DEW Line Clean Up (DLCU)
Lessons Learned

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Typical DEW Line Site

- Fuel tanks
- Storage building
- Garage
- Module train
- Raydome
- Communication dishes
- Billboard
- Pallet line
What We Are Doing On Site

- **Demolition** of surplus infrastructure,
- **Remediation** of chemically contaminated soils,
- **Stabilization** of existing landfill sites,
- **Construction** of new engineered landfills,
- **Shipment** of certain contaminated soil and debris to southern disposal or destruction facilities
OVERALL DLCU PROGRAM
Planned 2012 Season

Completed 19
(Completed 2011)
To complete 2012
In Progress
Major Maint
Minor Maint

$583,000,000.00
DLCU Timeline

- mid to late 50s - DEW Line built

2018 - Planned completion on monitoring Phase 1
2038 - Planned completion on monitoring Phase 2
Never - Estimated completion on monitoring Phase 3
Part 2 - DLCU Lessons Learned

Significant Lessons Learned (LL) (or re-learned)

A. Government Policy And Program LL
B. Project Management General LL
C. Contract Management LL
D. Technical & Environmental LL
A. Government Policy & Program LL

1. Stakeholder Engagement
1. Stakeholder Engagement

Canadian Citizens / Taxpayers

Department of National Defence (PL, PD, PM)

EC FCSAP Secretariat (money)

Aboriginal Groups (NTI, IRC)

Project Management Office (DND&DCC) & Contract Management (DCC)

Regulators

Entrepreneur & Contract (DCC)

Contractor

NWS & Nasittuq

TB & OAG (audit)

Design & Geotech Consultant (AECOM & others)

Scientific Advisor (Royal Military College /Environmental Sciences Group)

Environmental Working Group (WESA)

Local Communities, Special Interest Groups and Individuals
A. Government Policy & Program LL

2. Procurement Flexibility
## 2. Procurement Flexibility

### DEW LINE CLEAN UP - SRB COST ESTIMATE

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**Sub total**

| Costs Attributable to Site | 96,018.7 | 30,592.5 | 38,507.9 | 38,804.9 | 39,504.5 | 41,062.8 | 39,213.9 | 32,661.0 | 35,854.8 | 36,421.1 | 29,753.7 | 15,104.7 | 6,307.0 | 2,043.3 | 668.4 | 837.6 | 638.4 |

**Costs not Attributable to Site**

| Project Management | 4,900.0 | 2,219.0 | 3,471.4 | 2,922.7 | 2,470.7 | 2,463.6 | 2,282.2 | 2,377.4 | 2,526.6 | 1,589.5 | 1,449.0 | 1,288.7 | 903.0 | 575.1 | 522.6 | 522.6 | 459.6 |
| Scientific Costs | 1,524.0 | 920.0 | 1,059.0 | 1,059.0 | 345.0 | 892.5 | 640.0 | 840.0 | 935.0 | 639.0 | 315.6 | 600.0 | 0.0 | 50.0 | 5.0 |
| Engineering Support | 3,472.0 | 1,048.0 | 735.0 | 540.0 | 654.8 | 514.5 | 514.5 | 368.5 | 257.6 | 72.5 | 639.2 | 50.0 | 50.0 | 5.0 | 5.0 |

**Sub total**

| Costs not Attributable to Sites | 9,896.0 | 4,187.0 | 5,259.1 | 4,513.4 | 4,061.4 | 3,870.6 | 4,336.7 | 3,731.9 | 3,650.1 | 2,456.8 | 2,021.3 | 1,487.0 | 998.6 | 623.4 | 575.9 | 570.9 | 507.9 |

**Total Cost By Year ($000 CY)**

| 105,914.7 | 34,779.5 | 44,119.9 | 44,318.2 | 43,565.9 | 44,933.4 | 43,550.3 | 36,392.9 | 39,495.2 | 37,077.9 | 31,815.0 | 16,591.7 | 7,385.6 | 2,688.7 | 1,244.3 | 1,408.5 | 1,146.3 |
### A. Government Policy & Program LL

#### 3. Quality Assurance

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<tr>
<th>Item #</th>
<th>Year</th>
<th>Topic</th>
<th>Issue</th>
<th>Recommendation</th>
<th>OPI</th>
<th>Comment Status</th>
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<tr>
<td>5-001</td>
<td>2004</td>
<td>Excavation Control</td>
<td>Recommendations to continuing or stopping excavation of contaminated soil on site are sometime pretty vague. Rationale behind the decision is not always well understood by field worker. That can lead to confused recommendations.</td>
<td>Suggest a discussion at the pre-season meeting on that topic. Use a case study in the Site Scenario Document to put everybody on the same page. <strong>Just Do It</strong></td>
<td>All</td>
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<tr>
<td>5-002</td>
<td>2004</td>
<td>TDG Shipping</td>
<td>Problems with shipping TDG (Class 7) on First Air even with all of the proper documentation (poor service).</td>
<td>Do not ship TDG on First Air unless absolutely necessary. Order sticker &quot;Allowed on Passenger Flights&quot; for densometers. <strong>Just Do It</strong></td>
<td>UMA</td>
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<tr>
<td>5-003</td>
<td>2004</td>
<td>Survey Data from Instrumentation</td>
<td>Instrumentation survey data not provided.</td>
<td>Geotechnical support to show surveyor locations and receive info immediately after. On as needed basis at the discretion of the engineer. This helps QA/QC for survey quantities.</td>
<td>UMA</td>
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<td>5-004</td>
<td>2005</td>
<td>Surveys (UMA)</td>
<td>Accurate record information used for checking quantities not provided.</td>
<td>Send in a survey crew to pick up final surveys of finished structures for record and quantity information. <strong>Just Do It</strong></td>
<td>UMA</td>
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<td>5-005</td>
<td>2005</td>
<td>Mini-excavator Limitations in SI</td>
<td>More thorough investigation of borrow areas and permafrost during site investigation-limited by capability of mini excavator.</td>
<td>Allow for more test pit hours in tender for geotechnical inspection. <strong>Just Do It</strong></td>
<td>UMA</td>
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<td>5-006</td>
<td>2006</td>
<td>Sedimentation and Erosion Control</td>
<td>Silt curtains difficult to maintain/deploy in rough water with ice. Containment berms may erode in high water events/storms.</td>
<td>Armour slope of containment berms as needed. Specifications are consistent with DFO expectations and all practical measures must be taken to provide erosion control. <strong>Discuss</strong></td>
<td>DCC/UMA</td>
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<td>5-007</td>
<td>2006</td>
<td>Record Drawings</td>
<td>Contractors sometimes unclear as to expectations with respect to surveys/record drawings.</td>
<td>Clearly detail survey requirements in specs. Meet with Contractor's surveyor at start of each season to review requirements. Ensure survey information is submitted for review in a timely fashion and after critical components of construction e.g. completion of a Tier II Facility. <strong>Just Do It</strong></td>
<td>DCC/UMA</td>
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1. Already in place
2. Responsibility of the capacity is the responsibility of the
3. Quality Assurance
4. Your Team
4. Your Team
5. Project Knowledge

**Project Plans**
- Risk Mgt (14+~80 pgs)
- Cost Mgt (20+265 pgs)
- Comms (30+29 pgs)
- QA (29 pgs)
- Health & Safety (HASP)
- new Close Out

“DLCU 101”
A Basic Introduction to the DEW Line Clean Up Project (50 pgs)
6. Close Out Preparation
7. Communications.

- Informal Communication
- ESG & UMA Site activities
- Approving interim payments
- Confirmatory sampling
- Baseline Visual Monitoring
- Geotech. Advise during const.

- Formal + Casual Info.
- PMO Support PO, EO, Pro.O & BEST

- Confirmatory sampling
- Baseline monitoring

- Scope mgmt.
- Time management
- Review contractor productivity
- Contractor

- Tendering follow up
- Contract implementation
- Reporting

- Site supervision
- ESG & UMA Site activities

- Site Direction
- Reporting

- Team Leader
- Team Leader

- DCC APM
- DCC Site Manager

- DND PM
- DCC DPM
- DCC Sr. Contract Manager

- UMA PM
- ESG PM

- Contract Coordinator
- Contract Coordinator

- Contractor
- Contractor
7. Communications.

“Who Ya Gonna Call?”

- Scientific
- PMO & CM
- Engineering

- Tech Net
- Official
- Tech Net

- Regulators
- Specialists within org or external
- Departmental experts
- OGDs
- Specialists within company or external
Contract Management

8. Partnering.
9. Site Decisions vs Design Intent
10. Think, Then Take Action
D. Technical & Environmental LL

11. Document your project
12. Water & Drainage

Build for 1,000 years

Better to spend an extra $200k now than re-mobilise to site

Site structures away from any water or possible channel

Armour your structures - more is better
ANY QUESTIONS!