Overview of Project CLEANS

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Overview of SRC

Saskatchewan Research Council (SRC)

- one of Canada’s leading providers of applied research, development and demonstration (RD&D) and technology commercialization
- provides services and products to its 1,800 clients in Saskatchewan, Canada and around the world
- SRC has four business divisions serving clients across these strategic Saskatchewan sectors:
  - Agriculture/Biotechnology
  - Energy
  - Environment
  - Mining & Minerals
Overview of Project CLEANS

Project CLEANS (Cleanup of Abandoned Northern Sites)

- Started in 2007
- Managed by SRC Environmental Remediation Unit
- Funded by the Province of Saskatchewan (Ministry of the Economy) and the Federal Government (Natural Resources Canada)
- 38 Sites
  - 36 Closed mine sites
  - 2 Closed mills
Uranium City
Gunnar Mine and Mill Site
The Site is located 25 km south of Uranium City, on Lake Athabasca
Operated from 1953-1964
Average grade was 0.18%.
~8.5 million tons of rock mined and processed
Open pit and underground mine.
Over 5 million tons of unconfined tailings
The pit and subsurface workings were flooded, shaft plugged with concrete, and mine site abandoned
All buildings, tailings, and waste rock piles were left on site “as is”
Gunnar History
Gunnar Environmental Legacy

- Uranium tailings were deposited in 3 areas
  - Mudford Lake (Gunnar Main Tailings)
  - Gunnar Central
  - Langley Bay (Part of Lake Athabasca)

- All of the buildings were left standing

- A large amount of waste rock remains

- Water in mine pit
Gunnar Environmental Legacy

- Dry Tailings
- Wet Tailings
- Mine Pit
- Buildings and Structures
- Waste Rock Piles
Gunnar Work to Date

 Sözlemalı (2007 yılından itibaren)

- İş binaları yıktan (Ekim 2011)
- Yıkımın temizlenmesi (Ekim 2011)
- çevresel incelemeyi sıralama yetkililere sunuldu ( Kasım 2013)
- çevremonitörü (daha sonra)
Gunnar Abatement and Demo
Gunnar 2014 Plans and Goals

- Completion and submission for public review of the Gunnar Environmental Impact Statement (EIS)
- Completion of field studies and choose preferred remediation options
- Initiate engineering design work for remediation
Gunnar Going Forward

- Step 1: Finish Environmental Assessment Process
- Step 2: Finish site studies and choose remediation options
- Step 3: Engineering design for remediation
- Step 4: Remediation operations
- Step 5: Post remediation monitoring
- Step 6: Institutional Control Program (ICP)
Lorado Mill Site
The Site is located in northern Saskatchewan, north of Lake Athabasca, approximately 8 km south of Uranium City.

The Site was originally the location of a custom uranium milling operation commissioned in May 1957 and operating until April 1960.

The Lorado Mill processed approximately 305,000 tonnes of ore which produced between 190,000 and 344,000 m³ of tailings material.
Lorado Mill Site Location and History
Tailings and mill process water were deposited in an area adjacent to the west shore of Nero Lake and some tailings were submerged causing:

- Nero Lake to become acidic and no longer supporting a fish population
- Increase in metals concentration in the lake water
- Increase radiation level on the terrestrial (land) tailings
Lorado Environmental Legacy
Lorado Work to Date

- Completion and distribution for public review of the Lorado Environmental Impact Statement (EIS) – Completion of engineering field work and pilot water treatment study for finalization of remediation design

- Innovative procurement process (RFP) for selection of contractor with community input and maximization of local sustainability

- Mobilization of remediation materials and equipment to site
SRC will continue to work with federal and provincial regulators to get all necessary licenses and permits needed to conduct the remediation work.


Anticipated start of water treatment and cover system construction in June 2014.
Cover System Operations

- Till Cover
- Sand Cover
- Tailings
- Tailings as Fill
Water Treatment System
Lorado Going Forward

- Anticipated schedule to complete all remediation activities is 2 years
- Post remediation monitoring
- Site monitoring prior to entry into provincial Institutional Control Program (ICP)
Satellite Mine Sites
Overview of Satellite Sites

- Uranium mines and exploration sites
- Supplied Lorado mill and Eldorado mill mill
- Abandoned with little clean-up
- SRC contracted by province to manage the clean-up of 36 sites
- All but two are located north of Lake Athabasca, near Uranium City
Environmental and Public Safety
Legacy

- Openings to underground
- Radiation from spilled ore
- Buildings and buried utilities collapsing
- Asbestos
- PCBs
- Oil spills
- Metal and glass debris
- Unstable slopes
Workflow for Satellite Sites

- Assess then plan clean-up
- Acquire approvals / permits from Ministry of Environment and Fisheries & Oceans Canada
- Manage reclamation contracts
- Monitor before and after; install signs
- Recommend long term monitoring
- Prepare closure reports
- Apply for release to provincial Institutional Control Program for long-term management
Work to Date
Satellite 2014 Plans and Goal

Plans for 2014

– Install three stainless steel caps
– Post remediation survey and clean up of several sites
– Apply for transfer of seven sites to ICP
– Desktop assessment of six sites to better understand risk of underground mine workings
Satellite Sites Going Forward

Plans for 2015 to 2020 and beyond

– Design contracts for larger packages of work to provide opportunities for regional participation
– Lake Athabasca and Beaverlodge group of six mines
– Overland group of six mines
– Two mines in Lac La Ronge Provincial Park