



Successful Implementation of Vapour Extraction System on a Condensate Spill

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Environmental Services Association of Alberta
2015 Remediation Technologies Symposium

Smart. Responsive. Efficient.

Outline

- Background
- Purpose/Objective
- Remedial options
- Staged assessment
- Pilot testing
- Regulator involvement
- Remediation
- Challenges
- Learnings



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Site Location



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Site Background

- Condensate pipeline release (2013)
- 100 m³
- Impacts >13 mbg



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Previous Environmental Assessment

- 2013 (another firm)
- Significant light end PHC impacts to >13 mbg
- Extensive coarse sand layer

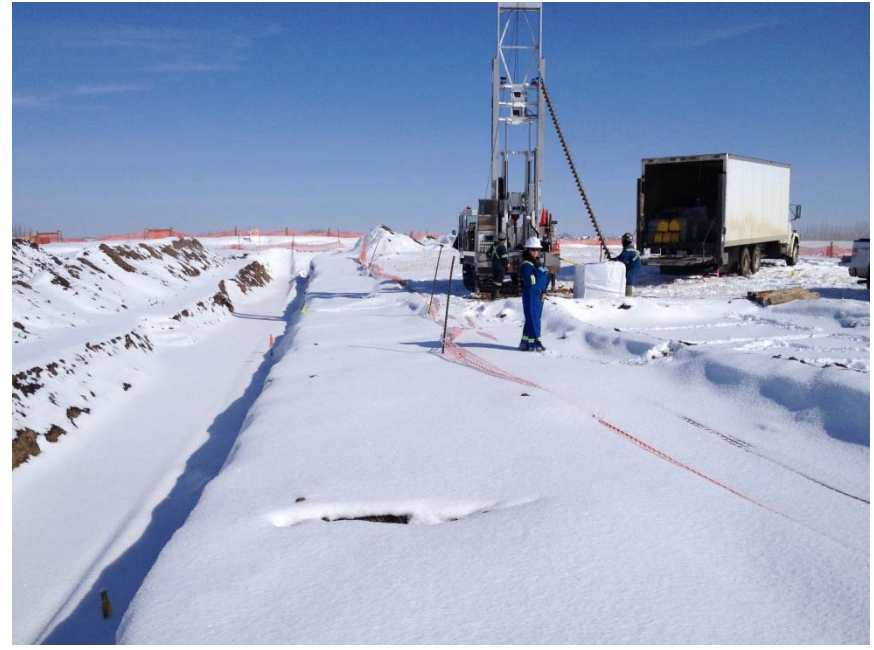
Purpose

- To reduce liability
- Obtain regulatory closure



Objective

- Determine appropriate remedial option
- Remediate to acceptable guideline



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Remedial Options (2014)

- Trace became involved
- Gap analysis and planning
- Good initial information – large impact volumes
- Remediation was goal from onset
- Time to develop alternative assessment / remedial options

Remedial Options

- Fit the option to the conditions
- The importance of dry sand



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Remediation Planning

- Selected remediation technique prior to delineation assessment
- Teamed with experienced contractor and included in early planning stage
- Pilot scale testing incorporated into assessment



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Staged Assessment

- Assessed shallow and deep impacts
- Dry wells can be a good thing
- Shallow/deep remediation pilot
- Provided evidence to regulator



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Assessment and Remediation

- Combined objectives in single trip
- Identified 25,000 m³ of impacted soil



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Pilot Test Results

Shallow Zone:

- Up to 50 m radius of influence
- 100% LEL vapour concentrations on test

Deep Zone:

- Up to 15 m radius of influence
- 100% LEL vapour concentrations on test

Regulator Involvement

- Involved in planning and updated often
- Requested risk exposure review and strategy to protect receptors
- Reporting – groundwater and remediation (annual)
- Soil monitoring required 2017

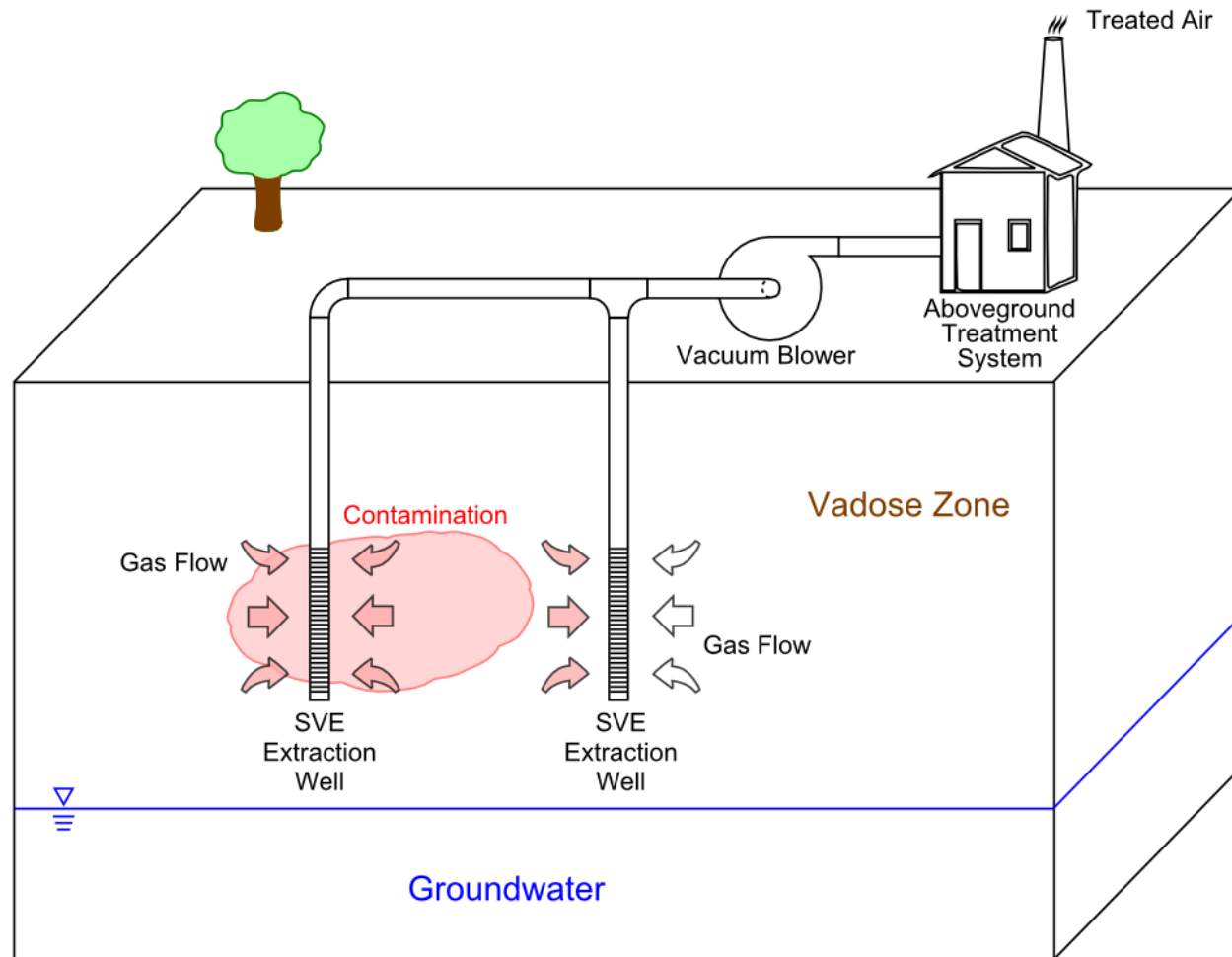


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Full Scale Remediation

- Power grid more cost effective
- System designed to alternate between shallow and deep
- 15 hp blower
- Knockout vessel for moisture
- Thermal oxidizer for vapour abatement
- Remote system monitoring
- <\$500,000 (VES) vs >\$3M (landfill)

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Challenges

- Power supply
- Deep impacts in separate soil interval
- Communication between divisions in large corporations

Learnings

- Over communicate
- Triple confirm all parties involved are informed
- Bring in the experts early
- Always fit the remedial option to the scenario; don't bias the process
- Be willing to take calculated risks

Questions?



Contact:

jhampson@traceassociates.ca

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