

# COMMUNICATING WITH FUTURE GENERATIONS AT GIANT MINE



A report on Workshop discussing strategies for  
Giant Mine, Yellowknife, Northwest Territories,  
Sept. 21-22, 2017



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## LIST OF PARTICIPANTS

### Day 1: Elders Workshop

Jonas Sangris (YKDFN Elder), Alfred Baillargeon (YKDFN Elder), Modeste Sangris (YKDFN Elder), Mary Louise Drygeese (YKDFN Elder), Eddie Sikyea (YKDFN Elder), Madeline Beaulieu (YKDFN Elder), Peter D. Sangris (YKDFN Elder), Muriel Betsina (YKDFN Elder) Mary Rose Sundberg (Goyatiko Language Society, YKDFN Councillor), William Lines (Community Liaison/Tech Advisor, YKDFN), John Sandlos (Department of History, Memorial University of Newfoundland), Tee Lim (Alternatives North).



Fig. 1: The Elders watch *Guardians of Eternity* during a break in their Workshop (credit: John Sandlos)

### Day 2: Key Stakeholders Workshop

Madeline Beaulieu (YKDFN Elder), Modeste Sangris (YKDFN Elder), Peter D. Sangris (YKDFN Elder), Eddie Sikyea (YKDFN Elder), Mary Louise Drygeese (YKDFN Elder), Isadore Tsetta (YKDFN Elder), Mary Rose Sundberg (Goyatiko Language Society, YKDFN Band Councillor), France Benoit (Independent Filmmaker; Director, *Guardians of Eternity*), Chad Hinchey (Government of the NWT), Letitia Pokiak (Giant Mine Oversight Body), Kathy Racher (Giant Mine Oversight Body), Ben Nind (Giant Mine Oversight Body), Kevin O'Reilly (Member of the Legislative Assembly, NWT), Erika Nyysson, (Giant Mine Remediation Project Advisor, GNWT), Amy Guile (Contaminated Sites Intern, GNWT), Natalie Plato (Deputy Director, Giant Mine Remediation Project, INAC), Andrea Markey (Project Specialist, INAC), Sharon Low (Engagement Manager, Giant Mine Remediation Project, INAC) Ian Moir (NWT Archives), William Lines (Community Liaison/Tech Advisor, YKDFN), John Sandlos (Department of History, Memorial University of Newfoundland), Tee Lim (Alternatives North).

# Communicating with Future Generations at Giant Mine

A REPORT ON WORKSHOP DISCUSSING STRATEGIES FOR GIANT MINE, YELLOWKNIFE, NORTHWEST TERRITORIES, SEPT. 21-22, 2017

## BACKGROUND

### The Arsenic Problem at Giant Mine

The abandoned Giant Mine near Yellowknife poses incredibly difficult cleanup challenges. Not only is the surface area of the mine contaminated with arsenic trioxide, but 237,000 tonnes of this highly toxic material is stored underground in 14 purpose-built chambers or mined out stopes. Originally collected in air pollution control equipment, over fifty years' worth of arsenic trioxide dust represents a major toxic hazard. Of particular concern is the consequence of water entering the mine, dissolving the arsenic, and carry it into the surrounding environment (currently water is pumped out of the mine and treated).



Fig. 2: Themosyphon freeze test plot, Giant Mine (credit: Arn Keeling)

At this time there is no walkaway solution to this problem. Any attempt to remove the arsenic presents immediate risks to the local population, raises the question of where such a large amount of toxic material would go, and would likely leave arsenic residue behind that would require ongoing care and maintenance. Currently the federal Department of Indigenous and Northern Affairs Canada (INAC) is primarily responsible for remediating the site, though the [Giant Mine Remediation Project](#) team includes representatives from other federal departments and the Government of the Northwest Territories.

The Giant Mine Remediation Project has adopted a plan that involves cleaning up the surface of the mine and using the [frozen block method](#) using thermosyphon (passive heat exchange) technology to contain any toxic outflow from the 14 underground chambers. Originally conceived as a permanent remediation plan, participants in an [environmental assessment of the project](#) (2008-13) raised concerns about the “forever” nature of the project, particularly whether it was feasible to maintain the site (pump and treat water, replace freeze equipment periodically, monitor water outflows, etc.) in perpetuity. Several participants also raised the issue of how we would communicate the arsenic hazard and perpetual care requirements to future generations, ensuring continuity of knowledge across hundreds, potentially thousands of years.

In response to these concerns, the Giant Mine Remediation Team has adopted the EA recommendation limiting the scope of the project to 100 years, with investments in research and development (and reviews of the current state of technology every 20 years) to find a more permanent solution to the underground arsenic problem. Nonetheless, 100 years is still a very long time (there are ample cases of toxic sites being forgotten over shorter periods), and there is no guarantee that a technological solution to the problem will exist in 100 years. Thus the problem of communicating with future generations is still very real at Giant Mine.

### CFG and the Toxic Legacies Project

The Toxic Legacies Project is a research partnership involving Memorial University of Newfoundland (History and Geography departments), [Alternatives North](#), and the Goyatiko Language Society. We are funded through the Social Sciences and Humanities Research Council of Canada’s (SSHRC) [Partnership Development Program](#), a funding stream meant to promote collaborative work between scholars and communities (among other potential partners). Our projects have included the development of education material about Giant Mine, mapping historical arsenic contamination around Giant Mine, analyzing the Giant Mine remediation process, and the creation of a film about Giant Mine, [The Guardians of Eternity](#), that focuses on the issue of communicating with future generations. You can find out about all of these projects at our website ([www.toxiclegacies.com](http://www.toxiclegacies.com)).

We have also developed a great deal of material on the issue of Communicating with Future Generations. In the September 2014 John Sandlos, one of the Toxic Legacies Project leaders, Arn Keeling (a co-investigatory, and Kevin O’Reilly (representing Alternatives North) produced a community primer, [Communicating Danger](#), on how cross-generational communication strategies planned for a nuclear waste repository in New Mexico might be applied to Giant Mine (Figs. 3,4,6).



Fig. 3: Spikes Bursting through Grid, Safir Abidi. Concept by Michael Brill. Waste Isolation Plant Pilot Project. Used with permission.

At the same time, project research assistant Rosanna Nicol organized the “CFG Working Group,” an unofficial “think team” made up of government, First Nations, university, NGO and Métis representatives. This group had a number of very fruitful discussions over two years, and you can find the minutes of the meetings [here](#), and a summary report of the committee’s work [here](#).

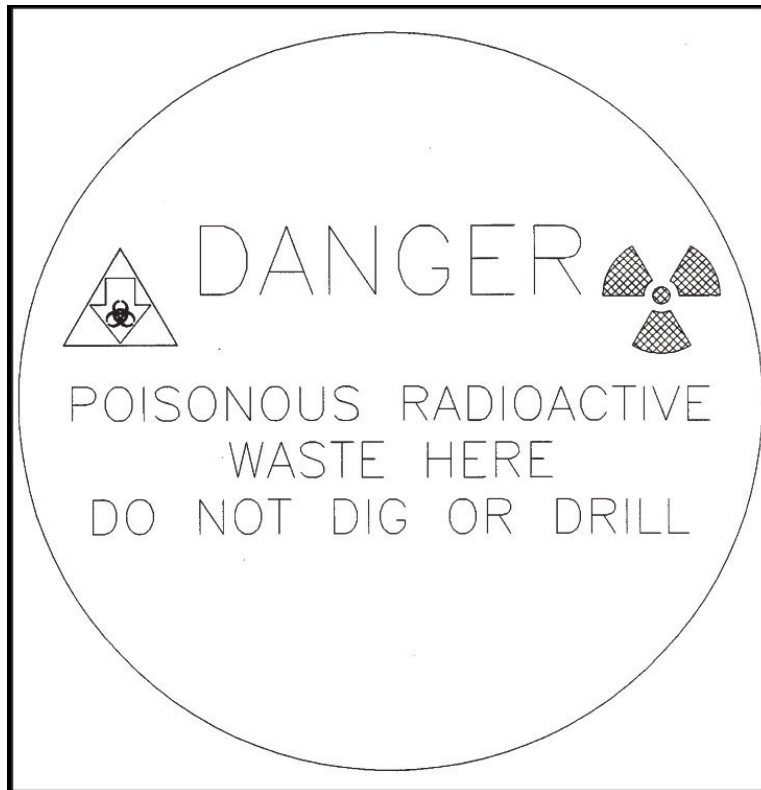


Fig. 4: Final Concept Textual Sign, Waste Isolation Pilot Plant website. Used with permission.

Researchers Sandlos and Keeling have also visited Yellowknife several times to inform local residents about the research project, raise awareness of some of the key issues, and lead educational workshops on the CFG issue with youth at informal workshops or in the school setting. The latter typically involved the youth building speculative models of what they think the Giant Mine site should look like after remediation and what kind of messages should be sent to future generations. You can read a description of these model building exercises and see photographs [here](#).



## THE CFG WORKSHOPS

For the final phase of the research project, we held community workshops in Yellowknife on the issue of communicating hazard to future generations at Giant Mine. On September 21<sup>st</sup>, 2016 we held a workshop with Yellowknives Dene Elders on the issue; the next day we held a second workshop that included invited participants from a range of stakeholders (see List of Participants). The purpose of the workshops was to build on the work of the CFG committee and generate a range of ideas about how to communicate with future generations at Giant Mine.

The first workshop was small, and the format involved listening to the Elders' perspectives on a series of loosely defined questions about the history and future of Giant Mine. The goal was to discuss how stories and/or regular ceremonies at the site might be used to warn the future about the arsenic danger at Giant Mine.



Fig. 5: Day 2 of the Communicating with Future Generations Workshop (Credit: John Sandlos)

The second day was both an “ideas factory” and a “hands on” workshop, with participants urged to create stories, draw images, and develop simple textual messages that could be used at Giant Mine. Participants were provided with sketch paper, a variety of drawing tools, and notebooks so they could record their ideas (see photographs throughout). They worked in small groups of 4-5 and reported the results of their discussions to the broader group.

The discussions for all of these workshops were recorded through notetaking by facilitator John Sandlos and participant Tee Lim from Alternatives North.

### Day 1: The Elders Workshop

#### Morning Session

**Mary Rose Sundberg** began by explaining the purpose of the workshop. She noted the danger posed by underground arsenic, and asked what we tell people about it 1000 years from now. If we use written language, Mary Rose suggested, those languages may change over time. She asked how we could develop a story about Giant Mine and how we could make sure that the story is remembered for a long time. She wondered if a Yamozha (a Dene cultural hero) story could be developed about Giant Mine. Mary Rose also

said that we should talk about signs, fences and monuments. Some people want the site beautiful and others to keep it ugly as a reminder of what happened there.

**John Sandlos** gave a brief overview of the project, showing images of signs, symbols and monuments meant to warn people about the underground radioactive waste repository at the [Waste Isolation Pilot Plant \(WIPP\)](#), Carlsbad, New Mexico. John also showed pictures from the U.S. National Capital Planning Commission's "[Memorials for the Future](#)" design competition. He asked how the Yellowknives Dene had used stories in the past to warn of dangerous places. Had ceremonies and rituals been used to warn of dangerous or significant sites on the land? How might the stories and/or ceremonies be adapted to the underground arsenic issues at Giant Mine?

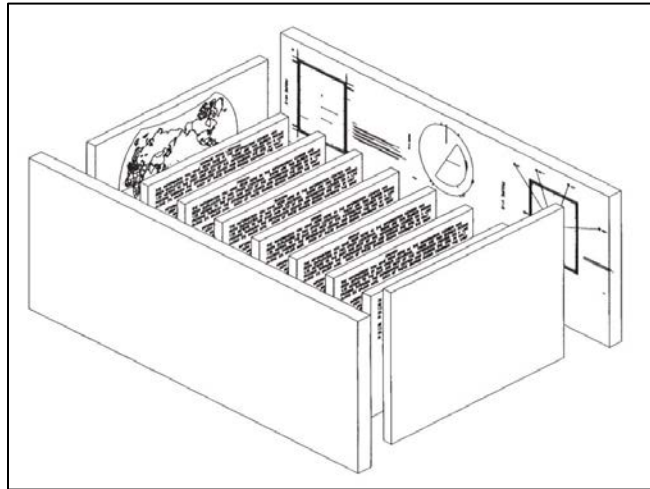


Fig. 6: Concept for Underground Information Room, Waste Isolation Pilot Plant website. Used with permission

**Jonas Sangris** noted that YKDFN members who worked at the mine would have lots of stories to tell. He also said that many Elders don't want the arsenic stored underground and want it shipped out.

**Mary Louise Drygeese** emphasized that the area around the mine is also really contaminated and is not part of the cleanup. She noted that the rocks have turned red and the amount of berries has really gone down. Mary Louise said that some people pick berries near the mine and this should be prevented. She suggested that the whole area should be fenced in so that people will remember that it is dangerous. Mary Louise remembered that the Yellowknives "used to pick blueberries and raspberries [at the mine site] before it got really bad, used to get candies from there, used to go by there by boat to pick berries etc. Used to go there with my granny. Now today there's hardly any berries growing around their sites."

**Alfred Baillargeon** recalled in 1965 that the Yellowknives Dene who worked at the mine did not know they were using arsenic. He remembered that the roaster stack used to go day and night all over a 25 mile radius so now all the land around is really contaminated. Sometimes in the winter you can see little black flakes in the snow. He suggested that

"If they had told us we would have taken precautions. We would have been more careful. Only now that the land is ruined do they want to do something about it. Don't think they can take it out now. They took all the stack apart, the old buildings, now we are asking for compensation but it seems like they don't know for sure – seems like they don't really want to pay us. It's not just for us, it's for the kids, the future generations. All these young people, how will they live? If we tell them about what we went through, the dangers – some of them can always tell each other, even Mary-Rose can tell them.



In today's world nobody does anything without funding. I don't have any school but I listen. All over the north there's abandoned mines, the land is ruined around them. And what have we gained? Lots of little mines all over the place, land has been ruined and contaminated. Non-natives come here just to make money, and they leave garbage behind and ruin the land. The people in our community don't like it at all. We're paying for everything, even water delivery. We just have a small pension to buy what we need."

Alfred concluded that maybe it is best to keep the frozen arsenic underground if nothing else can be done. He noted that many small lakes around Yellowknife (such as Vee Lake) are contaminated with arsenic. Alfred feels that we should have big rock monuments or something similar to say that the land will never be good again and to warn people of the danger.

**Jonas** felt he was having trouble getting his head around producing a legend about a poison that people die from. He raised the point that Con Mine also was abandoned and arsenic was released into local lakes, but we never talk about that mine much.



Fig. 7: Giant Mine underground test freeze (photo: Kevin O'Reilly)

**Modeste Sangris** reminded everyone that what they're trying to do is create a story, a legend like Yamozha to pass on the story of the mine. He stated that there is a very dangerous chemical stored under there that will be there for hundreds and hundreds of years. What will happen after a hundred years or more has gone by? Today there is a legend called Yamozha. It can be passed on and on. He said that people over 70 years old here, sometimes they forget things. Modeste said the arsenic should be encased in concrete so it would not move. Then he said, "we can write stories about that; what kind of materials were used so that it doesn't leak out. On top of the ground at that area, he stated, we should do a concrete building of some kind so people don't go there. We should fence all around that area, with lots of signs. Kids always get curious and may want to go there. The white people that come here, they just want money. I think we should do a story."

**Peter D. Sangris** remembered people shovelling ashes out of the roaster's chimney (he and George Blondin) and they did not know that it was strong chemicals. He wondered what was going to happen after 100 years,

and mentioned that children sometimes drink water on the shoreline. The story has to be told to them, Peter said, and the Yellowknives have to get compensation for what happened at the mine.

**Madeline Beaulieu** told the story of how the gold was found at Yellowknife:

About the Giant Mine area, I don't know all the details but I heard stories when I was young. There used to be a small lake, rocks in the creek there, two old ladies and me looking for berries. Found some little gold rocks, I picked one up after we had a picnic. Showed it to my granny and grandfather. Took it to the priest in Behchoko to show him, but he took it and he never brought it back to us to tell us what it was. When I asked my Granny, she said it had been too long, not worth talking about it anymore. At that time I was young so I didn't really understand. My grannies and aunts were never given anything at all. I used to travel on the land – today when I looked at it, on a site tour, I just felt so bad. The animals that go out there are going to get sick. Kids shouldn't go there, it's very dangerous. We need to get some compensation.

**Mary Rose** asked how future generations will know about the dangers. In a thousand years we can't say for sure what will happen. Maybe we could write a story or messages but what kind of language do we use? Mary Rose wondered if we could put a big warning rock there. She suggested we should not leave things to the governments who always worry about money. Mary Rose suggested that we could create a Yamozha story to pass around.

**Peter** suggested that a Yamozha story will probably be passed on and on.

**Mary Rose** noted that some people say we should send the arsenic back to Peggy Witte (former CEO of Royal Oak Mines, one of the companies that owned Giant Mine).

**Jonas** reminded everyone that we would have to be careful how we deal with the strike in any story we create. How do we do a story about Giant Mine? We need to be careful. How do we say it? There was a strike there too. We have to be careful how we do it; there are still families around Yellowknife.

**Mary Rose** agreed that we have to think about the strike and the fact some people were killed underground. They have families, we want to make the story in a truthful way, have to think about the strike era too. She also reminded everyone that the Yellowknives had no idea how dangerous arsenic is.

### **Afternoon Session**

**Mary Rose** asked directly how the Elders would write a story about Giant Mine? Should it include everything from the beginning before white people came, the discovery of gold, the coming of white people and the town?

**Peter** suggested that, when talking about Giant, we have to tell everything we know about it. We have to be careful. Sometimes we remember a lot of things, sometimes we forget a lot. Sometimes we don't remember everything the Elders told us. It's for the young people. This is a good idea for people around the table to talk.

**Jonas** remembered that at Christmas time the Yellowknives used to write letters to the Giant Mine company and ask them to help us buy food as a contribution to our community feasts. He suggested that the people never benefited from the mine, did not help them with anything. He recalled getting dog food (scraps from the kitchen) and he used to get invited there sometimes for Thursday supper. He also remembered playing hockey with kids of the people who worked there. He suggested that the biggest event since 1980 is the strike

and that the cleanup seems to be slow. He asked how we can do a story about this place, and suggested that we gather information from Elders and other community members who know something about the area.

**Alfred** suggested doing a storybook or a DVD so that the kids will know about the arsenic and how bad the land has been damaged from arsenic. He remembered going on a site tour and learning how contaminated water had seeped into Back Bay and now you can't eat the fish. He suggested gathering clippings about the past. He feels that we need to listen to the Elders and do what we can to keep people away from the tailings ponds. He is worried about what will happen if there is an earthquake.

**Modeste** suggested having everything about the mine on display at the site. He reminded everyone that government employees are always being replaced, so it is important to have good information along with books and videos.

**Eddie Sikyea** said it seemed like only a short time ago the mine was made. He remembered moving to Burwash Point when the rocks of gold were found and a lot of people started working. He said he didn't know who found the gold. A lot of people are saying it was Madeline's grandmother, but he suggested there were a lot of different stories. His father told him in the Con Mine area, Moise Crookedhand and my dad went out rabbit hunting in the area above Con Mine and found the gold. He recalled that a lot of people benefited from the Giant Mine area before the mine because it was good for berries and good for moose. He liked the idea of doing a Yamozha story. He worried about what would happen to the arsenic underground with climate change and during power outages. He wants the chemicals taken back to from where they came from. He suggested that not only Giant but other mines have affected the land. He remembered that there used to be a lot of animals and small game, and now it just seems like we hardly see these animals anymore. He said the people had wanted them to put gravel sand on the contaminated ground right away but it seems like the work is going slowly.



Fig. 8: Liza Crookedhand (at far left with pipe), small girl, and two other women  
(Source: YKDFN presentation to Giant Mine Environmental Assessment)

**Mary Louise** described how it is hard for Elders to eat too much store bought stuff and how today people can't shoot caribou and sometimes even set nets. She said it was because of Giant Mine that so much of the

land is ruined, and there has been no compensation. She felt they should enclose the Giant Mine site and gate it all around so that people don't try and get berries from there or chop wood. We have to let people know not to go there. She remembered she used to go there to get little bags of cookies or baked goods from the cook. She also used to wash the workers' socks and gloves (of the men who cut wood for the mine) for 25 cents an hour. She remembered her father used to transport workers by boat to get food and that they used to go in and watch movies at the mine site. But she also recalled that mining took away a lot of the old foods the Yellowknives used to eat and a lot of people moved away because there was nothing here for them.

**Muriel Betsina** said she was really concerned about Giant. She said that a lot of people say they got cancer from it and a lot of people had dog teams that died. She said the people were never informed about arsenic or mercury affecting fish. She remembered that they took hair samples, plant samples, and berries but we never heard anything. She said that her son-in-law lost two brothers to arsenic and other people died. She remembered hearing the sound of blasting. She asked how long the arsenic would be frozen for and how people can protect themselves from the monster underground. She suggested that somebody write a comic book so that children can learn about it. She worried about cracks forming underground and arsenic seeping out, and how the freezing will be powered (it might use a lot of fuel). She recalled that the people used to collect a lot of medicines from the areas such as spruce gum but they don't get it from the Giant Mine area any more.

**Mary Rose** concluded the workshop, saying that the Elders will need other meetings to develop a story. She likes the idea of making a comic book for the kids. She suggested that in addition to warning future generations about the arsenic at Giant Mine, the Elders want to have the factual history incorporated into the story, especially information about what the land was like before the mine and how it has changed since.

## Day 2: The Key Stakeholders Workshop

### Part 1: Background and Preliminary Discussion

The day began with **Mary Rose Sundberg** reporting on the Elders workshop. She told everyone there had been a lot of good information from the Elders. They started talking about how we should communicate in the future, but they also want to tell stories about the time before mining when the land was beautiful, then they want to tell the story of who found the gold. They want everyone to know it was the Crookedhand family that found the gold, which was taken by a priest after they showed it to home. Shortly after that there was a flood of non-Dene people to the area and everything got contaminated. Now we have a powder monster living in tunnels that are like veins. We are developing a story about the monster for the youth. The Elders are worried about the possibility of a natural disaster and find the concept of forever to be unimaginable. The Elders feel that any story or legend about Giant can't be sensational because the place and the events are real. Much of the story of Giant Mine is stored among tapes of YKDFN Elders on cassette and many of these have been transcribed.

**Madeline Beaulieu** told the story from the previous day about how the gold was found (see above). She added that she often thinks about the berries and wildlife that used be around Yellowknife but are not seen any more. She thought maybe animals had died from eating contaminated food and remembered how everyone (including her Granny) used to walk the hills looking for berries.

**Natalie Plato** gave a background presentation on the Giant Mine Remediation Project. She summarized the public engagement efforts that have been taking place around the surface design at the site. Natalie informed everyone that there were now two surface remediation options on the table, with key differences over whether tailings would be revegetated and solids remediated in the old town. Most importantly for the CFG workshop, Natalie told everyone that 600 thermosyphons (freeze) tubes would be visible at the site, a prominent landscape feature at the mine. She reminded everyone that the remediation project must by 2020 develop a perpetual care plan for the site that includes strategies for communicating with future generations.



Fig. 9: The Elders Table, day 2 of the workshop

**Isadore Tsetta** wanted everyone to think about the young children and do a good job cleaning up the mine. He remembered when the mine first started, the Chief's father worked with me there for about six months. They were providing wood for them. Isadore used to watch them when they did blasting. Isadore, Michele Paper, Joe Drygeese, Peter Sangris and a Métis guy helped at the mine when it first started. The Elders witnessed the start of the mine. He recalled that at first they didn't tell us that they were going to be using chemicals. After so many years of operations, they finally mentioned it. He reminded everyone that he is 92 years old and remembers a lot of things. He said that Con Mine was there before Giant, and if you look at the rocks there there's a stream of water that flows over the rocks and now this bay here is ruined. He said maybe Baker Creek should be gotten rid of because it is carrying contaminants from the northwest. Isadore said that in the early years people didn't know they were using chemicals and he is glad the truth is coming out.

**Peter D. Sangris** talked about how the Yellowknives want it cleaned up thoroughly, all the buildings taken down, all the ground/soil checked, and the whole thing covered. He said they want to have something there to mark the site so that people and especially kids won't go there. He suggested that the Dene people have to figure out ways to talk to the kids and the future generations. Peter thought maybe Elders can go to the schools and inform the kids about this project and the history.

**Modeste Sangris** felt like they have been talking about Giant Mine for a long time. He recalled in the past the people were told that the land is contaminated with arsenic and everybody knows that now. Modeste said that the people don't want any buildings left there at all or don't want anyone living there. He said that it's a really scary thing that's underground. He suggested we could have the whole area fenced or barricaded somehow so that people don't try and go there and build there. Maybe fencing will make sure wildlife does



not go there in future. He wondered what would happen in the next 100 years if we don't keep people informed. He is especially worried about climate change and permafrost melting, etc. He wondered what would happen if the arsenic stored there starts melting because it is a very scary thing that's sleeping there. Modeste said that Treaty people are not the only ones that live here. All kinds of people come and live here, he said, so he is thinking about the future. He is still kind of scared thinking about it. So he suggests fencing it in, possibly working on the tailings pond first.



Fig. 10: Giant Mine site c. 2009 (credit: John Sandlos)

**Mary Louise Drygeese** suggested that we don't know what will happen in the future. She said she gets scared about all that arsenic underground, even scared to drive on the roads. When the west wind comes, she recalled, you could see dust from the tailings ponds stirring up. She said she used to be a CHR working with a nurse, in N'dilo and Dettah and the nurse used to tell her to close the window because of mine dust. She recalled that many people wanted the government to build a bridge from Burwash Point to Latham Island as a safer route than going past Giant Mine. She remembered living in a tent on the shore close to Giant Mine and young kids who used to go to the cookhouse because the cook would give us a little bag of cookies and oranges. Mary Louise remembered the hard work in the old days; around this time of year people would go for berries, get fish, make dryfish and dry meat, and prepare for winter. She wondered where the people are going to pick berries from now on. Around Giant Mine people can't pick anymore. She noted that sometimes there are a lot of ptarmigan on the road now, but people are scared to eat them. She lamented all that damage done to the land with no compensation, help or benefit. When they started that mine, she remembered, the people were scared of the white people that came; the parents used to tell us kids not to go near them because we didn't understand their language. She said that today we can't set nets around these areas like the bay in front of Burwash. She remembered that there used to be lots of raspberries, strawberries and blueberries all along the shore near Giant Mine. The people used to live all over the place on the land, she said, only after the church and the little school was built here in Dettah did we move to this place. She said in the past everything we needed was on the land; now we can't even take from the land. She said she thinks about how today we're just travelling on top of arsenic and she gets scared about travelling to Yellowknife. She wants the people here today to do a good job covering the arsenic because in the future you don't know what's going to happen – earthquake, tornado, anything. She said the people here in Dettah are very stressed out about the arsenic. Other people in Behchoko, etc. have mines very far away.

**Eddie Sikyea** agreed that, when talking about Giant Mine, it's true about it being very scary. He stated that he had worked at a lot of mines. In 1948 he started working at Con Mine alongside his father, then Negus Mine in 1948 and Giant Mine in 1950-5. He said he worked for one dollar a day. He said he didn't know

they were using chemicals and people say that the chemicals are really strong. After he stopped working there, he remembered getting with tuberculosis and was in hospital for five years. They did an operation on his lungs, he remembered, and then I got better after that. Eddie is sure the chemicals affected him somehow. He remembered working without a mask at the mine and along the roadside. He said he wanted the remediation team to work as fast as they can and wondered why things were taking so long. He said a lot of people did not feel well, probably from the arsenic, and a lot of people are dying from cancer.

## **Part 2: Small Group Discussions**

*The afternoon discussion was devoted to work in small groups. We considered key questions, such as what Yellowknife might look like in the future, and what barriers exist to communicating effectively with future generations. We then worked on designing communication strategies using signs, symbols, monuments and text. While some people had to leave after the morning sessions, the groups were very dynamic and active, producing lots of fascinating ideas and images about the toxic legacy at Giant Mine.*

### **FIRST QUESTION: WHAT WOULD THE FUTURE LOOK LIKE IN YELLOWKNIFE?**

#### **Group 1 (France Benoit, Laetitia Pokiak, Aimee Guile, Erika Nyssonnen)**

Group 1 predicted there would be more people moving into the area because of climate change because there is lots of water. They suggested there might be 100,000 people here in 100 years. As a result, they suggested there will need to be a lot of education about Giant with those people. The group reminded everyone that Yellowknifers are very transient and even now a lot of people don't know about it. They suggested there will be a lot of reliance on renewable energy in the future and it could be a good idea to have a solar farm at Giant. Politically, the group predicted that more land claims will be signed and more indigenous voices will be heard. Because of Giant they felt the federal government will still play an important role in the area. They predicted that further advances in communications technology will connect people and result in less travel and reliance on fossil fuels. They feel that the pace of life will have slowed down. In terms of the underground arsenic, the group thinks that new research will be completed and they thought it would be nice if it could be "beamed" away somehow. They suggested that different languages in the area may start to meld together, but that English would likely still be dominant. Finally, they predicted more reliance on local food and possibly the reliance on more domestic animals

#### **Group 2: The Elders Table (Madeline Beaulieu, Modeste Sangris, Isadore Tsetta, Peter D. Sangris, Mary Louise Drygeese, Eddie Sikyea, with Mary Rose Sundberg and William Lines)**

The Elders focused on how the site would look in 100 years. They reported that they would like to see a wall built so that nobody can see the area, and so people would be kept out. They said that they wanted the site to have no growth at all; no grass and no trees. They want it to be grey and ugly. They want the tailings ponds covered up so they are safe from the wind and no growth on any part of the site at all. They said they would like to see pictures and signs of danger all over the site and noted that, if there is a disaster, the government has to make sure that YKDFN is safe.

#### **Group 3 (Kathy Racher, Ben Nind, Ian Moir, Chad Hinchey)**

This group noted how fast things and people change, especially people's ideas. They asked who the target audience will be in 100 years, and how these people will think. How will they receive

messages, what will be important to them? The group suggested that people in the future will probably be different from us, so there has to be room to change messages, alter them over time, and give new generations the ability to speak as well. They thought that the local audience would be the primary target but suggested that we may also have to warn a national or international that there's this danger here.

#### **Group 4 (Natalie Plato, Andrea Markey, Sharon Low)**

This group was optimistic that in 100 years we will have a disposal solution. They predicted that the site will be remediated by 2030, leaving 90 years to become stable. Their vision is that, in 100 years, there will not be an arsenic trioxide monster sleeping under the ground. The site will be safe.

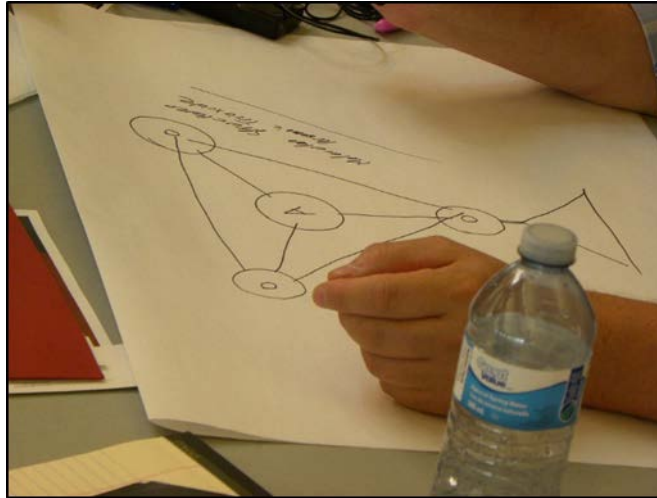


Fig 11: Groupwork in action at the CFG workshop

### **SECOND QUESTION: WHAT ARE THE CHALLENGES AND POTENTIAL BARRIERS TO COMMUNICATING WITH FUTURE GENERATIONS:**

#### **Group 1 (France Benoit, Laetitia Pokiak, Aimee Guile, Erika Nyssonnen)**

This group identified several challenges and barriers to communication with future generations. They did not know whether English or Weledeh would be the primary language in the area, but noted the technical jargon surrounding Giant Mine is difficult to understand in any language. They also wondered what communication infrastructure might be in place in 100 years. Not knowing what museums, networks, and archives might be in place is a challenge. The group noted that changing technology is also a potential barrier to cross-generational communication. They noted the need for consistent multi-year funding for the work to be done, and also the need for the political will to do the work. They asked who would do the monitoring and research work at the site once the remediation is done. They also noted that we don't really know who the decision makers will be in 100 years (i.e., YKDFN could have more responsibility for the site, etc.).

#### **Group 2: The Elders Table (Madeline Beaulieu, Modeste Sangris, Isadore Tsetta, Peter D. Sangris, Mary Louise Drygeese, Eddie Sikyea, with Mary Rose Sundberg and William Lines)**

The Elders felt that one potential barrier is technological change, especially the fact that the kids are spending more and more time with technology. The kids don't listen like they used to, they suggested,

so it will be important to find ways of communicating through computers, video games, DVDs, etc. so they know there is danger at Giant Mine. The Elders also think the kids should be taken on the land and shown the places that are dangerous (i.e., they should do site tours at Giant Mine), and information about Giant Mine should be presented in the schools once per month. The Elders worried that climate change might be a barrier to communication. They also were not sure if one language or many languages would be spoken in the area, but languages can be a barrier to communications. The Elders thought that etchings in the rocks or metal at Giant Mine saying 'danger' could be a good way to warn people. They also thought that there could be a big timeline showing the history of Giant Mine, from the nuggets found by the Crookedhand women, the start date of the mine, the years of operation, closure, the arsenic problem, reclamation and perpetual care. Eddie Sikyea raised the issue of whether there would be compensation for YKDFN for the arsenic contamination that had occurred in the past.

### **Group 3 (Kathy Racher, Ben Nind, Ian Moir, Chad Hinchey)**

This group thought that, as other priorities pop up, addressing issues at Giant Mine may not receive the attention it deserves. Another barrier is technology. How we convey information as technology changes and may not be accessible 100 years from now. Technology may become obsolete, but also the way we use technology and receive changes may change, so we have to think about how messages may be received. Messages are not likely to be universal or timeless, so they will need regular review and renewal.

Another question or challenge is whether people will be warned away from or drawn to the site. Sometimes the wrong people can be drawn to the danger, wanting to use arsenic for improper purposes. The group asked how you not only warn people, but prevent access to the site by undesirable visitors?

### **Group 4 (Natalie Plato, Andrea Markey, Sharon Low)**

This group suggested that changes in technology will be part of the solution and will provide ways for our children and children's children to be part of the solution to the problem. The challenge in keeping them engaged with the issue.

### ***There was some general discussion of at this point***

**Isadore** suggested that there is too much stalling; it seems like there's so much time between meetings. He said that there is not enough information about what they are doing. He said that the Elders are used to doing things right away; that's how we used to do things in the past. But we can't wait two months every time to do things. He reminded everyone that all of these plans would take place in Chief Drygeese territory.

**Modest** was concerned that the youth will only understand English and not Weledeh. He suggested placing a big rock and writing everything in English right now. He worried that the children might speak a different language altogether someday, but for now English is going to be prominent. He suggested that Giant Mine is an important issue and other members of the community, including Chiefs and Council, should be present. He asked why things are not done at a faster pace. He felt that there should be a monument put up, any kind of monument. He reiterated that the Elders are used to having things done quickly.

**Mary-Louise** suggested that parents need to do more to teach kids Weledeh because they only learn English in the schools. She thinks more should be done in the schools to teach the kids their own language. She noted that some of the pits were going to be filled in and if it is done well it may look like it was before. She said

that Giant Mine spoiled the berries, and the Yellowknives can't pick there anymore. They can't even go near the place. When Mary Louise thinks back about those good times we had it is sad because now we can't pick berries to make jam. She said that the mine spoiled her can of fruit, and lamented that there are not as many ducks and as much wild meat as there used to be.

THIRD QUESTION: WHAT SYMBOLS OR MONUMENTS COULD BE USED TO WARN PEOPLE OF THE ARSENIC DANGERS AT THE SITE?

**Group 1 (France Benoit, Laetitia Pokiak, Aimee Guile, Erika Nyssonnen)**

This group suggested that the 600 thermosyphons will be a monument. They will be of interest to engineers and students but we must think about what other messages they will send. The group emphasized that we need to think about consistent messaging throughout the site. They felt that messages should invite people to learn about the Giant Mine site rather than scare them away (Fig. 12).

Group 1 thought that artists could be employed to depict the history of Giant Mine from the beginning to the end by creating a rock mural similar to the "hands" mural in Yellowknife's Old Town. They suggested that the landscape of Giant will also be a kind of symbol; if it is a grey dead zone that will be a message of its own.

The group noted that some areas will be actively managed and people will have to be kept out. There may need to be different messages dispersed throughout the site based on where people can and cannot go. The group also posed the question of how to communicate the complex technical aspects of the site across generations so that it could be effectively managed.

Group members also talked about the need to communicate a positive message about the remediation because people are less willing to learn about negative stories. They suggested having a commemorative event at the site every June 21<sup>st</sup> so that the contaminated site will be remembered. On an international scale, they also suggested there should be a global list of contaminated sites, something akin to the list of UNESCO World Heritage Sites.



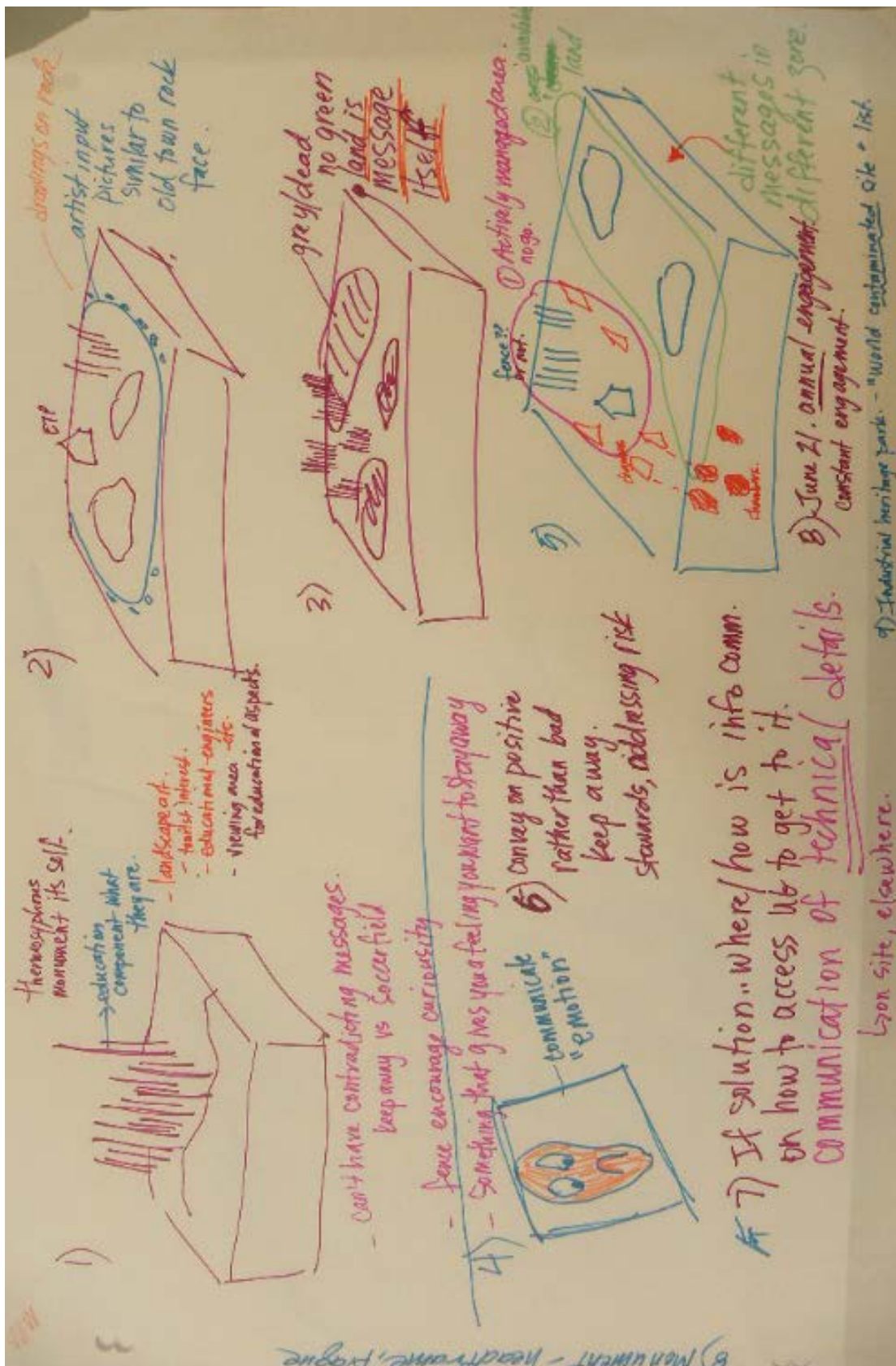


Fig 12: Group 1 Conceptual Model for warning signs and monuments at Giant Mine

**Group 2: The Elders Table (Madeline Beaulieu, Modeste Sangris, Isadore Tsetta, Peter D. Sangris, Mary Louise Drygeese, Eddie Sikyea, with Mary Rose Sundberg and William Lines)**

The Elders reiterated that they wanted to develop a story or a legend about the site. They do not want the story to be sensational but just want it to be the truth. Mary Rose explained that the Yellowknives don't really have monuments as part of their culture, so they took time to explain the concept.

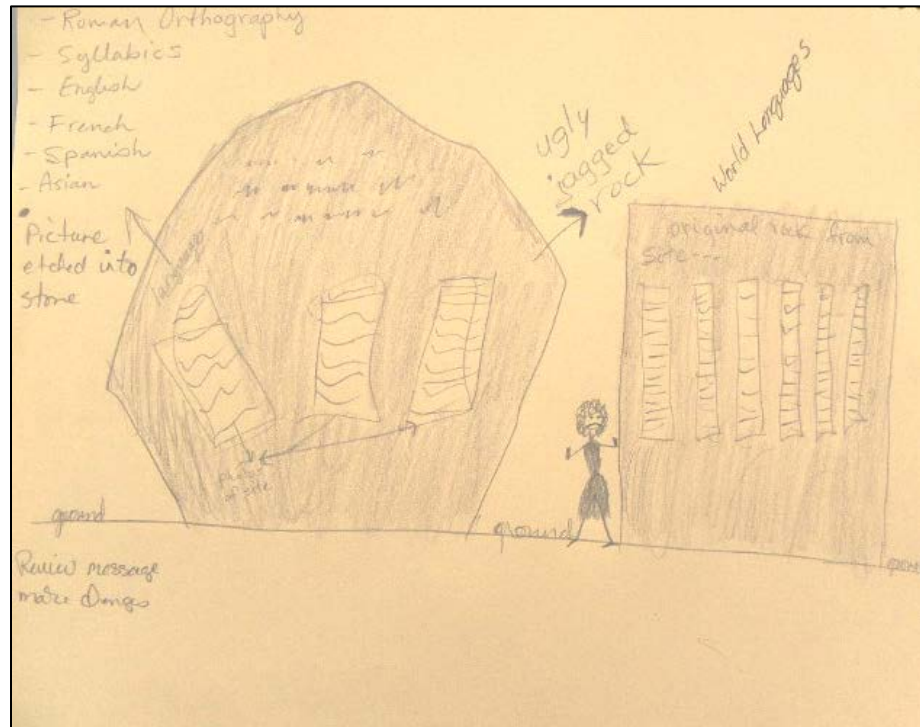


Fig. 13: Elders table sketch of "Big Ugly Rocks" model and messages in multiple languages

They talked about building big, ugly piles of rocks (Fig. 13), and the possibility of having a big rock with the story of the mine engraved on it. They think the messages will need to be in all world languages and Weledeh syllabics. They think that the messages will need to be reviewed from time to time so that they will be understood. The Elders talked about having monuments all over the place, not just at the mine site but at the Weledeh (Yellowknife) River, Dettah, Ndilo, etc. The Elders would also like to see monuments having the complete history of the area, including the original families and where they hunted and travelled. There should also be monuments to mark original place names and what they mean. For example, Dettah was originally called Ts'iehdaà (Spruce Point).

**Group 3 (Kathy Racher, Ben Nind, Ian Moir, Chad Hinchey)**

This group used the idea of the monster underground to create symbols for a monument or marker warning of the underground arsenic (Figs. 14-16). They suggested that the monument could show the image of a monster holding up the mine, possibly with one monster for each of the 15 arsenic chambers. They suggested that maps of the area could show the face of the monster as a marker for where the arsenic chambers are located (Fig. 17).

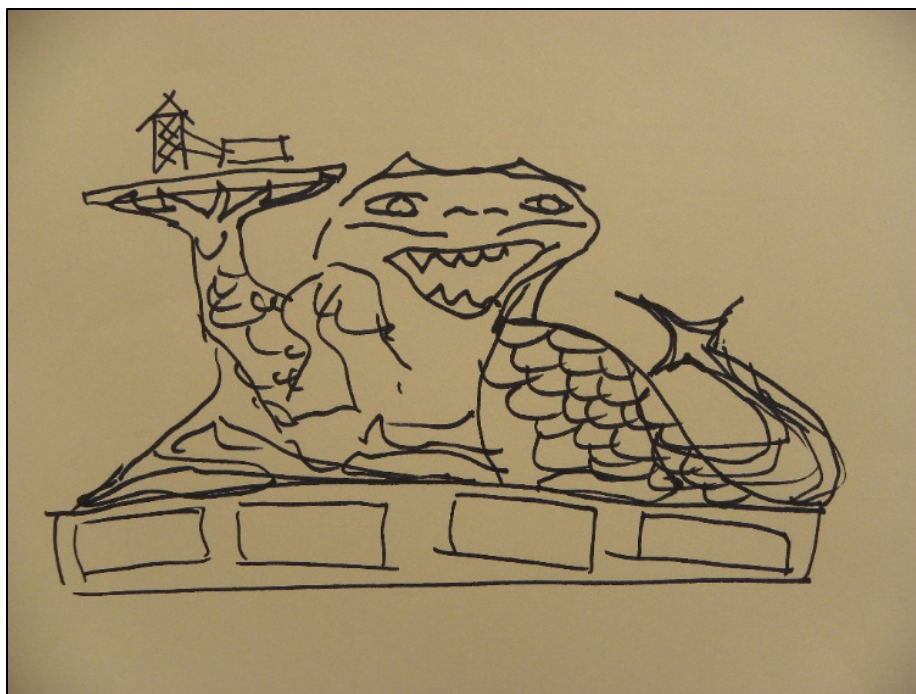


Fig. 14: Sketch model for sign showing the monster under the mine.

The group also suggested monuments showing the molecular structure of arsenic along with a large periodic table of the elements (so that people are aware of what is the main contaminant at the site). The “periodic table” monuments could be located at the centre of the site, over each chamber, and at each corner of the site. These monuments should be 20 to 40 feet high so that they are visible.

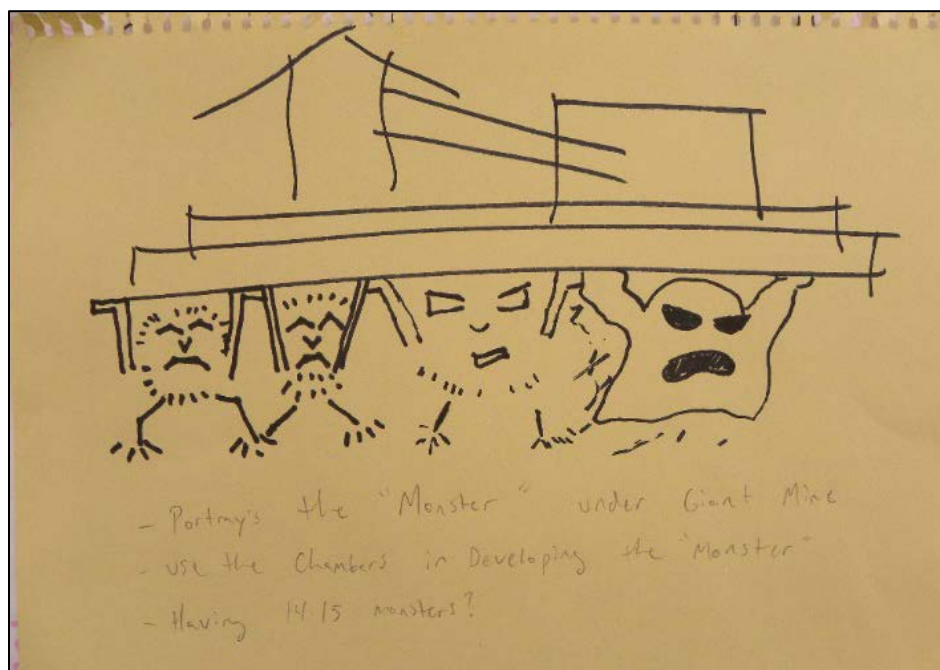


Fig 15: Second sketch model for sign showing the monster under the mine

The group also imagined a large scale monument that would tell the history of the area from the pre-contact period, through the gold mining period, to the present day. This would be a large carving



etched into the landscape. Work on the monument would begin with a ceremony, and then proceed slowly for 100 years so that people are on the site all the time to educate others.

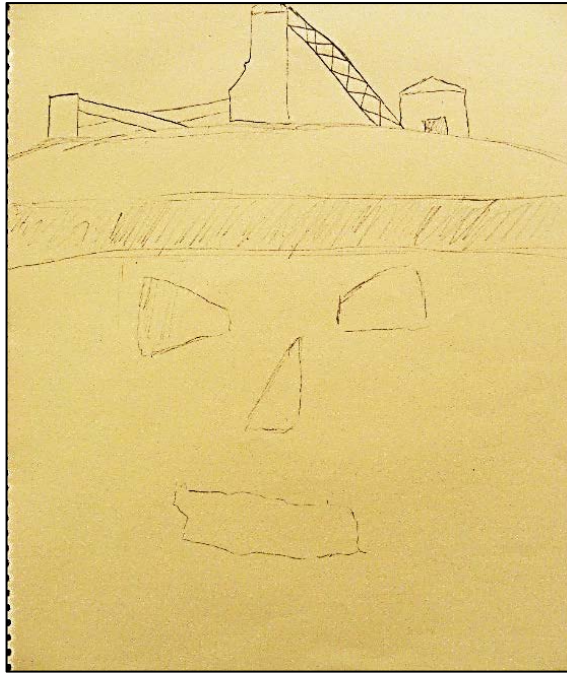


Fig. 16: Third sketch model for a sign showing the monster underground

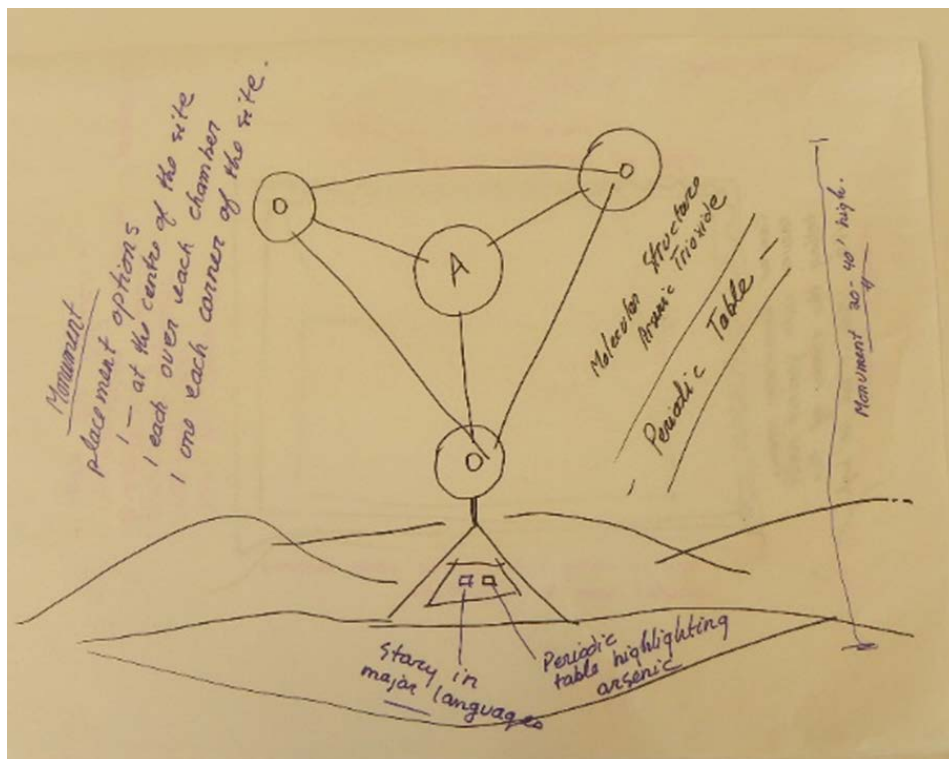


Fig. 17: Sketch model for monument complex indicating the arsenic at the mine site and using the period table of the elements

**Group 4 (Natalie Plato, Andrea Markey, Sharon Low)**

This group was confident that the thermosyphons will be a really good sign that something is there. They agreed it was important to have the history of the mine. They suggested that features of the site could be named to reflect and honour the history of the Yellowknives Dene. For example, Baker Creek could be renamed Crookedhand Creek to acknowledge the Yellowknives' role in finding the gold.

**FOURTH QUESTION: WHAT KIND OF TEXTUAL MESSAGES COULD BE USED TO WARN PEOPLE OF THE ARSENIC DANGERS AT GIANT MINE**

**Group 1 (France Benoit, Laetitia Pokiak, Aimee Guile, Erika Nyssonnen)**

This group noted that arsenic should be mentioned in all textual messages, possibly using the periodic table symbol. People need to know the nature of the danger (i.e., that it is not nuclear waste). The textual messages should be in as many languages as possible and should be revisited every 20 years to make sure that the meaning is clear.

There needs to be several different messages at the site. For the thermosyphons, there might be a message saying, "this keeps the land frozen and helps to keep us safe." At the water treatment plant, text might say to people, "danger, stay away." Along with the text there could be photos showing the arsenic danger underground. There also needs to be positive messages reminding people that we are stewards and we need to care for this land.

**Group 2: The Elders Table (Madeline Beaulieu, Modeste Sangris, Isadore Tsetta, Peter D. Sangris, Mary Louise Drygeese, Eddie Sikyea, with Mary Rose Sundberg and William Lines)**

The Elders want to see signs saying that there is danger at the site. In Weledeh the world for danger is wets'ahòejj. Signs should indicate that the mining occurred on Yellowknives Dene land but the arsenic contamination was not their fault.

All signs will need to be in English, the Elders said, because this is becoming the world language. The Elders would like to see some signs in syllabics but it is possible that not many people will know how to read or write them in the future.

The Elders are frustrated that the issue of compensation for YKDFN due to the damage caused by arsenic pollution has never been addressed. They worry that the city will expand out to the Giant Mine site and people living nearby will forget what is there.

**Group 3 (Kathy Racher, Ben Nind, Ian Moir, Chad Hinchey)**

This group wants to see symbol and text work together to create messages about the site. They created symbols (see Fig. 18) that showed life above (water, earth and sun) and death below the ground (arsenic).





Fig 18: Sketch models of symbols and signs for warning of danger underground.

**Group 4 (Natalie Plato, Andrea Markey, Sharon Low)**

This group agreed it was important to include textual messages in lots of different languages. Signs showing danger should also explain why a feature (i.e., the open pits) are dangerous. All signs should direct people to find more information.

## HIGHLIGHTS AND LESSONS LEARNED

The workshop generated a great deal of rich, creative discussion about the future of the Giant Mine site. Marsi cho (thank you) to everyone who participated. In two days we covered a lot of ground and learned some key lessons.

### General Lessons

- The Giant Mine Remediation Team must develop a perpetual care plan by 2020 that includes strategies for communicating with future generations.
- The issue of communicating with the future is complicated and more work will need to be done to come up with a clear strategy.
- All participants noted the problem of languages changing over time, and discussed the issue of what languages to use in the site (many suggested a combination of prevalent global and local indigenous languages).
- Several people noted the need for a "relay system" for messages so that signage can adapt to changing languages and messages can shift as the target audience changes (culturally and socially) over time.
- Some participants noted that the technical language surrounding the Giant Mine Remediation is difficult to communicate.
- One group mentioned the need for stable, multi-year funding for any effort to communicate with future generations.
- Decision makers may shift over time due to workplace turnover.
- Changing technology is a potential barrier to cross-generational communication.
- Many wrestled with the question of whether to warn people away from the site or engage them with the mine so that the arsenic is not forgotten. There was some agreement that engaging people with the site is desirable, though some areas will need to be secured through fencing and other barriers because they are being actively managed and are hazardous.
- One on a global scale, one group suggested that a global registry of contaminated sites should be created (something akin to the list of UNESCO World Heritage Sites).

### YKDFN Story Ideas and General Concerns

- The Yellowknives Elders want to create a story or legend about the site, possibly a Yamozha story but also one that tells the story of the mine and the arsenic contamination the way that it really happened (they don't want the story to be sensational).
- The Elders want to produce material about Giant Mine (such as storybooks, comics, DVDs) for the youth and possibly visit the schools to tell the kids about Giant Mine.
- The Elders want messages to the future to include the history of the mine, the story of how gold mining contaminated the land around the mine, and the impact of the arsenic on the Yellowknives Dene communities.
- The Elders are very concerned about the future, but also want to address the issue of compensation for their communities due to the historical contamination of local lands and waters.
- The impact of Giant Mine on the Yellowknives' hunting, fishing, medicine gathering and berry picking activities needs to be acknowledged.

- Acknowledging the Yellowknives' role in the discovery of gold (the Liza Crookedhand story) is important to the community.
- Many Elders stated that the arsenic dangers extend beyond the immediate Giant Mine site (a point supported by recent scientific studies).
- The Elders want to see careful consideration of how to commemorate the Giant Mine strike when telling the history of the mine.
- It will take many more meetings, and information will have to be gathered from lots of community members, for the elders to create a story about Giant Mine.

### **Specific Proposals for Text, Symbol, or Monuments**

- The Elders would like to see a large wall built around the mine and the site left ugly so people will know there is danger.
- The Elders suggested having monuments spread throughout the area, not just at Giant Mine.
- The 600 thermosyphons (which are essentially clusters of grey/white tubes sticking out of the ground) will form a monument in their own right.
- The Elders proposed rock monuments with words and signs of danger (fig. 13).
- The Elders want to see signs indicating that mining took place but the contamination was not the fault of the Yellowknives Dene.
- There was broad support for messaging (monuments, murals, carvings, text) that communicates the full history of Giant Mine.
- One group suggested that a commemorative event should be held at the site every June 21<sup>st</sup> so the arsenic will be remembered.
- One group developed a variety of symbols suggesting that there is life on the surface of the earth but death underground (fig. 18).
- One proposal focused developing images of a giant monster underground holding up the mine (fig. 14-16). The group suggested that the face of the monster could be used to highlight the location of the arsenic chambers on maps.
- One of the groups suggested an integrated monument concept using the periodic table and the chemical symbol for arsenic as markers (fig. 17).
- Several people suggested monuments that highlight Weledeh place names or the idea of introducing new place names to better reflect the Yellowknives' historical experience in the areas.
- A group suggested a simple textual message to warn people against vandalizing the thermosyphons: "this keeps the land frozen and helps to keep us safe." Next to the text could be photos showing the arsenic underground.