer (f) by a conversion factor to gallons:

$$\underline{\hspace{1cm}} \text{ (f)} \times 0.00432 = \underline{\hspace{1cm}} \text{ (g)}$$

Step 3: Compare the answer in Step 1=(e) to the answer in Step 2=(g) to determine if the dike will hold 110% of the solvent in the largest storage tank in your drycleaning machine.

Answer (g) must be  $\geq$  (greater than or equal to) answer (e). If it is, then your containment area is large enough.

$$\underline{\hspace{1cm}} \text{ (g)} \geq \underline{\hspace{1cm}} \text{ (e)}$$



If you have more than one machine in the same diked area, additional calculations will be required. You may need to contact our office for additional clarification or in some cases a professional engineer may need to help you determine this.

**GUIDANCE DOCUMENT  
FOR PREPARATION OF FOCUSED PHASE II COST ESTIMATES**

Because the Fund will approve a budget for the Focused Phase II Investigation based upon the scope of work, the environmental consultants must provide a reasonable level of detail in the cost estimates. At a minimum, the following information and costs must be provided as line items in the cost estimate:

**Scope or Work**

Number (No.) and Depth of Soil Borings ..... \$ \_\_\_\_\_  
 Estimated No. of Soil Sample Analysis per borehole (Chemical Analysis) ..... \$ \_\_\_\_\_  
 Estimated No. of Soil Sample Analysis (Geotechnical Analysis) ..... \$ \_\_\_\_\_  
 No. of Monitoring Wells<sup>1</sup>/Estimated Depth of Monitoring Wells ..... \$ \_\_\_\_\_  
<sup>1</sup> Indicate whether monitoring wells installed from soil borings listed above or from separate borings

**Management/Oversight Cost (Consulting Fee)**

Project Arrangement and Field Oversight (Professional Labor)..... \$ \_\_\_\_\_  
 Phase II Report Preparation ..... \$ \_\_\_\_\_  
 (or Focused Site Investigation Report)  
 Remedial Objectives Report Preparation..... \$ \_\_\_\_\_  
**Subtotal**..... \$ \_\_\_\_\_

**Field Work/Analytical Cost**

Drilling Costs (Soil Borings) ..... \$ \_\_\_\_\_  
 Monitoring well Cost..... \$ \_\_\_\_\_  
 Laboratory Costs (Unit & Total Costs) ..... \$ \_\_\_\_\_  
 Well Location and Elevation Survey ..... \$ \_\_\_\_\_  
 Slug Test..... \$ \_\_\_\_\_  
 Field Equipment (PID, Static Water Level Indicator, and etc)..... \$ \_\_\_\_\_  
 Miscellaneous<sup>2</sup> ..... \$ \_\_\_\_\_  
**Subtotal**..... \$ \_\_\_\_\_

<sup>2</sup> Waste disposal (per ton, per drum) and etc.

**Total Not to Exceed** ..... \$ \_\_\_\_\_

**Unit Cost for Additional Activities (if necessary and pre-approved by the Council before implementing the activity)**

Additional Soil Boring Installation/Sampling (Cost per foot)..... \$ \_\_\_\_\_  
 Additional Well Installation (per well with estimated depth) ..... \$ \_\_\_\_\_  
 Monitoring Well Installation (Additional cost per foot of additional depth)..... \$ \_\_\_\_\_