



Faro Mine Closure **UPDATE**

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A Fresh Perspective on the Remediation of the Faro Mine Complex

Student raises her awareness on the abandoned Faro Mine Complex through mentorship program.

Lacey Johnny knows what happens to a community when a mine shuts down. The 20-year-old lived in Good Hope Lake when the community was thriving and residents were employed by the nearby Cassiar Mine.

When the asbestos mine closed, she witnessed most of the population and basic services disappear from the area. Life since then has become increasingly expensive and difficult for the Elders who remain in Good Hope Lake.

Despite her knowledge of the socio-economic effects of a mine closure, Lacey hadn't yet learned of the actual effects of a mining operation on the land. She had heard of a mine called Faro but didn't know much about it until she started her new job as Administrative Assistant at the Faro Mine Closure Project's Community Office in Watson Lake.

She works and provides assistance to the Faro Mine Closure Project's Community Coordinator, Terry Szabo. Terry has shown her satellite images of the abandoned mine site identifying waste rock piles, tailing ponds and open pits. It left an impression on Lacey.

"It is an interesting topic," says Lacey. "I didn't know what were the effects and outcomes of the mine. I think people, especially people in the Yukon, should pay attention and know about the Faro mine. They should be aware of what happened. I had no idea."

The Faro Mine Closure Project's main office in Whitehorse offered Lacey a one-week mentorship opportunity. It was a chance to deepen her understanding of how the governments work together to develop a closure and remediation plan for the former mine site.

During her week in Whitehorse, Lacey met many employees with various engineering,



Liard First Nation student Lacey Johnny joined the Whitehorse-based Faro Project Management Team for a week in September as part of a mentoring opportunity to learn the roles and responsibilities of the Faro Mine Closure Project Office. Photo: Government of Yukon

scientific and technical expertise not only to the closure and remediation plan but also to the care and maintenance of the site.

"What I learned this week was all the things that need to be processed to deal with this big project," says Lacey. "There are so many branches and areas to work on remediation, not only inside this office but even outside the office with all those contractors. So many people are connected to the mine in some way. It will take me more than a week to fully understand all of it."

Lacey says she will return to Watson Lake with her boyfriend Lance Thompson and her 16-month-old baby Joshua with a new perspective.

"I know more about the Faro Mine now and I will probably talk about it when I get home," says Lacey. "I can update people on what happened and what's actually going on to clean-up the site."

Come for a Visit!

The Faro Mine Closure Project Office invites anyone to visit our offices and meet the team. Please contact Project Manager Kirsten Hulstein at 667-8711

Upcoming Meetings

Quarterly and Annual Care and Maintenance Meetings

- Friday, October 15, 2010 at 1 pm at the Watson Lake Community Centre.
- Week of November 15 to 19, 2010 in Pelly Crossing, Ross River and Town of Faro. Dates to be confirmed.

Affected Yukon First Nations, Community Coordinators and representatives from the Town of Faro are welcome to attend.

Below - Grum Sulphide Cell waste rock resloped, liner cover being installed and till being put on top of liner. Photo: Government of Yukon.

Inset photo - Grum Sulphide Cell waste rock piles before being resloped.

Photo: Government of Yukon/Peter Mather



Grum Sulphide Cell Project: A Beehive of Activity

It was a busy summer at the Faro Mine Complex as yellow construction equipment moved and sloped waste rock on the Grum side of the site. Excavators, dump trucks, dozers and graders looked like giant bees swarming around a beehive.

The early remediation project is being implemented to address potential environmental risks posed by a particular section of waste rock on the Grum side of the site.

The remediation work involved installing a heavy-duty liner over a reactive portion of waste rock known as the Grum Sulphide Cell. The rock material in that specific area contained a higher quantity of sulphidic material prone

to generating acid. If not managed, the acid created by the rock material had the potential to dissolve metals and release them into the ground and surface waters.

The management of the rock material helped prevent metals from dissolving and releasing into the ground and surface waters.

Currently, the water on the site does not pose a threat to the environment and continues to be heavily monitored. The project is designed to prevent any threat to the environment in the future.

The one-year, \$11.5 million contract was issued following an open and competitive public tender process by

Yukon government.

The Grum Sulphide Cell Cover project was awarded to Whitehorse construction company Pelly Construction Ltd. Construction was initiated in June 2010 and will continue until October 31, 2010. It has provided significant training, employment and business opportunities for Affected Yukon First Nations (AYFN) and Yukoners.

The early remediation work was funded by Indian and Northern Affairs Canada and managed by Yukon government.

The project also ensures ongoing protection of human health and the environment over both the short and long term.

Portrait of a Liner

The liner used on the Grum Sulphide Cell Cover is made of high-density polyethylene (HDPE) or plastic. It has a higher strength, is harder and more opaque than other thermoplastics. It can withstand higher temperatures, is chemical resistant, stress crack resistant and has the lowest permeability of any geomembrane. All of these qualities make it an excellent product to use in containing liquids.

HDPE is used in a wide variety of applications. Common uses include laundry detergent bottles, milk jugs, fuel tank for vehicles and watering cans or to make

folding tables or chairs and storage sheds. Some unusual uses for HDPE materials include hula hoops, ballistic plates and breast implants. It is also widely used in the pyrotechnics trade as it is heat-resistant. As a plastic, it is commonly recycled.

For the Grum Sulphide Cell cover project, the HDPE liner sheets are being used to form an impermeable barrier protecting sulphidic waste rock from being exposed to air and water.



Once installed, the liner covered a surface of about 275,000 m² of the Grum Sulphide Cell waste rock. Photo: Government of Yukon

Most of the liner is being manufactured by Solmax based in Varennes, Quebec. A secondary manufacturer called GSE Lining Technology is providing the rest.

Grum Sulphide Cell Project: Facts and Figures

- Total number of Pelly Construction employees working on project: 90
- Total number of Affected Yukon First Nation members working for Pelly Construction on project: 13
- Hours of work: 24-hours in 12 hour shifts
- August temperature ranges on-site: low -1°C/ high +30°C

Pelly Construction employees such as this surveyor experienced all sorts of weather from hot summer weather under a blazing sun to chilly, windy and cold, rainy fall days with temperatures hovering near the zero mark. Photo: Government of Yukon



- Number of construction equipment on-site: Excavators: 4, Loaders: 2, Dozers: 6, Trucks: 8, Compactor: 1, Graders: 2, Support vehicles (water and fuel truck to boom truck): 9



The darling of the construction project is the Caterpillar's D11R dozer, the largest machine on-site. This machine is so big that it was disassembled and transported to the Yukon on three tractor trailers. Photo: Government of Yukon



The D10s, seen here with Vangorda waste rock in the background, were also on-site work horses but were still considered "Miss Congeniality" next to big sister dozer the D11R. Photo: Government of Yukon



Approximately 260 rolls of liner travelled over 5,600 km from Varennes, Quebec, where it is manufactured. Photo: Government of Yukon

- Liner material: High-density polyethylene (HDPE)
- Total coverage of liner once installed: 275,000 m² = covering 33 Canadian football fields.
- Number of liner rolls: 250 to 260
- Amount of waste rock and earth moved: approximately 1.1 million m³ = 32,258 rock truck loads = 440 Olympic-sized swimming pools.
- Number of sand bags to anchor liner during installation: 20,000 to 30,000
- Number of portable radios used on site: 10
- Number of beds at employee camp: 53
- Amount of coffee consumed per week: 2.5 cases of large coffee cans
- Amount of flour used per week: 100 kg
- Crew's favorite meal: Saturday night steak and prawns
- Crew's favorite dessert: pie



This machine, similar to a sewing machine, melts overlapping edges of liner together. The liner installation crew ensured the liner was properly sealed to protect the waste rock from being exposed to the elements.

Photo: Government of Yukon

* Numbers based on work completed to the end of August 2010.



Camp cooks hard at work at the Pelly Construction camp on the Faro Mine site. One of the crew's most popular food was homemade cinnamon buns.

Photo: Government of Yukon

Hunters Encouraged to Donate Ungulate Organs

Yukon government has contracted Gamberg Consulting Environmental Research to study the health of moose, sheep and caribou in the Faro area.

The research project is part of an ongoing process to collect and maintain current data on ungulate health. The information collected will be included in the Faro Mine Closure and Remediation Plan which will be submitted into the Yukon Environmental and Socio-economic Assessment process.

Yukon government is encouraging hunters to participate in the study by donating samples of:

- kidney (whole)
- liver
- muscle
- incisor bar (front teeth)

From **caribou** hunted in Designated Game Management Zones 2-83 to 2-93 and all of Zone 4 (except for 4-03 and 4-51) or

From **moose and sheep** hunted in Designated Game Management Zones 4-41 to 4-47. Please note that the

allowable moose harvest in sub-zone 4-45 was reached and has been closed. All moose hunters are asked to hunt outside of zone 4-45 for the remainder of the season.

Hunters are asked to prepare the samples by following these instructions:

- Cut liver and muscle samples into the size and shape of a pound of butter.
- Put each sample in clean plastic bags.
- Freeze samples as soon as possible.
- Samples from different animals should be bagged separately.

Please deliver the samples to any Environment Yukon Office before: **Monday, November 1, 2010.**

All hunters who bring in requested samples will be entered into a draw to win a free flight to their favourite spot next year. The draw will occur on Tuesday, February 1, 2011. The flight was generously donated by Alpine Aviation and Gamberg Consulting.

Yukon government expresses gratitude and thanks to all who choose to participate in this valuable program.

Happenings, News and Events



Faro Mine Closure Project's Community Coordinator, Ellie Marcotte, coordinated a summer student program which included touring and working alongside various contractors on water monitoring and treatment at the former Faro Mine Complex. Besides learning about the history of the site, the four Selkirk First Nation students also visited other Yukon mines such as Minto and Brewery Creek. They expanded their curriculum by travelling to Smithers, BC where they visited the Kemess Mine and the Dome Mountain Project which are both implementing remediation activities. While

in Smithers, students also met with students from the Northwest Community College's School of Exploration & Mining Program and gained an understanding of the different career options available within the mining and exploration world. What makes this project unique is that the four students' learning and experiences were captured on video. A two-person video crew from Calums Day Media Productions followed the students on their trips, projects and activities. The goal is to develop a documentary of the participants learning journey which will be shown to students in Pelly Crossing. The project's Community Office in Pelly Crossing and Yukon Mine Training Association funded the project.

About 12 members of the Ross River First Nation took advantage of the summer weather to tour the Faro Mine Complex. Many went on to participate in a mine reclamation conference held in



Courtenay, BC. The symposium included discussions on soil bioengineering, erosion control and revegetation, best practices in road reclamation and a tour of Mount Washington's mine remediation project.

Project Manager Dustin Rainey became the new and proud father of Amelia Jade on June 24th. Congratulations!



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