Lessons Learned
Remediating Abandoned Satellite Uranium Mines

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SRC is managing Project CLEANS on behalf of the Government of Saskatchewan

- Clean up of Abandoned Northern Sites
- Uranium mills at Gunnar and Lorado
- 35 satellite uranium mines
Most located near Uranium City in the Athabasca region of northern Saskatchewan
Project CLEANS

Abandoned Uranium Mines
Uranium City Area, Saskatchewan

- Sask. Env. - Reclamation Area
- Gunnar Mine
- Lorado Mill
- Location of abandoned uranium mine site
  Site I.D. number (see Appendix A)
Gunnar Uranium Mine and Mill Site
Lorado Uranium Mill Site

Photo provided courtesy of Woodland Aerial Photography
Satellite Mine Sites

Cayzor Athabaska Mines Ltd., on Jean Lake, northwest of Uranium City.
Satellite Mine Sites

Cayzor Mine in 2009
Mines in Uranium City area
Public Safety Risks

- Openings to underground
- Radiation from spilled ore
- Buildings and utilidors collapsing
- Asbestos
- PCBs
- Hydrocarbon spills
- Metal and glass debris
- Unstable slopes
Satellite Mine Sites
Expectations

- Improve public safety
- Remediate environmental damage
- Expedite completion
- Use local contractors
- Provide employment
- Build local capacity for remediation work
- Seek public advice on remediation options
Determining Project Scope

  - mine plans, historic documents, previous reports

- Secondary site assessments by SRC based on site visits and community input
Challenges of Remote Location and Climate

- No road access to Uranium City
- Cost of site visits
- Cost of moving equipment into the region
- Ice road for 2 to 6 weeks in early spring
- Field season is 4 ½ months
- Currently one contractor in Uranium City
Challenges and Opportunities in Public Engagement

- Support of local communities, including Aboriginal leadership, is critical
- Local knowledge of land and history
- Expectation of contracts and jobs, though a large labour force not needed
- Ability to affect reputation of SRC, Project CLEANS and Government of Saskatchewan
- Influence on engagement of SRC employees
Scope Creep Factors

- Site assessments missed spatial extent of impacted areas and site components
- Openings to underground found that hadn’t been mapped
- Shafts backfilled by previous responsible parties collapsed
- Polyurethane foam closures now suspect
- Concrete closures not feasible
- Engineered stainless steel caps now the only accepted closure method
Closing Openings to Underground
More extensive and intensive site assessments

- Desk top study of historic information
- Map site components including extent of impacted area
- Sample to delineate contamination by hydrocarbons, PCBs and asbestos
- Determine level of risk
- Seek regulatory agreement on radiation objectives and presentation
- Seek regulatory agreement on scope before beginning remediation
Detailed Remediation Plans are Critical

- Next 14 sites are not road accessible
- Will allow larger contracts to include several sites
- Will allow regional contractors to commit equipment and workers for entire season
Risk-Based Approach

- Tax-payers are funding this remediation
- Best solutions might not be affordable
- Understand risks (e.g., down hole instrumentation)
- Look at level of risk based on accessibility of site
- Continue to engage communities
- Tackle highest risks first
Crown Pillar and Ground Stability
Engage Consultants

- Site assessments
- Risk assessments
- Crown pillar risks
- Ground stability
- Acid rock drainage