Enterprise Cape Breton Corporation
Mine Site Closure Program
Lessons Learned

April 16, 2014
Presentation Outline

Part 1: The Lessons Learned Project
  • Overview and Approach
  • A Lifecycle Lens

Part 1: Context and Background
  • Cape Breton Coal Timeline
  • Cape Breton Coal History
  • Mine Closure Program Background
  • Our Challenge and Success

Part 3: Results - Program Observations and Lessons Learned
  • Project Governance and Management
  • Environmental Management
  • Risk Management
  • Performance Measurement and Evaluation
  • Procurement
  • Accountability and Audit Readiness
  • Communications and Community Engagement
Part 1: The Lessons Learned Project
Lessons Learned Overview and Approach

PWGSC and ECBC with help from Stratos, a specialized management consultancy, developed a Lessons Learned Report for the Mine Site Closure Program

Goals

- Contribute to the Mine Closure Program’s successful conclusion by developing a report to showcase and promote this high profile, successful project as an example of excellence
- Help improve contaminated sites project management delivery across the nation and internationally

Approach

- Describe what critical issues were encountered in the risk management and remediation of these mines and associated properties
- Understand how the team addressed key strategic and project management issues by examining: what went well and how it was managed; and what went wrong and it was corrected
The lessons learned were developed collaboratively with key members of the former Program team from both ECBC and PWGSC, with input from a number of other stakeholders. The lessons learned are organized into the categories found in the analytical framework below:

Lessons Learned Analytical Framework

- Project Governance & Management
- Environmental Management
- Risk Management
- Performance Measurement and Evaluation
- Accountability and Audit Readiness
- Procurement
- Communications and Community Engagement
A Lifecycle Lens

• The lessons learned used a lifecycle lens to better understand the Program
• Many of the Program’s eventual successes were realized only after effectively addressing early challenges
• This lifecycle focus was used to:
  – Present an accurate depiction of the Program; and
  – Increase its usefulness to others by contextualizing best practices within the inevitable challenges and obstacles faced by all large and complex programs.

Princess Wash Plant and Waste Rock Pile (LEFT) in 2007 before remediation and (RIGHT) in 2011 post-remediation
Part 2: Context and Background
Cape Breton Coal History

- The first Commercial Coal Mine opened in Cape Breton in **1720**
- **1784-1820** saw coal deposits mined on a small scale, either by the colonial government or through private leases
- In **1865** the General Mining Association surrendered its mining rights, with independent operators
- Between **1858** and **1893** more than 30 coal mines were opened in the province
- In **1894** the government gave exclusive mining rights to the Dominion Coal Company
- By **1903** the Dominion Coal Company was producing 3.2 million tonnes of coal per year
- In **mid-1960s** the private sector exited Cape Breton Coal mining. The Cape Breton Development Corporation was established in **1967** to phase out coal
- The last Cape Breton coal mine closed operations in **2001**
Mine Closure Program Background

- The Cape Breton Development Corporation (CBDC) engaged PWGSC to develop and implement the Mine Site Closure Program in 2002.
- The Program involved remediation of over 700 properties scattered among 35 communities covering over 1,000 square kilometres of land in the Cape Breton Regional Municipality.
- Site remediation addressed environmental and health and safety issues associated with waste rock, coal, and industrial activity such as sinkholes and acid rock drainage.
- The CBDC dissolved in 2010, with assets and liabilities passing to the Enterprise Cape Breton Association (ECBC).
- The Program has completed all major construction activities during its lifecycle, with major activities ended in 2013.
- As of March 2013, over $190M was spent on remediation activities and program management.
Mine Closure Program Objectives

- Leave each site in a stable, safe condition
- Mitigate Human Health and Ecological Risk
- Return to former land use / acceptable alternative
- Emphasize reuse and recycling where possible
- Remediation measures must be economically practical, proven and involve more passive approaches where applicable
- Ensure all bylaws with respect to health, safety, noise, traffic control and roads are followed
Our Challenge and Success

Our Challenge…

• To deliver a complex, multi-million dollar, multi-site program in the time frame specified by the ECBC Board of Directors (10 years), half the initial estimate of 20 years

Our Success…

• The completion of all major remediation activities on time and under budget, with strong community support and the majority of project funds fed directly into the local Cape Breton economy
Part 3: Results - Program Observations and Lessons Learned
The Mine Site Closure Program

- CBDC engages PWGSC to start remediation
  - Early years were characterized by challenges in Program governance and management

- Risk Based Approach to program management
  - A risk-based approach was utilized to make major Program decisions and prioritize remediation activities

- Concept of site-groupings
  - 33 stage plans were laid out at each site with clearly articulated timelines and expectations

- Clearly defined roles
  - Clearly defined roles were established through the Roles and Responsibilities Workshop and 2008 updated Project Charter

- Remedial Objectives Guidance Document
  - Captured institutional knowledge and enhanced the consistency of the treatment of major Program issue areas
Lessons Learned

1. Ensure Strong Leadership
2. Establish a Local Presence
3. Appreciate the Context
4. Collectively Understand Objectives, Outcomes, Methodologies and Processes
5. Customize the Delivery Model
6. Utilize a Risk-Based Approach
7. Clearly Define Relationships and Roles
8. Establish and Apply Terms of References
9. Manage for Turnover
10. Continuously Measure Performance
The Mine Site Closure Program

2003 Auditor General Special Investigation
- The 2003 Report concluded environmental risks were not adequately addressed

Environmental Management Plan
- Acted as the synthesis of all proposed mitigative and monitoring actions and set a timeline with specific responsibilities assigned and follow-up actions identified

Environmental Protection Plans
- Required for each site grouping, EPPs helped detail practical considerations related to environmental management

Environmental Monitoring
- Environmental monitoring was accomplished through the use of Site Management Plans (SMPs), including long term environmental effects monitoring plans, referred to as Environmental Monitoring Trends Analysis (EMTA) plans

2008 Auditor General Special Investigation
- The 2008 report found the Program was effectively managing environmental risk
Lessons Learned

1. Ensure Open Communication Between Decision-Makers and Regulators
2. Develop an Environmental Management Plan and Environmental Protection Plan
3. Actively Manage Against Environmental Assessments
4. Develop Tools for Environmental Monitoring

(LEFT) A settling pond, whereby sedimentation causes iron and other contaminants to settle on the pond floor for later removal (RIGHT) a constructed wetland to treat water prior to being discharged into the environment
The Mine Site Closure Program

Ad hoc yet effective approach
- Program risks were assessed and managed on an ad hoc basis, though risk management was broadly and effectively addressed

Property Screening Program Report
- Quantitatively ranked risk of all real property holdings, allowing for effective prioritization of future work

Shared understanding of Program risk
- Helped address community concerns and added to robustness of risk process through third party participation
- Ensured collectively responsibility for managing risks among all internal Program stakeholders
Lessons Learned

1. Evaluate and Rank Program Risks
2. Continually Document and Track Program Risk
3. Continually Assess Program Risk
4. Engage Third Parties in Program Risk
5. Establish Collective Responsibility for Managing Program Risks
6. Continuously Monitor Financial Liabilities
7. Build Community Trust
Lack of shared understanding of success
• Early in the Program, there was no common understanding of what success meant for the Program, making it difficult to assess performance in a meaningful way

Performance Measurement Strategy
• The Performance Measurement Strategy used by the Program was reasonable and focused on critical measurements of success

KPIs “in view” at all times
• Mechanisms existed to frequently and consistently check against key performance indicators

In 2009, the combined ECBC/PWGSC Program Team won the PWGSC Deputy Minister Award of Excellence for their work on the Mine Site Closure Program, recognizing excellence in leadership, team building and collaboration.
Lessons Learned

1. Clearly Define Environmental and Program Success
2. Utilize a Results Measurement Strategy
3. Frequently and Regularly Check Against KPIs
4. Manage to the Conditions

Summit Site (LEFT) before remediation and (RIGHT) in post-remediation
Industry Capacity Study
• An industry capacity study was undertaken in order to better understand the effects of a major long-term Program on local industry

Clear contracting strategy and terms of references
• Contracting strategies and terms of reference were well designed and written to make it possible to clearly scope out work for combinations of national remediation expert capacity and local capacity

Critical Work Groupings
• Critical work groupings and project specific standing offers were used to strategically enable resource continuity for groups of sites and longer durations of contracts
Lessons Learned

1. Employ a Procurement Strategy Reflective of Program Objectives
2. Understand the Capacity of Local Business
3. Tailor Work Package Sizes to the Local Business Community
4. Build Local Business Capacity
5. Allow for Contracting Continuity and Specialization
6. Optimize Cost Efficiencies
7. Include Peer Review Mechanism for Consultants
The Mine Site Closure Program

GIS and Share Point System
- The Program utilized customized GIS and SharePoint systems to capture and manage documentation, including management decisions and to store and retrieve documentation effectively and efficiently
  - The system was effective to demonstrate good form to third parties who reviewed and audited for assurance and accountability objectives

Regulatory Review Meetings
- Regulatory review meetings were held two times per year to ensure the risk-based approach was reflective of the most recent information and internal Program stakeholders were kept up to date

Regular Self-Initiated Third Party Environmental Audits
- Self-initiated audits helped ensure the Program was fulfilling its obligations and well prepared for official regulatory audits
Lessons Learned

1. Utilize Information Management (IM) Systems Early
2. Ensure Universal IM System Use
3. Demonstrate Transparency and Accountability
4. Require Third Party Audits
5. Establish a Quality Management System

Managing Acid Rock Drainage
The Mine Site Closure Program

- **A Local Presence**
  - The direct presence of a Program office and residence of senior management in the community was critical for effective communication and community engagement.

- **An Early Success**
  - The Program demonstrated early success by focusing on the Victoria Junction Coal Preparation Plant early in the Program. This helped the Program gain community support and acted as a tangible example of the Program’s purpose.

- **Ongoing Engagement**
  - The Program engaged with the community in an ongoing and meaningful way and through a variety of mediums including open houses and publishing easily understandable materials geared to the public.
Lessons Learned

1. Establish a Community Presence
2. Employ a Dedicated Communications Officer
3. Adopt Flexible and Adaptive Communication Approaches
4. Assign Clear Responsibilities
5. Develop Focused Products
6. Work for Early Success
7. Quickly Respond to Complaints
8. Prioritize Community Impacts Communication
9. Engage the Community

One of the annually developed and published program update documents, providing an overview of the Program and the status of key program sites and remediation activities.