Oil sands extraction is extremely water intensive. Current technologies are costly and slow. Increased need for water monitoring by 2015.

Toxic wastewater from this process is stored in tailings ponds.

**MicroTox®**

**POCIS**

**SPMD/GC/MS**

**FRED**

**Product Analytical Sensitive Portable Cost Speed Training**

<table>
<thead>
<tr>
<th>Product</th>
<th>Analytical</th>
<th>Sensitive</th>
<th>Portable</th>
<th>Cost</th>
<th>Speed</th>
<th>Training</th>
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</thead>
<tbody>
<tr>
<td>GC/MS</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>$$500 K$$</td>
<td>1-5 HOURS</td>
<td>HIGH</td>
</tr>
<tr>
<td>SPMD</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>$$500 K$$</td>
<td>1-5 HOURS</td>
<td>HIGH</td>
</tr>
<tr>
<td>MicroTox®</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>$30 M$</td>
<td>MD</td>
<td></td>
</tr>
</tbody>
</table>

The Problem

Oil sands extraction is extremely water intensive. Toxic wastewater from this process is stored in tailings ponds.

There is a clear need for rapid, spot-test technologies.

The Opportunity

Significant increase in monitoring regulation by 2015 (6x) Shortage of Adequate Portable Sensing Devices

**FRED: Field Ready Electrochemical Detector**

**O’Brien Centre for the Bachelor of Health Sciences Program**

Executive Summary

**Our Advantage**

Rapid, robust and portable platform technology that can be easily expanded into other markets.

**The Solution**

**FRED: The Field Ready Electrochemical Detector**

System consisting of single use cartridges of sensing bacteria and a reusable detector unit.

**Competitor Analysis**

- Versatile, fast, robust platform
- Strong scientific background
- Strong and varied advisory board
- Technological proof of concept

- Complex intellectual property issues
- Use of GMO in our product (public perception)
- Lack of distribution and market access
- Capacity to expand into new markets

- High market potential
- High market growth

**Strengths**

- Versatile, fast, robust platform
- Strong scientific background
- Strong and varied advisory board
- Technological proof of concept

- High market potential
- High market growth

**Weaknesses**

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- High market growth

**Opportunities**

- Increase in mandated monitoring
- High market potential
- High market growth

- High market potential
- High market growth

**Threats**

- High market potential
- High market growth
- High market potential
- High market growth

**3 Year Plan**

**Achieved**

- Funding Sources:
  - Early Grants
  - First Sales
  - Angel Investment, Grants, Venture Capital, Income From First Sales

- Milestones:
  - Prototype Optimization/Field Tests
  - Regulatory Approval
  - First Sales Early 2017

**NOW**

- 2014
  - Funding Source: Grants, Company, Private Investment, (Angel Investment)
  - Milestones: Prototype Development, Patent Licensing Agreements/Partnerships

- 2016
  - Funding Source: Grants, Company, Private Investment, (Angel Investment)
  - Milestones: Prototype Development, Patent Licensing Agreements/Partnerships

- 2018
  - Funding Source: Grants, Company, Private Investment, (Angel Investment)
  - Milestones: Prototype Development, Patent Licensing Agreements/Partnerships

**5 Year Plan**

- Funding Source: Grants, Company, Private Investment, (Angel Investment)
- Milestones: Prototype Development, Patent Licensing Agreements/Partnerships

**The Plan**

**Manufacturing Strategy and System Overview**

- Measure on site & receive data anywhere
- Built-in Controls
- Confident toxin reporting

**Our Advantage**

- Fast Response
- Accuracy
- Multiplexed
- Portability
- Versatility

**FRED Sensory**

- Engineered bacterial strain
- Electrochemical sensing

**Our Advantage:**

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