An Overview of a Unique Canadian Site

- 100 years of coking operations

- Tar Ponds: 81 acres
  - 700,000 tonnes of PAH contaminated sediments
  - 45,000 tonnes of PCB contaminated sediments

- Coke Ovens: 178 acres
  - 3,000 tonnes of PAH & VOC contaminated soil
  - 25,000 tonnes of coal tar in tar cell
Control incoming flows from Coke Oven Brook and Wash Brook by diverting them from the work area using temporary pumping stations.

Control water coming from other sources using barriers.

Create a new channel within the isolated areas.

Complete in situ treatment of tar ponds sediments through solidification/stabilization.
Pumping Stations – Multiple Stages

Stage 1
Wash Brook
Min 0 L/s
Median 200 L/s
Peak 5,100 L/s

Stage 2
Ferry Street
Min 0 L/s
Median 400 L/s
Peak 11,800 L/s

Stage 3
Narrows
Min 0 L/s
Median 200 L/s
Peak 11,800 L/s

P1b Coke Oven Brook
Min 0 L/s
Median 200 L/s
Peak 6,700 L/s
High Flows in Coke Oven Brook
Barriers are required to assist with isolation of work areas.

- Stage 1: Barrier At Ferry Street
- Stage 2: East Shore – 1 Narrows
- Stage 3: East Shore – 2 Battery Point
Solidifications/Stabilization

- Bench Scale Testing
- Pilot Testing
- Full Scale Construction
Sampling Locations
Consulted with Regulators and their representatives
- Testing Methodology
- Site Characterization
- Acceptance Criteria

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Criteria</th>
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</thead>
<tbody>
<tr>
<td>Strength (UCS)</td>
<td>ASTM D 1633 Method B</td>
<td>= or &gt; 0.34MPa (50psi)</td>
</tr>
<tr>
<td>Hydraulic Conductivity</td>
<td>ASTM 5084 (Flex Wall)</td>
<td>&lt; or = 1 x 10^{-6}cm/sec</td>
</tr>
<tr>
<td>Leachate</td>
<td>Modified SPLP 1312 (as monolithic structural integrity procedure)</td>
<td>Site Specific Leachate Criteria (SSLC)</td>
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</tbody>
</table>
• Locally available materials utilized as mix “ingredients”
  ▪ Portland Cement
  ▪ Slag (from the adjoining SYSCO site)
  ▪ Quicklime
  ▪ Fly Ash

• Challenges
  ▪ Water Control
  ▪ Recipe blending (order of additives)
  ▪ Project Air Monitoring
  ▪ Maintaining sample homogeneity
  ▪ Extrusion from thin tubes
  ▪ Sample preparation
- Baseline and Construction Monitoring
- H&S Monitoring
Pilot Scale (North Pond)
Pilot Scale (North Pond)
Work sequenced to provide new flow channel as a first priority

Removes the need for ongoing bypass pumping while remaining sediment is solidified.
Cooling Pond Project – Winter 2007/08

- Cement and Slag additives
- Strength and Permeability Testing every 250 m³
Cooling Pond Project

- Total Volume Treated – 28,800 m³
- Cell size ranged from 200 to 700 m³
Cooling Pond Project

- Total Number of Cells = 92
- Winter work involved increased effort for water/ice management
COOLING POND
2007/2008

UPDATED April 3rd 2008

Total Area 11543m²
Area S/S 11331m²
Area to be S/S 212m²
98.2% Complete by Area

Note: 51A & 77A are re-mix areas
61A is a cell over cell
88 overlaps on top of cells 40 & 24
Cooling Pond Project Reporting

- Field Reports
  - Daily Reports
- Quality Reporting
  - Monthly QA/QC Report
  - Monthly Environmental Report
- Final report (including Capping Material)
Pilot Work Underway.
Flow Diversion contract to be tendered in fall 2008
S/S Contract to be tendered in the winter of 2008/2009

Project Completion March 31, 2014;
Long Term Monitoring to 2033

Questions?