



The DND UXO and Legacy Sites Program

Lac St-Pierre Remedial Technologies in UXO

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Objective of presentation

- To develop a general understanding of the DND UXO and Legacy Sites Program.
- Describe technological challenges faced at the Lac St-Pierre UXO Project site.
- Demonstrate that there are opportunities for remediation technologies in the UXO field.



Outline

- Description of the Canadian UXO Program.
- Overview of Risk Management Process.
- Overview of Lac St-Pierre.
- Connections with environmental industry.
- Questions.



The DND UXO and Legacy Sites Program

Description of the Canadian UXO Program



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What is UXO ?

- According to strict NATO definitions, Unexploded Explosive Ordnance or UXO is actually defined as Explosive Ordnance which has been primed, fused, armed or otherwise prepared for action and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel or material and remains unexploded either by malfunction or design or for any other causes (NATO AAP-6).
- Typical of former training areas, many of which are associated with WWII.



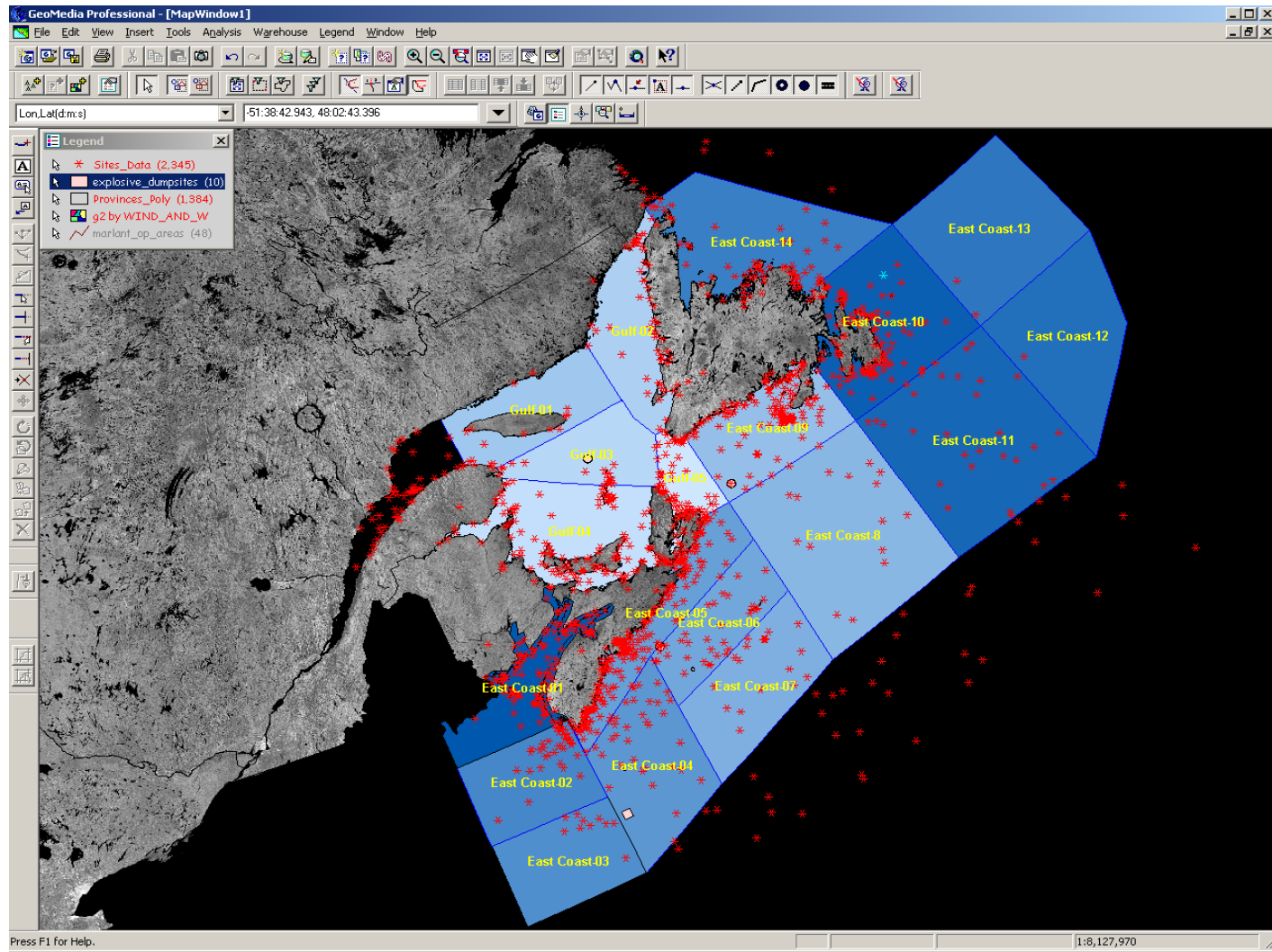


Development of the DND UXO and Legacy Sites Program

- A Legacy Site is a property **that has left** the federal Department of National Defence (DND) inventory (formerly owned or leased), or a property never in DND inventory that has been affected by DND/Canadian Forces (CF) activities; including off shore sites within the Canadian Exclusion Economic Zone.
- A UXO Legacy Site is one where UXO is present, or a probability of UXO exists based upon past operations.
- The UXO can originate from any military source, not just the CF.

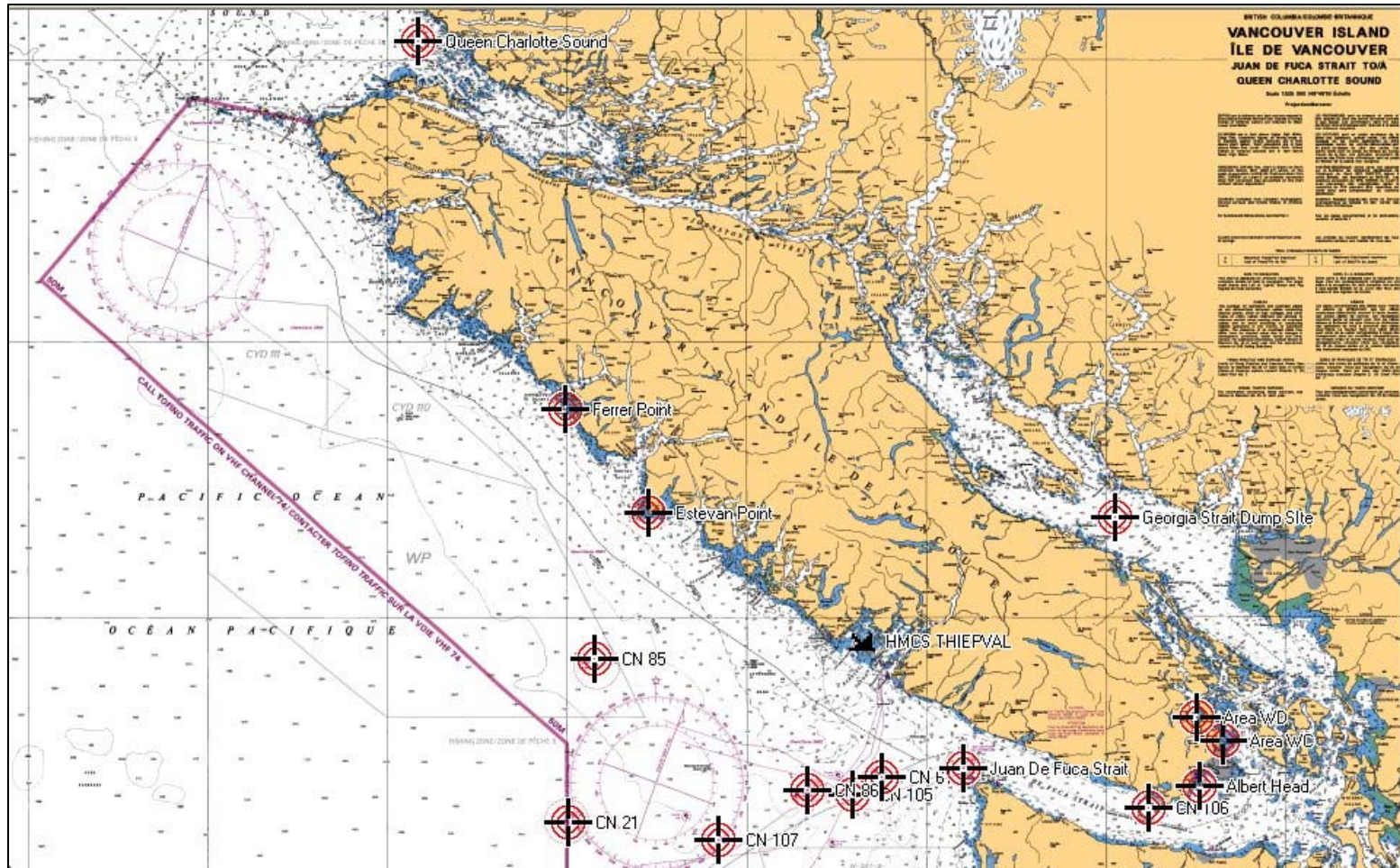


UXO Legacy Off Shore Sites – East Coast





UXO Legacy Off Shore Sites – West Coast





UXO Legacy Sites - Inland Underwater





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Overview of Risk Management Process



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Defence Management Committee Direction

Reasonable Measures in the UXO Legacy Sites Program:

1. Creation of a UXO Legacy Sites Database (DB);
2. Population of the DB through Historical Research;
3. Assessment of risk at each Legacy Site;
4. Reduction of UXO risk through education, property controls, UXO Assessment Surveys and UXO Clearance operations; and
5. Development and execution of a UXO risk awareness communications and education strategy.



Reasonable Measure – Education



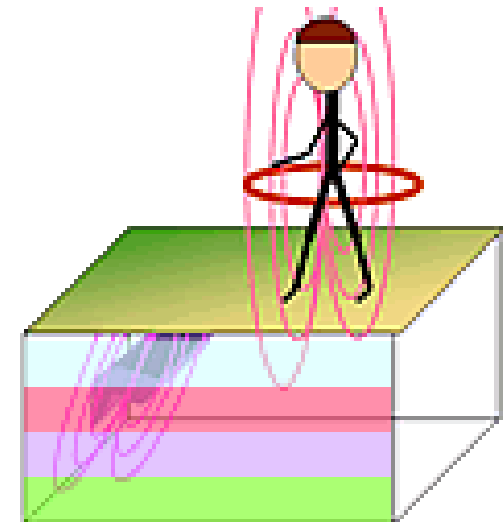
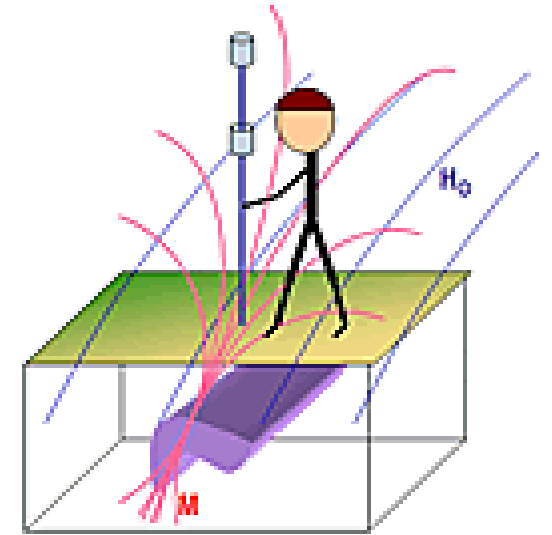


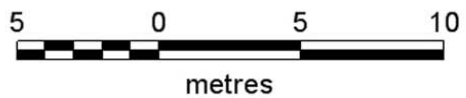
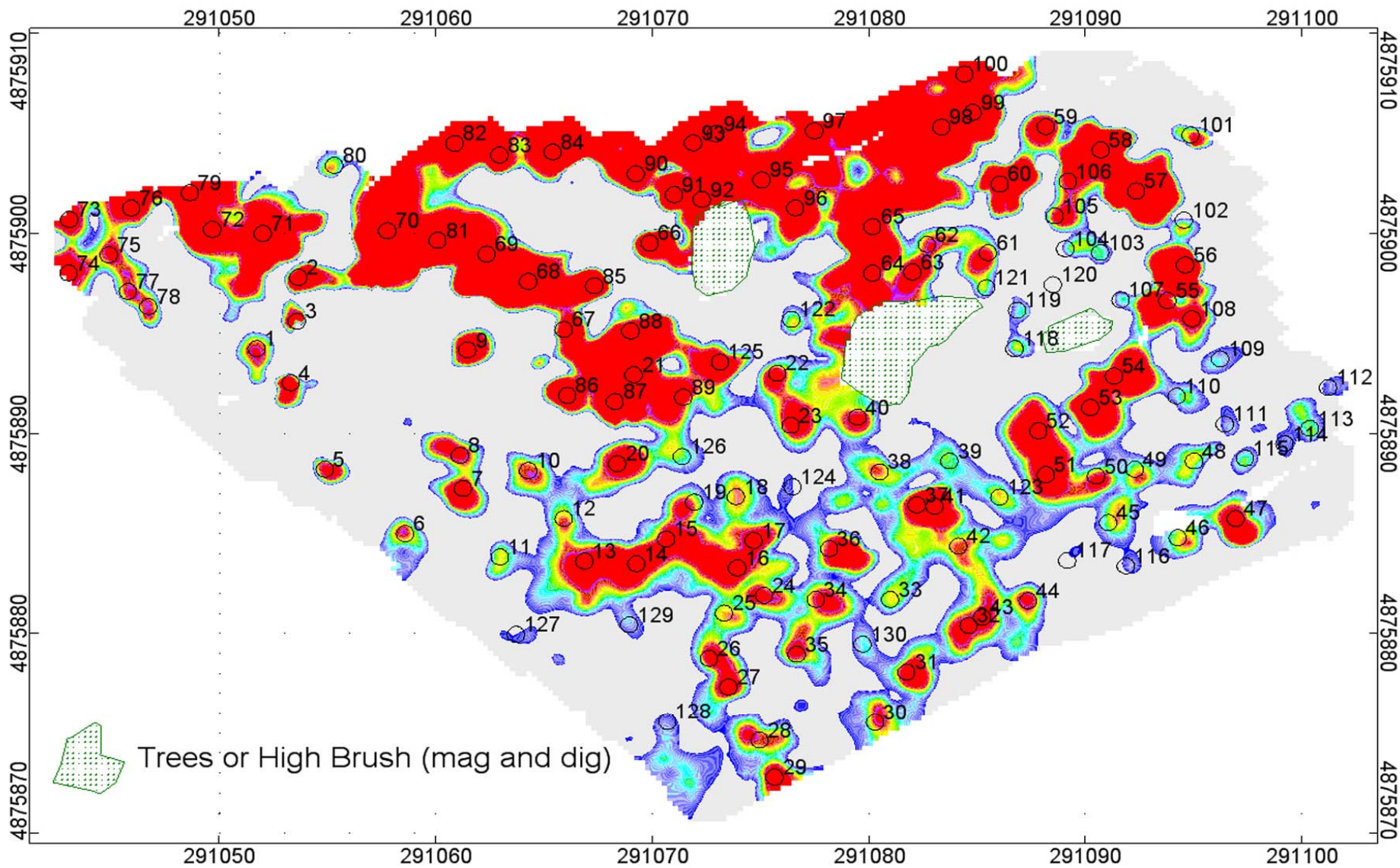
Reasonable Measure – Property Controls





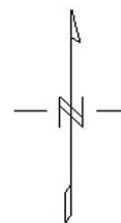
Risk Management – Surveys





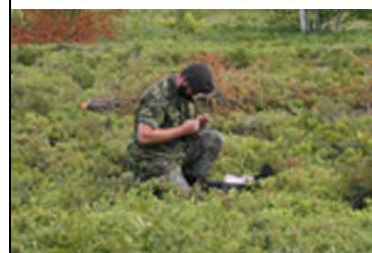
NAD83 / UTM zone 18N

MD1 Area
EM61 MK2
Wellers Bay Ontario





Reasonable Measure – Clearance





UXO vs Contaminated Sites

- On contaminated sites we reduce environmental risk to an “acceptable” level by establishing and meeting remediation criteria.
- UXO not linked to regulatory criteria but largely stakeholder driven.
- QA/QC challenges when ensuring a project meets criteria – A single UXO and possible project failure?



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Overview of Lac St-Pierre



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Site Description - Location



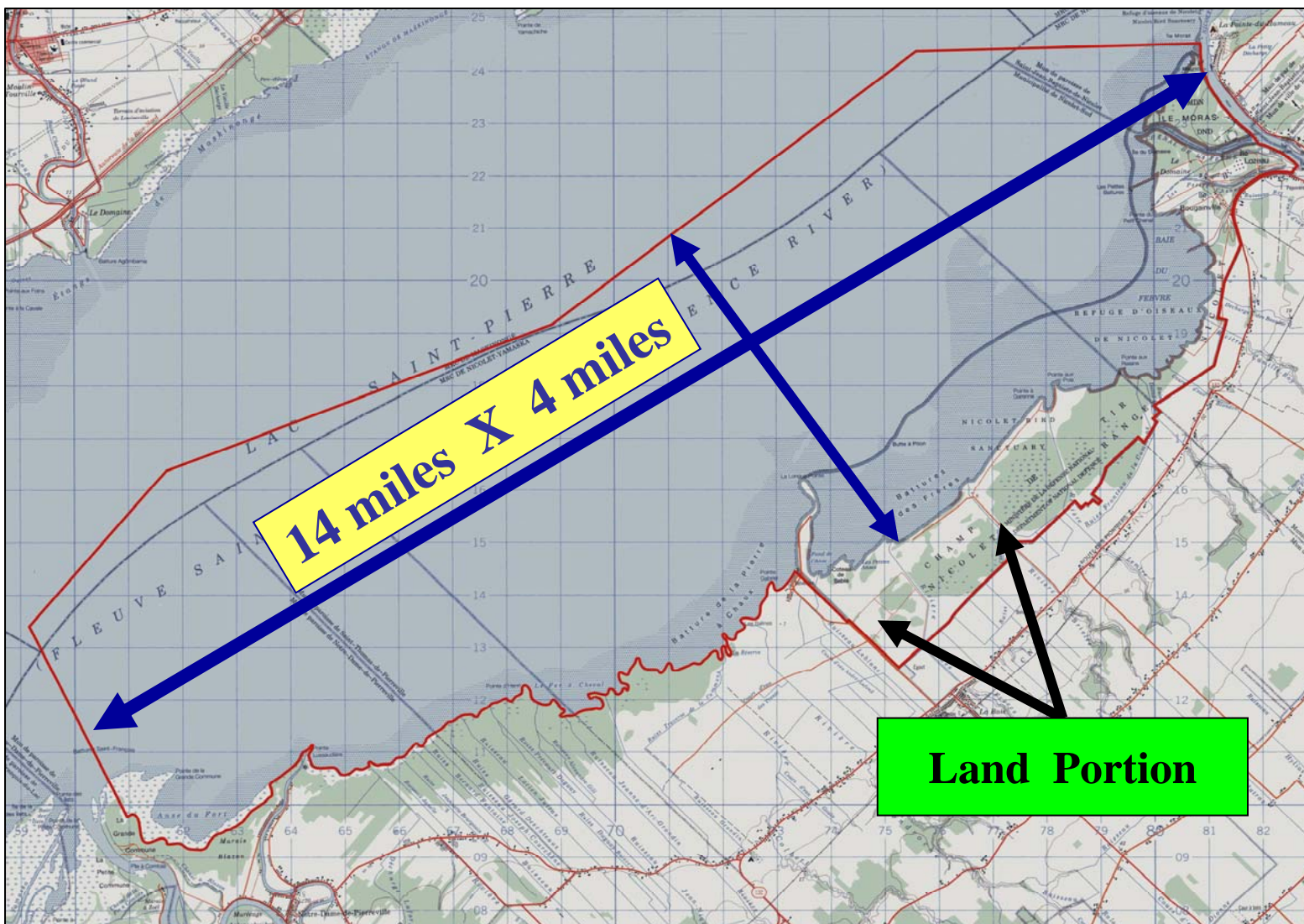


Site Description





Site Description – Range Boundaries





Site Description – Unique Environment





Site Description – Presence of UXO





Site Description – Local Stakeholders





Site Description – Presence of UXO

Nuageux et dégagement par la suite. Min. 9, max. 20. Demain: ensoleillé.

La météo est compliment des

FINISSEURS ASSOCIÉS

PHOTO **CLICK CLICK**

le nouvelliste

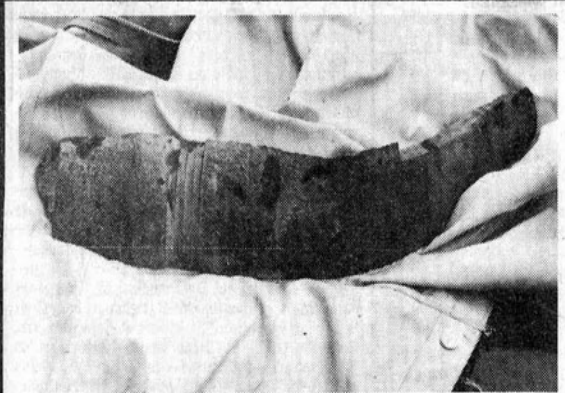
62e année, No 180 Trois-Rivières, samedi 26 juin 1982 lun. au ven. 40¢, sam. 50¢

L'autodiscipline consiste à ne pas répliquer quand votre conscience vous dit de faire quelque chose.

AMORTISSEURS
GARANTIE ÉCRITE

SILENCIEUX S.M.
LÉON PELLERIN, prop.
Levérendrye 375-0995
870 Trois-Rivières

Obus dans un feu de joie à Nicolet: Un mort, neuf blessés



(Photo Yves Champoux)

Un des nombreux fragments de l'obus a été retrouvé à quelques mètres de l'explosion. Cet engin explosif, propriété de la base Jean-Nicolet, des Forces armées canadiennes a une longueur d'environ 35 cm par environ 10 cm de diamètre et pèse plus de 13 kg. Un de ces fragments a touché la victime et sectionné un arbre d'une dizaine de centimètres de diamètre.



(Photo Yves Champoux)

L'explosion d'un obus, jeudi, en soirée, a causé la mort de M. Pierre Gentes, 38 ans, de Saint-Jean-Baptiste de Nicolet et des blessures à neuf personnes. La flèche indique l'endroit où était l'engin explosif. La détonation a été telle qu'elle a été entendue à plusieurs kilomètres à la ronde, même sur la rive nord. Lors de cette

explosion de l'engin, une vingtaine de parents et amis fêtaient la Saint-Jean et le départ prochain de Pierre et François Gentes, et leur famille, pour une croisière d'un an dans le Sud, sinon autour du monde.

— nouvelles et photos en page 3



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Connections with the Environmental Industry



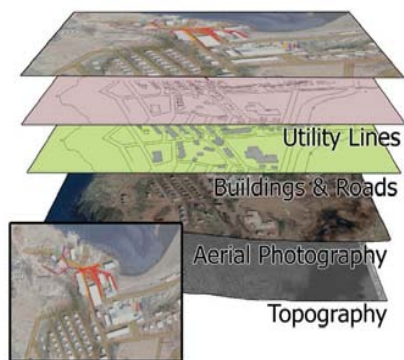
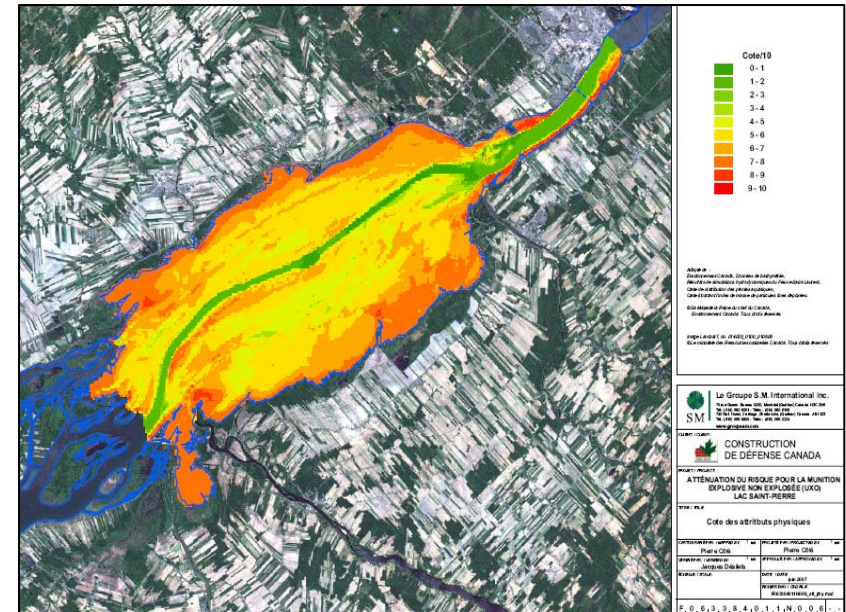
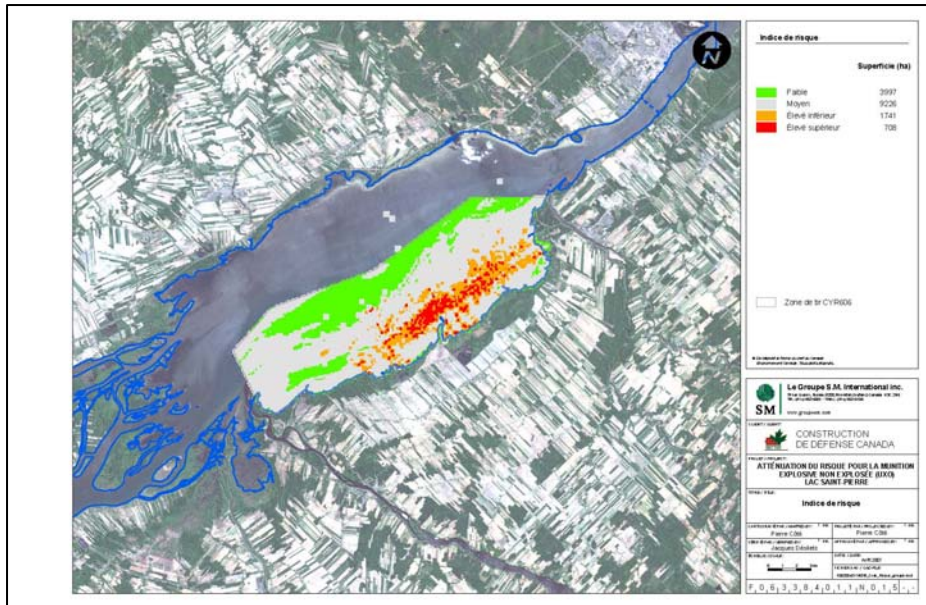
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GIS Risk Assessment



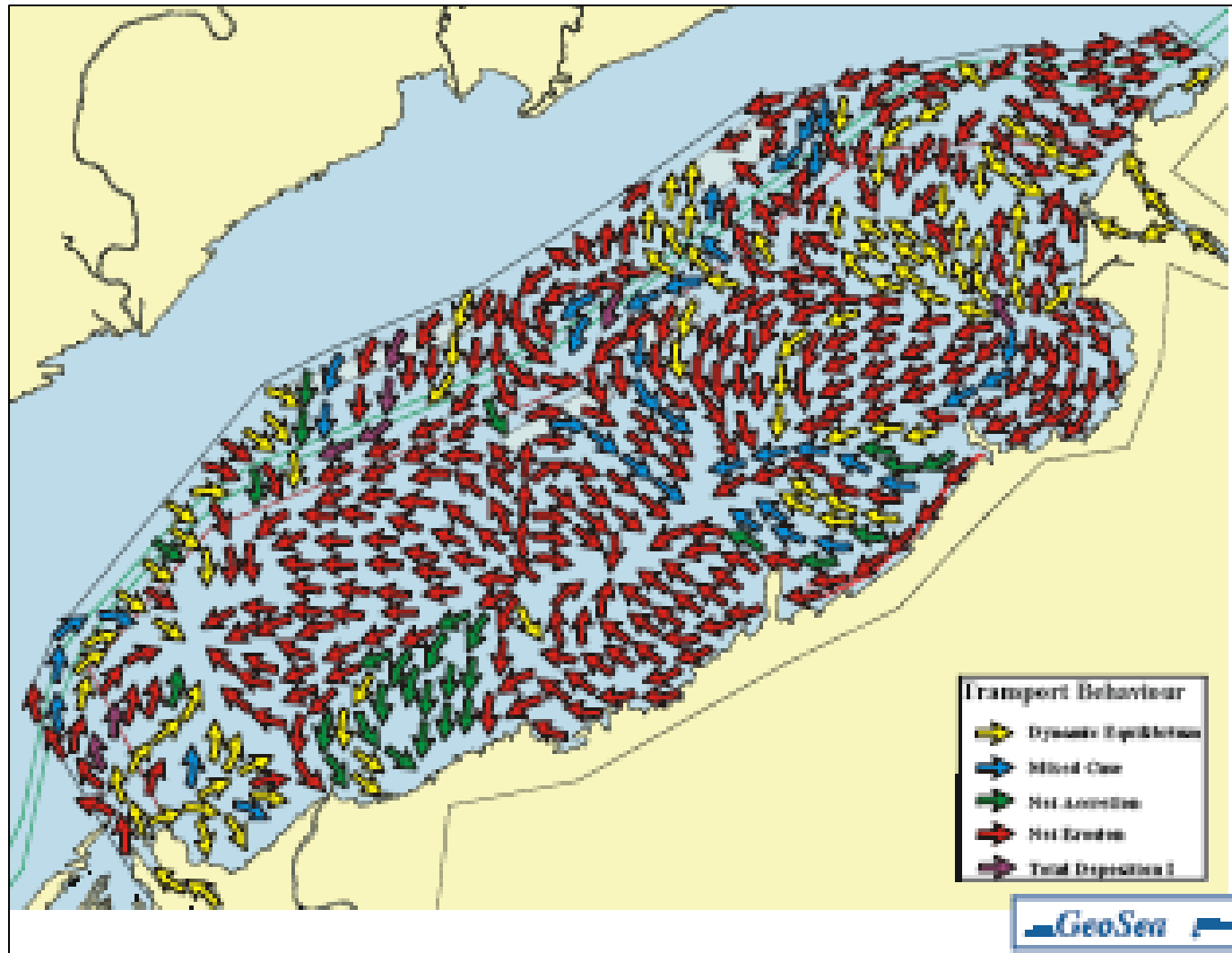


Environmental Assessment





Sediment Trend Analysis





Devices to Detect Energetic Materials (EM)





Heavy Equipment Protection



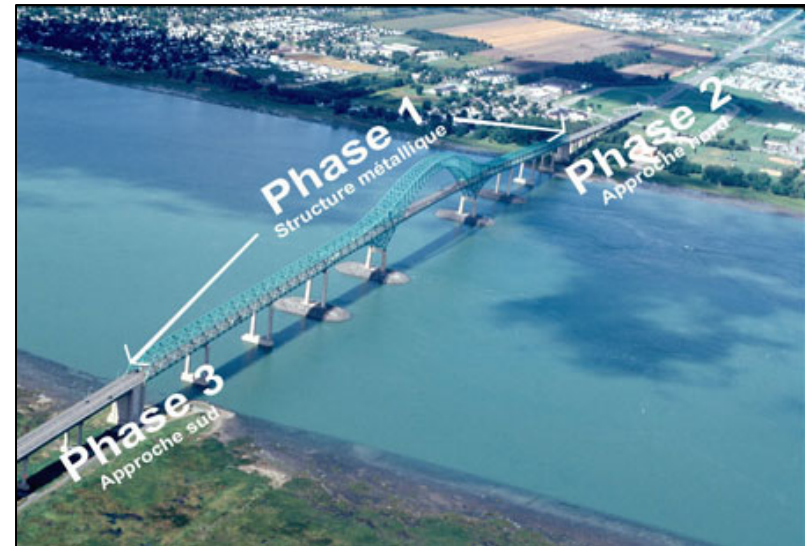


Ice Migration Studies





Soil Screening





Scrap Management



Photo 3 – Munitions Scrap



Conclusions

- UXO project solutions depend on the successful application of technology.
- Challenges exist that required innovative solutions.
- Opportunities exist for the environmental industry to participate and provide technical expertise and solutions.



Project Contacts

- Web: www.UXOCanada.forces.gc.ca
- EMAIL: UXOCanada@forces.gc.ca
- General Information: **1-800-207-0599**



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Questions



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