



Alberta Environmental Site Assessment Guidelines

Draft

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Section



Outline

- Overview
 - Purpose of ESA Guideline
 - How document fits into system
- Document Outline
 - Different Stages of the Investigations
 - Scope of document
 - General Outline of Guideline
- Overview of Required Elements
- Next Steps

A vertical strip on the left side of the slide, divided into three horizontal sections: the top section shows a blue sky with white clouds, the middle section shows green grass, and the bottom section shows blue water with ripples.

OVERVIEW



Delineation in Alberta Tier 1

When soil or groundwater is found to contain contaminants in excess of Tier 1 or 2 soil or groundwater remediation guidelines, a delineation program must be implemented. The delineation program must identify both the horizontal and vertical extent of contaminant concentrations exceeding the Tier 1 guidelines....

Delineation programs must be extensive enough in both horizontal and vertical directions to allow all applicable exposure pathways and receptors to be properly assessed.....

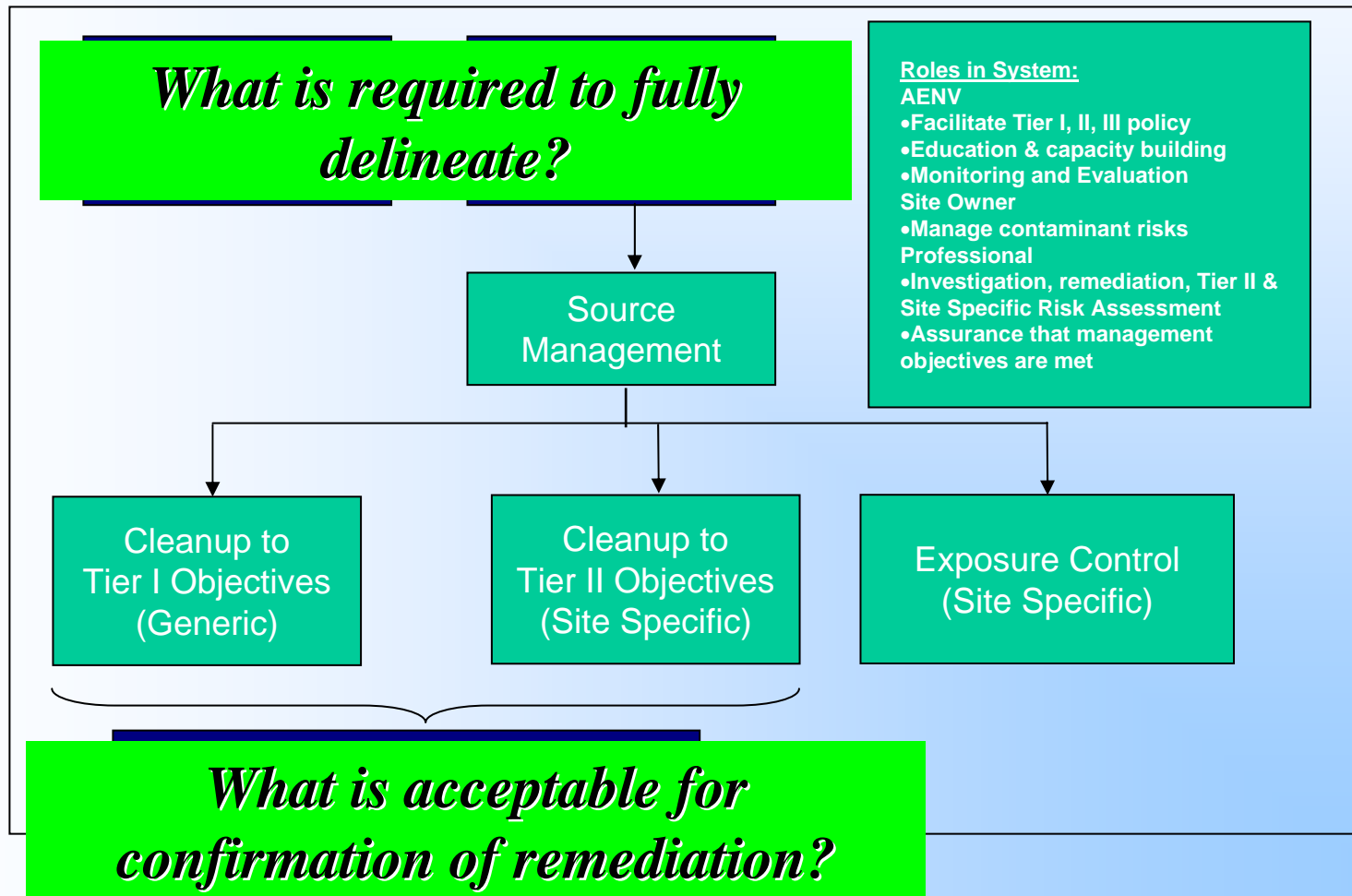
Complete delineation must be accomplished prior to undertaking remediation....



Purpose of Environmental Site Assessment Guideline

- Support Alberta Tier 1 and Tier 2 Guidelines
- Further define the delineation requirements from Tier 1.
- Outline a general roadmap for site assessments in Alberta
- Outline AENV expectations for reports submitted to the department
- Establish a consistent process for;
 - Phase I and II and detailed site assessments
 - Confirmatory site assessment
 - Reporting
 - Developing field requirements and project scopes

Place of Guidelines in the Contaminated Sites Management Policy





Document Outline



Environmental Site Assessment Structure

- Phase I Environmental Site Assessment
- Phase II Environmental Site Assessment
 - Phase II preliminary investigation (Phase II)
 - Phase II detailed investigation (Phase III)
- Confirmatory Sampling (Phase IV+)



Scope of Draft ESA Guideline

- Phase I ESA.
- Phase II ESA.
- Problem formulation including development of a conceptual site model (CSM).
- Collection of samples and characterization of soil and groundwater conditions.
- Confirmatory Investigation.
- Reporting.



Document Structure

- Phase I Environmental Site Assessments
- Phase II Environmental Site Assessments
- Supporting General Guidance for Field Preparation, Sampling, Collection and Analysis
 - Soil
 - Groundwater
- Reporting
 - Data Validation, Interpretation, Report Structure and Content
- Confirmatory Investigations



Document Structure (continued)

- Supporting Information
 - Sample Table of Contents (Appendix 1)
 - Record of Site Condition Form (Appendix 2)
 - To be updated
 - Checklists for ESAs submitted to department
 - Field screening and non-intrusive techniques

General Guidance Outline for Site Characterization Process

Develop Conceptual Site Model



Define Goals, Investigation Objectives



Prepare Sampling Plan, Conduct Field Investigation



Data Validation and Interpretation



Reporting





Document Outline (cont'd)

Document moves from required elements to guidance

Example, Phase II Report

Required

- General planning phase requirements
- Report structure
- General report requirements
- RSC submission
- Conclusions

Guidance

- Specific planning phase requirements
- Sampling Design
- Sampling Methods
- Specific report requirements



Overview of Required Elements



Phase I ESA

- **Requirements largely represented in other standards**
 - CAN/CSA Z768-01
 - ASTM E 1527-00
 - Joint Practice Standard (Responsibilities requirements)
 - US EPA Standard and Practice for All Appropriate Inquiries, 2005.
 - Other jurisdictions
- **Requirement to Report**
 - Depends on circumstances
 - Required where conducted as background to discovery at Phase II
 - Requirements for reporting under well site reclamation referred to in document



Phase II ESA

- **Compilation of other standards**
 - Other examples (Health Canada, Ontario, B.C.)
 - CAN/CSA Z769-00
 - ASTM E 1903-97 (2002 approved version)
 - Joint Practice Standard (Responsibilities requirements)
 - US EPA Standard and Practice for All Appropriate Inquiries, 2005.
- **Requirement to Report**
 - dependant on circumstances
 - Required reporting for upstream well reclamation, depending on Phase I
 - Where required under section 5 of EPEA



Required Elements;

-Phase II ESA Report Requirements

- Record of Site Condition
- Specific Report Contents
 - Title Page
 - Executive Summary
 - Introduction
 - Field Methods
 - Findings
 - Conclusions
- Key elements checklists; form basis of internal audit



Record of Site Condition

- Provides summary of work that may be required at a site
- Complete form to accompany each Phase 2 ESA and remediation report
- Provides considerations for a Risk Management Plan
- Information will be publicly accessible
- Form is available on the website, new form is expected this fall
- Expected to be available for electronic submission
- Must be used for in all industry sectors

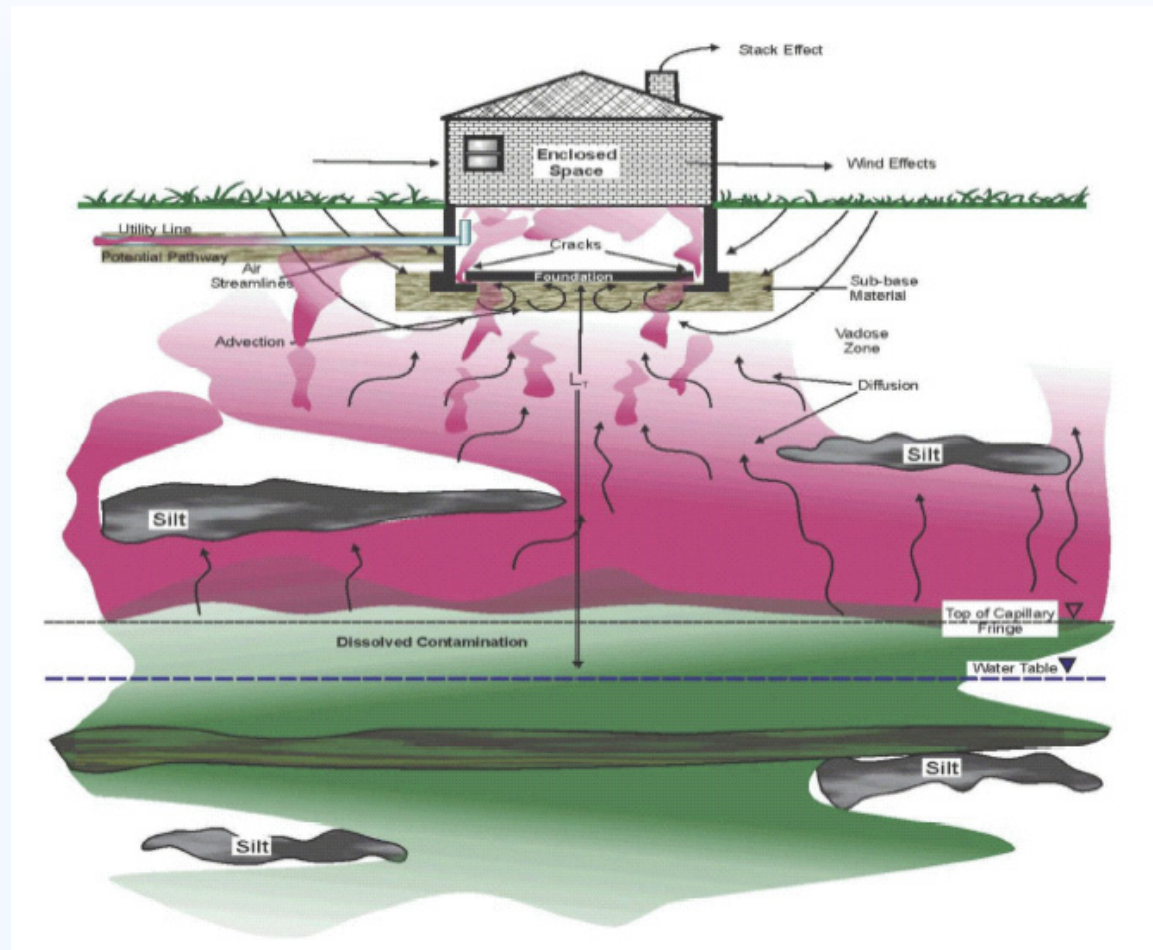


Required Elements;

-Phase II ESA Introduction

- Phase I information or other information on which CSM; description of CoPC; APEC; Scope and Objectives were based
- Site Information
- Project Scope
- Project Objectives
- Conceptual Site Model

Required Elements; Conceptual Site Model



Example of a Conceptual Site Model for Vapour Intrusion into a Residential Building (adapted from US EPA, 2002)



Required Elements;

-Phase II Field Program and Findings

- Requirements largely tied to objectives and scope of the document
- Objectives, scope and CSM must be reported to ensure requirements and conclusions are supported.
- Field methods (chapters 4 and 5) are mostly guidance but contain required elements
 - Sampling protocols remain flexible to different requirements
 - Where necessary, more prescription tied to investigation objectives
 - More standardized protocols have been defined for certain areas
 - Most protocols general; could be developed further in subsequent documents



Required Elements; *-Phase II Conclusion*

- **Report must state that either;**
 1. no evidence of contamination in connection with the property;
 2. evidence of actual or potential contamination in connection with the property (listed and described);
 3. Where risk of contamination exists, whether potential risk to receptor(s) exists on and/or off the property.
- **Where necessary will need to develop next steps**
 - Implications and recommendations in report



Next Steps

- Review for Public Comment (completed)
- Compilation and Internal Review of Comments (November, 2008)
- Follow up, finalization of draft, (to Feb 2009)
- Final Document Release (Spring, 2009)