Conceptual Site Model

- CSM Building Blocks Review
- Preparing a Good Report:
  An inside look

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MACHIAS LAUNDRY & CLEANERS

Machias Laundry & Cleaners

- Dry cleaners from 1977 to early-2000’s
- 180 feet from Machias River
- Groundwater 4-6 feet deep
- Municipal water and sewer
- Nearby day care and residences

Machias Laundry & Cleaners

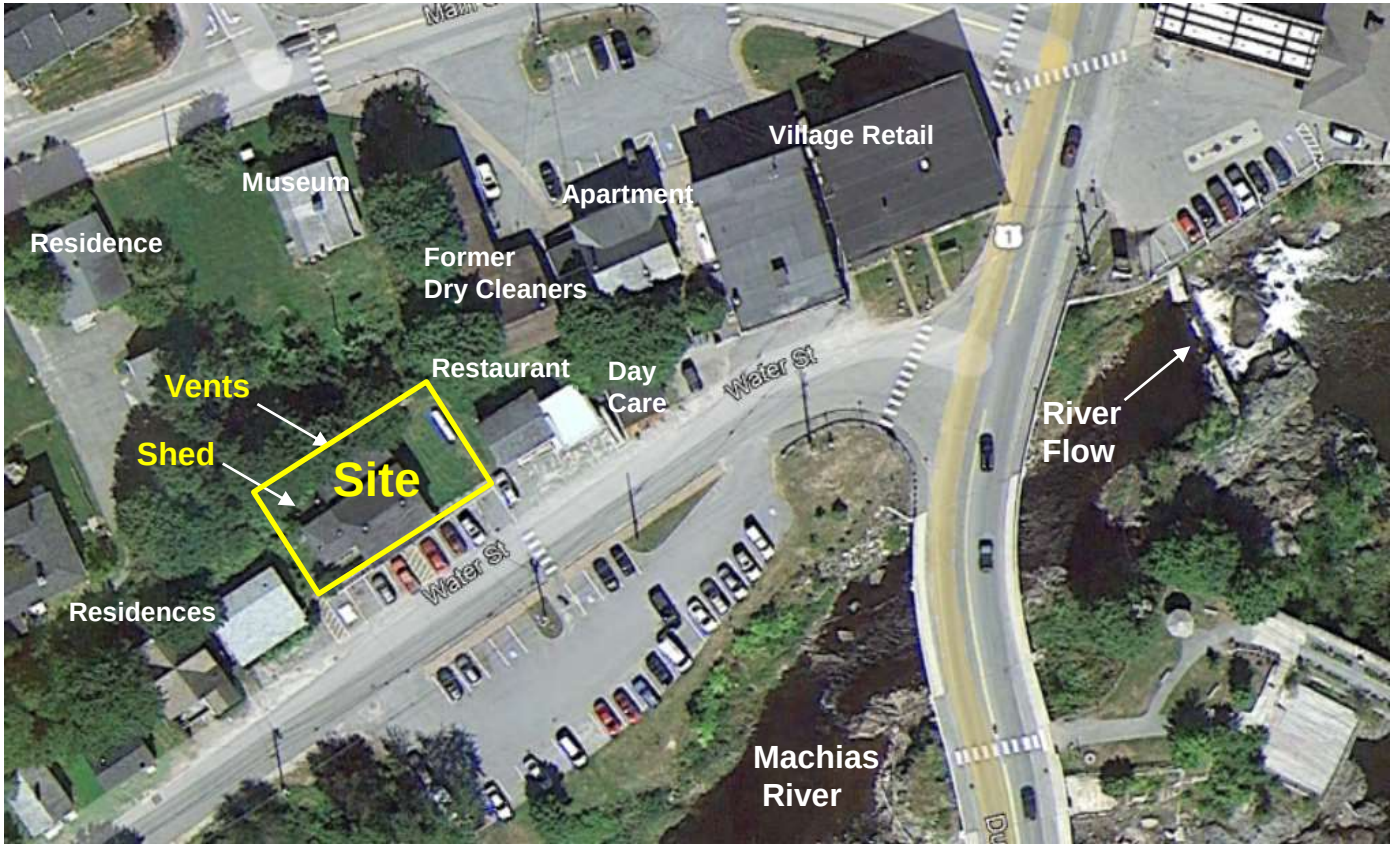
Key Features

- Outside vents
- Storage shed
- Floor drain
- Coin-operated laundry
- Upstairs apartment

Machias Laundry & Cleaners

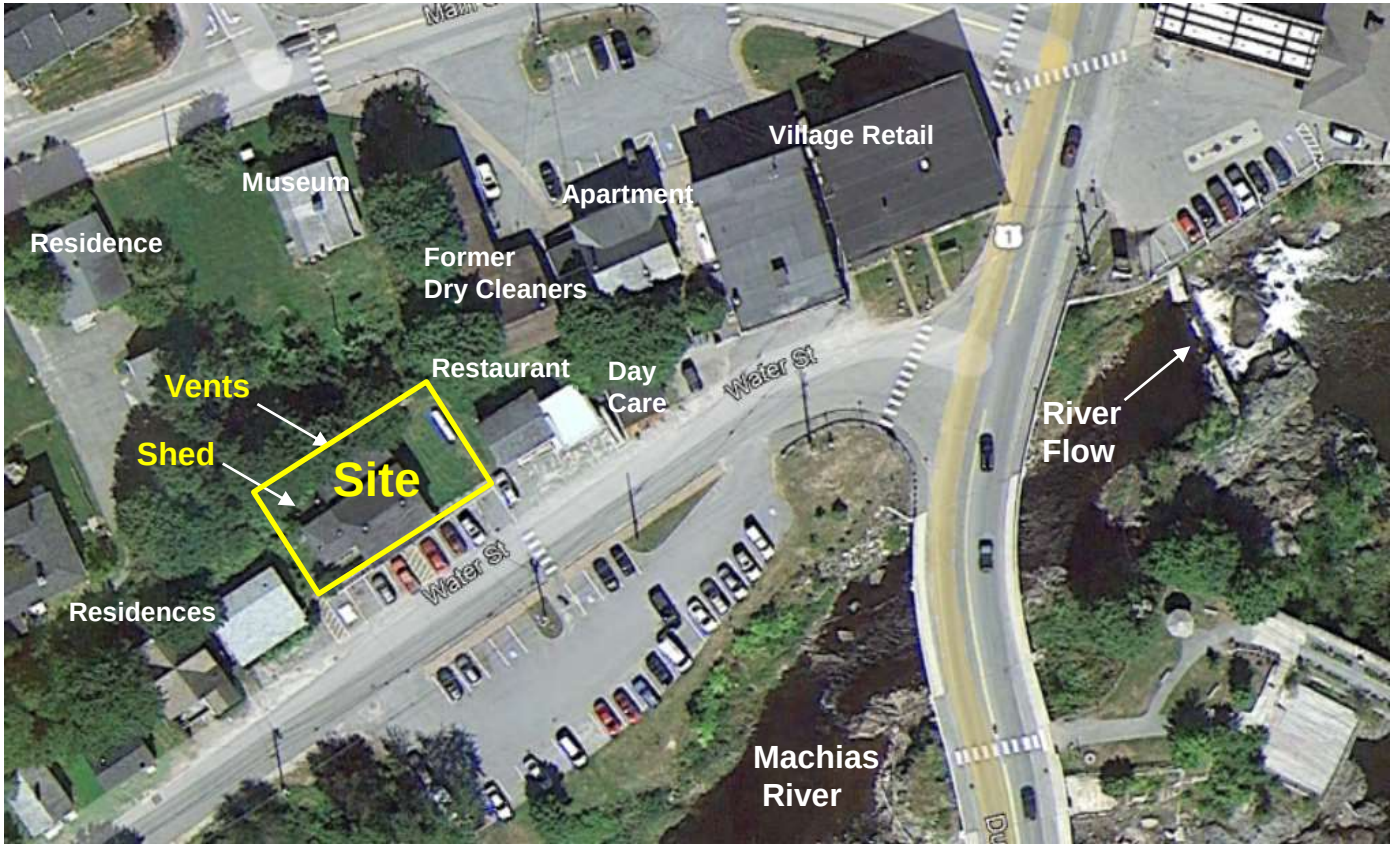
CSM Discussion

- Contaminants of Concern
- Release Mechanisms
- Migration Pathways
- Receptors
- Exposure routes



Machias Laundry & Cleaners

Investigation Scope?



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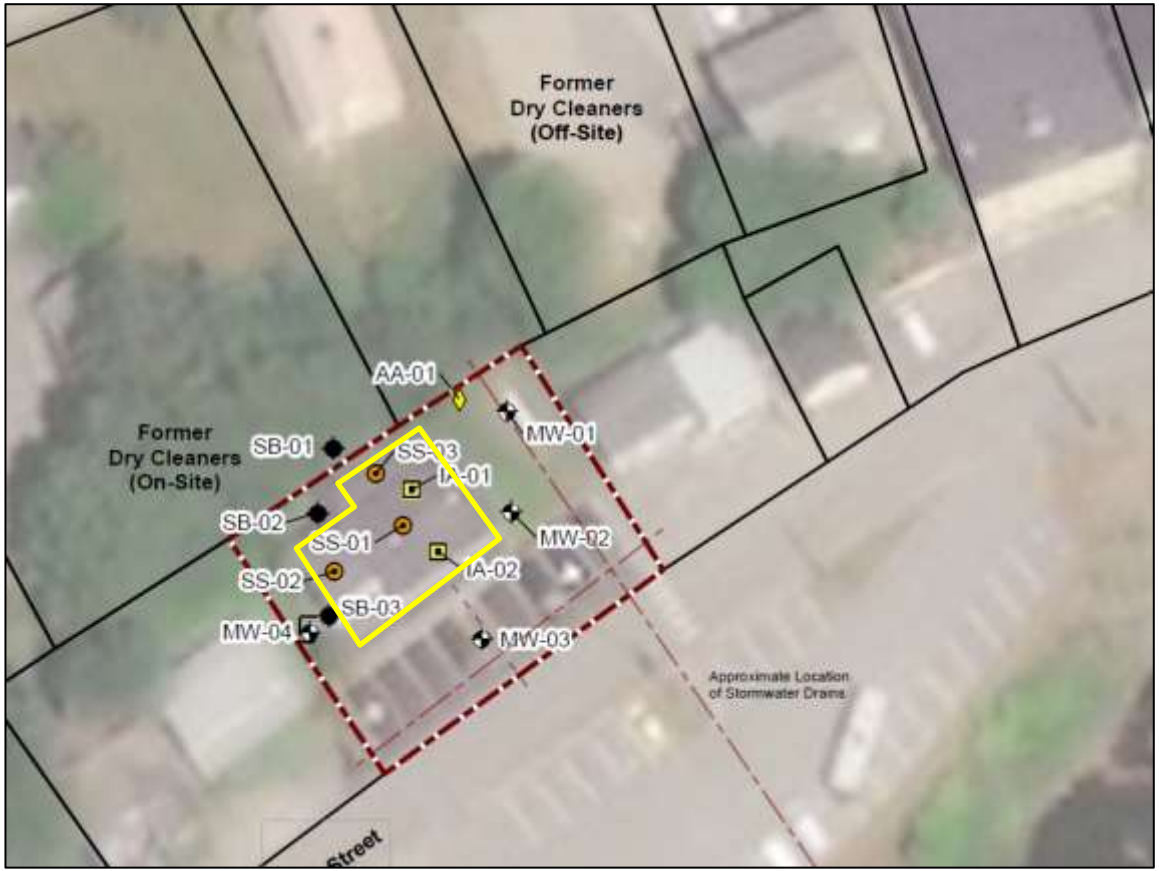


Co-located groundwater and soil vapor sampling locations

Soil Boring Sample

Subslab Sample

Indoor Air Sample

Ambient Air Sample

Approximate Site Boundary

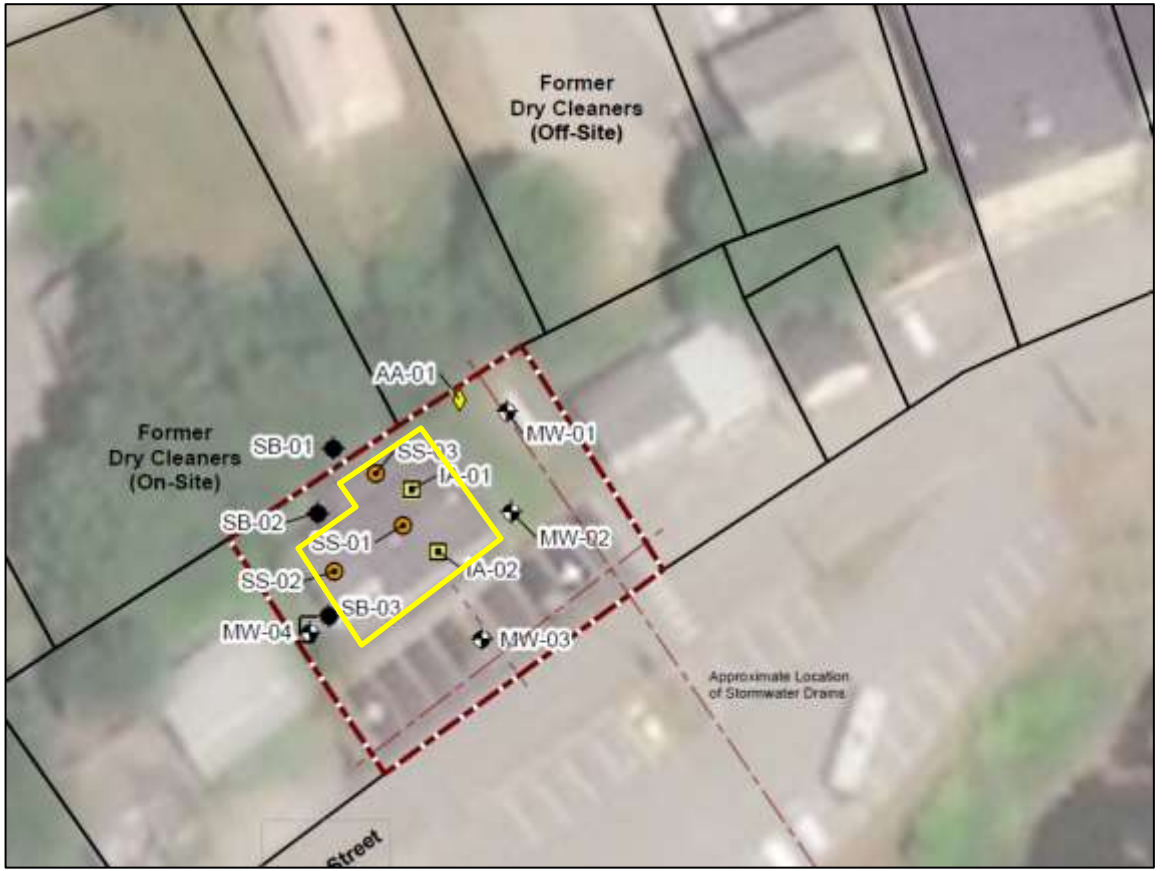
Approximate Property Line

Machias Laundry & Cleaners

Findings

- Low concentrations of PCE & breakdown products in soil & soil vapor
- Trace to non-detect in groundwater
- Below commercial & residential risk guidelines for indoor air

Impact on CSM?



Preparing a Good Report: An Inside Look

Common Report Problems

- Following the CSM
- Sampling
- Reporting
- Figures & Tables

Common Problems with the CSM

- Fully describe the site setting
  - Site history and use
  - Water supply (well or public water supply)
  - Regulatory Framework
    - Applicable guidelines/standards/state specific remedial program
- Were ALL the following addressed as part of the CSM for each REC/AOC?
  - Contaminants of Concern (Soil and/or Groundwater)
  - Release Mechanisms
  - Migration Pathways
  - Receptors
  - Exposure routes

Sampling

When is enough, enough?

- A report should address all Recognized Environmental Concerns (RECs) / Areas of Concern (AOCs)
- Analyze samples for all known or anticipated constituents of concern “prove the negative”

Describe sample methodology

- Describe how samples were collected
  - Soils – hand auger, drilling method (drill type), sample type grab vs. composite surficial vs. subsurface soil samples.
  - Groundwater – Low flow sampling method (bladder pumps vs. geo pump), did the well stabilize vs. was it a purge down and grab sample
  - Soil vapor – define sample type, ambient conditions
  - Include field data reports (soil boring logs, low flow logs, ect..)
  - Field Screening vs. Laboratory analysis

Describe analytical results

- Describe results in concise language – use summary tables and figures!

Data usability section

- For CT – did your data set achieve the RCP? Discuss if not.
- For RI – did you include a quality assurance and quality control evaluation summary report for sample handling and analytical procedures?

Reporting

Does the report describe the CSM for the release?

Discuss previous investigations where applicable

Describe results of investigation activities

If you are provided with a checklist or some sort of guidance, FOLLOW IT

Include previous reports that can help make your case. However, the report should be stand alone.

Do not direct your reader to consistently look back at an old report → provide a summary in the current report

If all RECs/AOCs have not been evaluated, DO NOT state that a remedy is not necessary without supporting evidence

Note whether the site may fall under the jurisdiction of another office

Report Structure

- Title & Abstract (Executive Summary)
- Background & Site Setting
- Methodology & Results
- Discussion
- Conclusions & Recommendations
- References & Appendices
- Formatting & Presentation

Figures

1

Provide figures drawn-to-scale.

Use current air photos and/or site CAD drawings to define features and the site boundary.

Label relevant features

2

Include a comprehensive legend – all items depicted should be defined.

Don’t forget a north arrow and scale bar!

3

Figure title should indicate content.

Include groundwater contours and flow direction

4

Clearly depict sampling locations in a way the reader can quickly and easily identify presented locations (i.e., soil boring, monitoring well, surface water sampling point).

Tables

1

Table is clearly titled

REC/AOC specific or if appropriate limited to a specific CoC.

Metals table, VOC table, PCB table, etc...

2

Don’t forget Notes.

Spell out acronyms, data qualifiers, sample id nomenclature, applicable standards.

3

Avoid the “Data Dump”. Provide summary tables do not just attached lab reports to the end of the document.

4

QC, QC, QC.

Data tables should be checked to confirm accuracy, standards are correctly applied.

Table # is properly referenced in the text.

Reporting – Conclusions and Recommendations

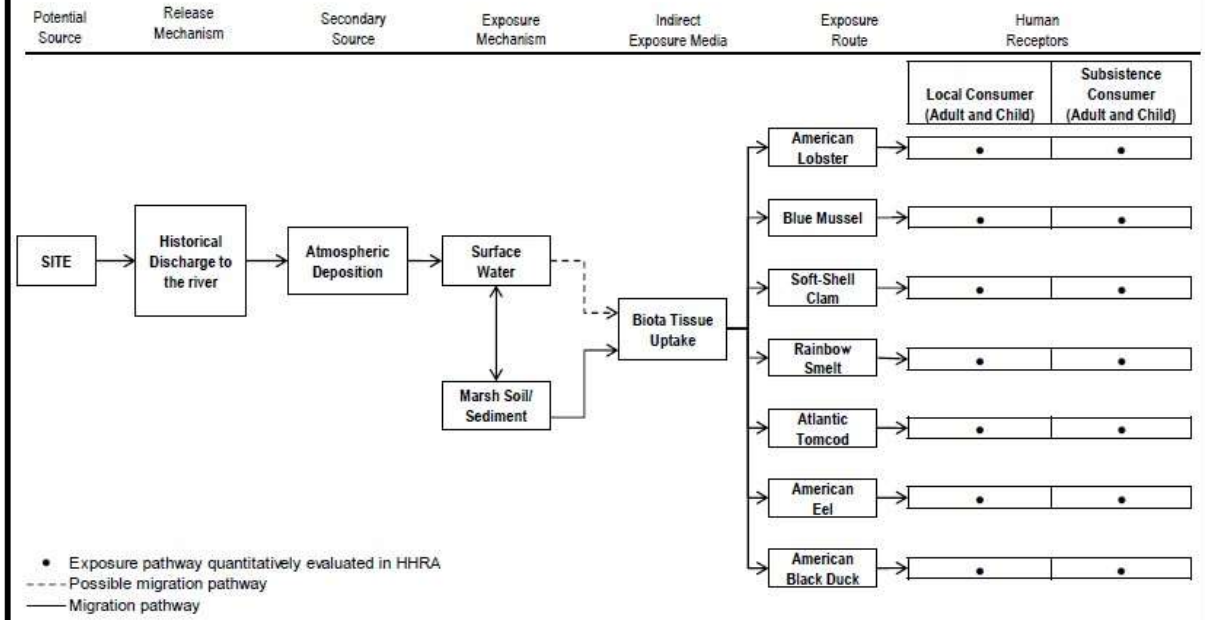
- **Describe if objectives were achieved**
- **Summarize results – main points of document**
- **If appropriate recommend future actions/next steps.**
- **Identify data gaps and deviations**
- **Update the CSM to fit your data.**

PRESENTATION TOOLS

Area of Concern	Potential Source	Potential Contaminants of Concern	Potential Release Mechanism	Potential Primary Impacted Media	Potential Primary Migration Pathway	Potential Exposure Routes	Potential Receptors
Former Dry Cleaners	Dry cleaning machine operations, solvent product and waste management	PCE and associated breakdown products	Venting to building exterior, incidental leaks or spills, accidental discharge to floor drain	Surficial and Subsurface soil, indoor air and soil vapor	Migration as vapor in air and soil, free product or dissolved phase transport in groundwater	Vapor: Solvent vapor in indoor air, migration in soil gas. Soil: Dermal contact, incidental uptake of impacted soils/dust during ground disturbance. Groundwater: Dermal contact and incidental ingestion with impacted groundwater during ground disturbance.	Site: Customers & staff, upstairs apartment occupant, construction workers Off-Site: day care, residences, river habitat

Figure II.3-1
Conceptual Exposure Model – Human Receptors

Penobscot River Risk Assessment and Preliminary Remediation Goal Development
Penobscot River Phase III Engineering Study



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