Canal do Fundão
Contaminated Sediments GDT Analysis Versus Actual Full Scale Project Results

Tom Stephens
TenCate Water & Environment
Project Location

Rip de Janario, Brazil
Sampling

Contaminated Sediments - Dredged area

Dewatering Cells
Sample Analysis
### QUADRO 3.5
CONCENTRAÇÃO DE METAIS SIMULTANEAMENTE EXTRAÍDOS E CONCENTRAÇÃO DE SULFETOS (MSE E SVA). CONCENTRAÇÃO DADA EM μMOL.G⁻¹

<table>
<thead>
<tr>
<th></th>
<th>AF1</th>
<th>AF4</th>
<th>AF7</th>
<th>AF10</th>
<th>AC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cd</td>
<td>0,015</td>
<td>0,04</td>
<td>0,026</td>
<td>0,027</td>
<td>0,002</td>
</tr>
<tr>
<td>Pb</td>
<td>0,58</td>
<td>1,388</td>
<td>1,118</td>
<td>0,731</td>
<td>0,218</td>
</tr>
<tr>
<td>Cu</td>
<td>1,44</td>
<td>1,9</td>
<td>1,85</td>
<td>2</td>
<td>0,43</td>
</tr>
<tr>
<td>Hg</td>
<td>0,005</td>
<td>0,008</td>
<td>0,004</td>
<td>0,005</td>
<td>0,001</td>
</tr>
<tr>
<td>Ni</td>
<td>0,25</td>
<td>0,3</td>
<td>0,42</td>
<td>0,42</td>
<td>0,08</td>
</tr>
<tr>
<td>Ag</td>
<td>0,077</td>
<td>0,05</td>
<td>0,036</td>
<td>0,076</td>
<td>nd</td>
</tr>
<tr>
<td>Zn</td>
<td>9,768</td>
<td>15,61</td>
<td>12,794</td>
<td>16,511</td>
<td>2,015</td>
</tr>
<tr>
<td><strong>Somatório dos metais (MSE)</strong></td>
<td>12,135</td>
<td>19,296</td>
<td>16,248</td>
<td>19,77</td>
<td>2,746</td>
</tr>
<tr>
<td><strong>Sulfeto</strong></td>
<td>377,714</td>
<td>286,353</td>
<td>662,566</td>
<td>716,17</td>
<td>6,798</td>
</tr>
<tr>
<td><strong>MSE-SVA</strong></td>
<td>-365,579</td>
<td>-267,057</td>
<td>-646,318</td>
<td>-696,4</td>
<td>-4,052</td>
</tr>
</tbody>
</table>
GDT Testing

Performed 11 GDT Test
One for Each of the Selected Contaminated Sections
GDT Results

After 15 Days Sampled GDT
Average 55% Dry Solids
Canal Dredging Plan
Dewatering Cells

Canal do Fundão Dewatering Cells #1 and #4
First layer of 36.5m Circ. Geotube® Units Installed Dewatering Cells #1
Geotube® Filling Height

Geotube® Units Filled Multiple Times to 2.2 meters
Geotube® Stacking

Third layer of 36.5m Cir. Geotube® Units Installed Dewatering Cells #1
Completed Project

Final Cover Geotube Dewatering Cell #1
Completed Project

**Canal do Fundão - Final Dry solids**

Cell #1 / Layer #1

- **55%** - forecasted % solids
- **57.35%** - achieved % solids

Graph shows % solids vs Geotube units.
Conclusions

• Multiple Sampling and Classification of Sediments in Large Scale Geotextile Tube Dewatering Projects Is Critical First Step To The Success of The Project.

• Polymer Qualification and Dosing Studies Must Be Conducted Far In Advance of The Initiation of the Project.

• The GDT Test Method Is an Effective Tool In Projecting Dry Mass and Volume Reduction In Large Scale Geotextile Tube Dewatering Projects
Questions?