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YKDFN KNOWLEDGE OF GIANT MINE AND PERSPECTIVES ON THE GIANT MINE REMEDIATION PROJECT

Yellowknives Dene First Nation & Trailmark Systems

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Trailmark

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INTRODUCTION

Yellowknives Dene hold extensive knowledge related to traditional land use of the area in and around what is known today as the Giant Mine Site. Prior to the discovery of gold at the site by prospectors in 1935, YellowknivesK Dene First Nation (YKDFN) ancestors had used and occupied the area since time immemorial. Although YKDFN elders today recall some use of the area continuing during their lifetimes, knowledge-holders describe barriers to access and use of this preferred and important area as a result of mining beginning in the 1930s.

The Giant Mine officially began operating in 1949, and over the next 55 years released nearly 237,000 tonnes of arsenic-bearing emissions from its roasters into the surrounding environment (Sandlos & Keeling, 2012; Bromstad et al., 2017). Despite efforts by the mine over time to decrease emissions (Walker et al., 2005; Sandlos & Keeling, 2012) and the mine's eventual closure in 2004, today concentrations of arsenic trioxide in and around the mine site remain well above federal health guidelines (Palmer et al., 2015). Contamination has been reported in soil and drinking water (Bromstad et al., 2017) as well as local food sources (e.g., de Rosemond et al., 2008). YKDFN members report that these environmental effects have created irreversible impacts to YKDFN health and wellbeing, including loss of life, loss of access to traditional land use areas, loss of access to subsistence foods, and corresponding social, cultural, psychological, medical, and financial impacts. YKDFN members interviewed for this report are clear that the mine's legacy in the YKDFN community is one of environmental destruction, individual and collective suffering, bad faith operations and interactions, and general mistrust. This context presents unique challenges for the current collaborative closure and remediation planning undertaken as part of the Giant Mine Remediation Project (GMRP).

The GMRP, approved by the Mackenzie Valley Environmental Impact Review Board (MVEIRB) in 2014, is co-managed by the federal and territorial governments subject to 26 measures to mitigate adverse environmental impacts and address public concerns. These measures include a requirement to engage with YKDFN on several GMRP components in order to fulfil requirements for water licensing and meet legal obligations to consult. The purpose of this report is to document YKDFN knowledge, values, priorities, concerns, perceptions of risk, and understanding of impacts to past and current land use, in order to enable the inclusion of YKDFN knowledge and perspectives in the GMRP closure and remediation plan (CRP). The goal of this research and of the GMRP's collaborative CRP process is to support YKDFN values and future land use aspirations, as well as proactive inclusion of YKDFN traditional knowledge into mine management and risk assessment in closure planning.

Objectives for this research were to:

1. Collect and analyze information on historical, current, and prospective Aboriginal land use and practices occurring within or contiguous with the project study area, and how they have shifted/changed as a result of the project.
2. Provide information on YKDFN perspectives of past project effects on social and cultural values, including traditional lifestyles and cultural well-being, Aboriginal rights, and practices.
3. Link current contiguous research related to arsenic levels and health and stress effects within the wider context of traditional and historical land use and rights.
4. Produce an invaluable database of qualitative (textual) and spatial GIS data for engagement. This database contains aggregated archival documents from various repositories and past research related to YKDFN's environmental history of the mine site and operations.

Below, we report on interviews with YKDFN to provide a summary of participants knowledge of pre-disturbance conditions and YKDFN traditional land use in and around the Giant Mine site area, environmental impacts caused by the mine and corresponding impacts to YKDFN traditional land use and subsistence practices, health and wellbeing, and culture and society. We also provide a summary of participants' knowledge, priorities and concerns related to mine closure and reclamation planning, as well as recommendations for the CRP process drawn directly from participants' comments and analysis of interview transcripts.

METHODS

YKDFN Lands and Environment staff identified and recruited 15 YKDFN members by telephone. Participants were identified based on experience with the Giant Mine through previous employment at the mine site, involvement in the reclamation or remediation process, having heavily used the area in the past, having experienced direct impacts by the mine, and/or a combination of these factors. Interviews were semi-structured following a thematic interview map (Figure 1) and initially focused on knowledge and land use before the mine and perceived impacts to the environment and people during and following the mine's operation.

In response to initial interviews and active participation of YKDFN members in closure planning during this project, we included questions on knowledge and perspectives of reclamation and remediation efforts, as well as historical and current engagement processes pertaining to the mine. We conducted interviews in English, and translation from English to Weledeh to English was provided for interviews requiring translation by an approved YKDFN interpreter. We audio and video recorded interviews and mapped all spatial sites directly into YKDFN's growing digital information management system (see www.ykdfn.trailmarkapp.com/

for publicly available information). We automatically transcribed interviews using Sonix (www.sonix.ai/) and manually edited the transcripts. We analyzed interviews using conventional case study content analysis, allowing themes to emerge from the interviews themselves without pre-existing theory (Hsieh & Shannon, 2006). We examined transcripts for common responses and representative quotations and categorized them according to common interview themes. Raw interview data in the form of transcripts, and audio and video files have been aggregated along with digital maps and stored in YKDFN's digital archive.

Interview participants were interviewed based on availability and willingness to participate in this project. We interviewed 15 YKDFN members at the YKDFN Lands and Environment Office in N'dilo from 9 to 11 July 2018 (six members) and 5 to 8 September 2018 (nine members). Translation was provided for four interviews by an interpreter (who was also interviewed). We audio recorded and transcribed all interviews, and video recorded only July 2018 interviews. From these interviews, common themes emerged pertaining to shifts in land use due to the Giant Mine, impacts on social and cultural values, and implications for traditional and historical land use and rights. In addition, participants shared perspectives on the closure and remediation plan (CRP) consultation and engagement process. We summarize these themes below. We report representative quotations and have removed identifying information on participants to protect confidentiality, replacing their names with "YKDFN" and unique numeric codes corresponding to the interview record in the YKDFN digital archive.

To provide context for and enrich our interpretations of interviews, we include a historical overview section, incorporating:

- A brief history of the YKDFN prepared in collaboration with DownNorth Consulting (Freeman 2018);
- A description of pre-disturbance conditions at the Giant Mine site drawn from interview participants' responses; and
- A historical overview of toxic effects and contamination reported in relation to the Giant Mine produced by reviewing literature compiled during an earlier phase of this project in collaboration with an archival research project conducted by Memorial University at Library and Archives Canada.

The project team conducted an extensive literature review as part of the research for this report, examining reports written by YKDFN; primary scientific research; other relevant reports and environmental assessments; transcripts from public hearings, prior interviews, documentaries, and other public-facing media; and anthropological and ethnographic records. We focused on sources referring to time periods prior to and during the Giant Mine's operation. Exemplary sources are cited within the text and others are cited in the references to this report.

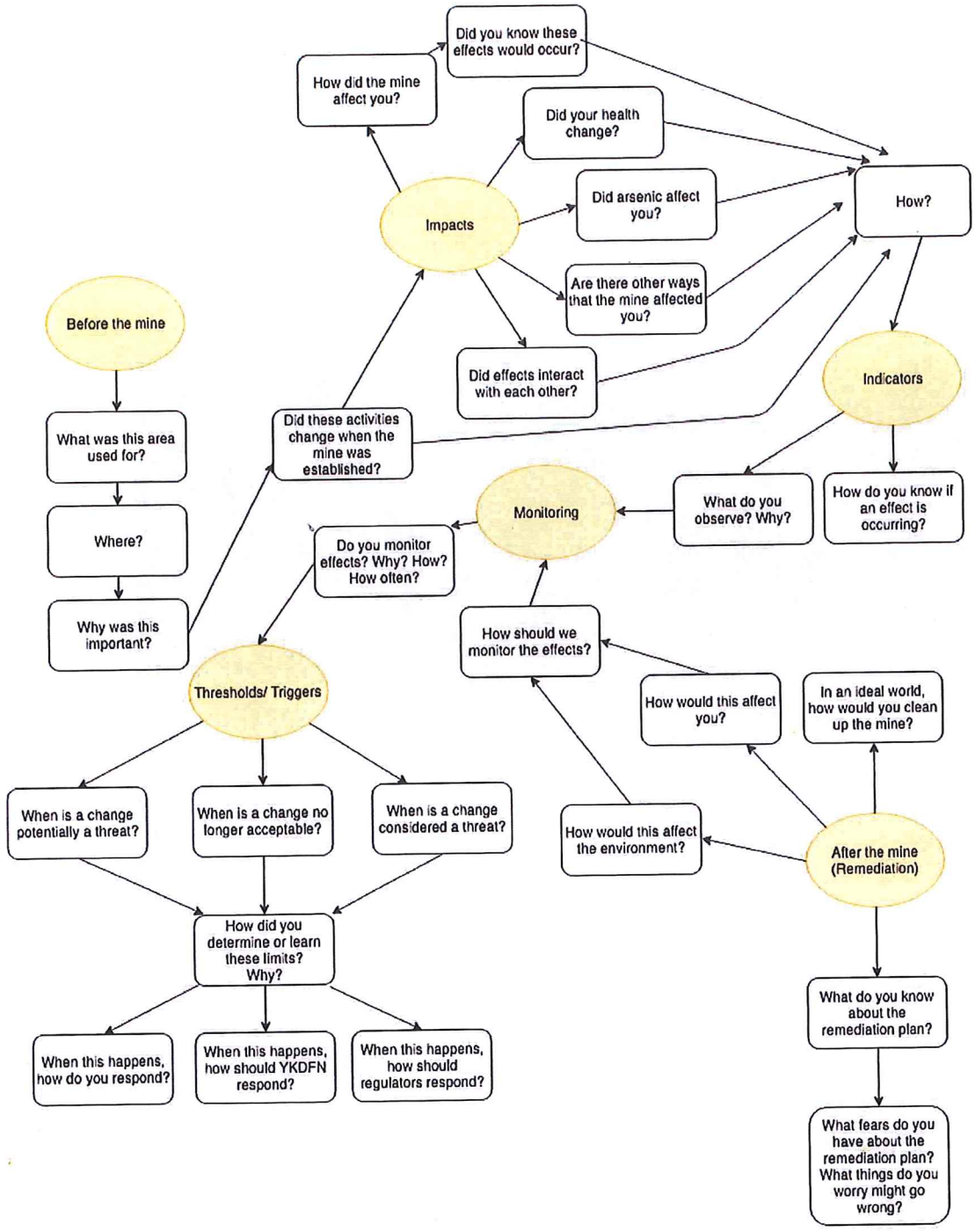


Figure 1. Guideline for interview questions. Interview themes are depicted in ovals, while questions are depicted in rectangles.

3.0 HISTORICAL OVERVIEW

This section summarizes evidence compiled from previous interviews with Elders, as well as archival, archaeological, and ethnographic records, in order to outline the historical context for interviews with YKDFN members. Many of these accounts were referenced by the participants (e.g., geographic locations and major historical events). For more information, readers are urged to consult primary data sources (YKDFN Elders) and/or ethnographies that have been compiled and validated by YKDFN (e.g., see DownNorth Consulting, 2018).

3.1 Yellowknives Dene and the Yellowknives Dene First Nation

YKDFN (along with Łutsel K'e Dene and Deninu K'ue First Nations) are direct descendants of the Tatsǫ́t'ıné, who are also referred to as Copper Indians, Yellow- or Red-Knife Indians, or Couteaux Jaunes. Since pre- and early-contact times, the Tatsǫ́t'ıné have occupied and been supported by Yellowknife Bay (*Wıìlıìdeh Cheè*, along the north shore of Great Slave Lake) and surrounding lands. However, it was not until the 1950s and '60s that Tatsǫ́t'ıné outside of Yellowknife Bay were forced (by federal government policy) to move to Yellowknife Bay.

Yellowknife Bay—the most heavily populated of all north shore bays—was historically known for its fish, small game, moose, and berries. It was also an important social gathering area in the late summer, when Tatsǫ́t'ıné from nearby north shore villages would join their relatives and prepare for their travel north to intercept caribou during their southward migration. Large numbers of fish, especially inconnu or connie (*Wı̀lı̀ı̀*), were netted, dried, and bundled as a long-lasting foodsource (for humans and dog teams alike; Russell, 1898; Down North Consulting, 2018).

Tatsǫ́t'ıné also lived in at least five villages along the east shore, from the mouth of Yellowknife River south to islands at the mouth of Yellowknife Bay. In the 1800s, Burwash (*Ts'ı̀ Nàìkwì Dah Kǫ̀*) was the largest and most important of these villages, functioning as capital; today, Dettah is the only remaining village on the east shore of the bay (Natural Resources Canada, 2007, MVREIB 2012). Tatsǫ́t'ıné did not build villages on the west side of the bay (City of Yellowknife today) because, according to oral history, it was a valued moose and caribou hunting area. Elders have reported that moose are protective of their feet; they avoid granite and prefer soft-bottomed shallow bays, lakes, and sandy areas characteristic of the sand plain west of Yellowknife (downtown Yellowknife, the Yellowknife airport and Yellowknife golf course today).

From the 1790s through to amalgamation with the Hudson's Bay Company in 1821, the North West Company built and operated small trading posts on the northwestern corner of Great Slave Lake. Northwest Company records indicate that these posts were established for trade with the "Copper Indians" (Tatsǫ́t'ıné) who, through their knowledge of the land and skill at harvesting caribou, became the main suppliers of meat to these "provisioning posts". These posts included "Old" Fort Providence, adjacent to the mouth of Yellowknife Bay; a post on Mountain Island (now Rae Point) along the north arm of Great Slave Lake; a post on Old Fort Island south of Whitebeach Point (4 km west of Yellowknife Bay); and a post on Lac le Martre (which may have been built to attract Tłı̨chǫ ["Dog Ribb" Indians] from further west). In 1852, the Hudson Bay Company established "Old" Fort Rae (or Behchoko) near Mountain Island as the first point-of-trade on Great Slave Lake for the Tłı̨chǫ. This led to frequent contact between Tatsǫ́t'ıné and Tłı̨chǫ, resulting in some cultural hybridity and intermarriage, and increased use of the Tłı̨chǫ language (*Wìlìdeh Yatìì*) by Tatsǫ́t'ıné that continues with YKDFN today.

Following the signing of Treaty 8 in 1899/1900, increasing interactions with visiting government parties (to distribute treaty payments) eventually led to an influenza epidemic in 1928, reportedly resulting in the death of up to one third of the Dene population in the Great Slave Lake region. Stories passed down by YKDFN members include a Yellowknives Dene person traveling by boat along the north shore from the east end of the East Arm of Great Slave Lake towards Yellowknife Bay, stopping at each village only to find dead people and scavenging dogs; many of these victims later comprised Yellowknife Bay's largest cemetery.

Some Yellowknives fled north to the barrens and returned to their southern fish camps after four to five years to find prospectors and cabins at what became Giant Mine, Con Mine, and "Old Town" (City of Yellowknife; Giant Mine Aerial Circa 1949-1950).

Although the Yellowknives have never been formally recognized for their role in the gold boom, it was a Yellowknives woman who directed prospectors to the site where she had found a piece of gold (MVREIB 2012). Several YKDFN members reported knowledge of this history, sharing the following accounts of the discovery of gold by Eliza Crookedhand.

> The Elder lady that found the gold, it was the size of a cup, she said. And they were just picking berries not too far from that Baker Creek. There wasn't much berries that season, not much berries. A few of those Elders, they're just wandering around looking for berries at that time, and people used to live in tents near Burwash across here. (Translating for YKDFN 150, 6 September 2018)

> They were picking berries and the Elder lady Crookedhand pick up an object. Mineral. It was really glassy and shiny and she put it up to the sun like this, shiny. (Translating for YKDFN 52, 11 July 2018)

> She didn't know what to do with it, so I think that some of the prospector tent that were up in Yellowknife River. Maybe they went over there and showed it to one of those white guys and they took it. (Translating for YKDFN 157, 6 September 2018)

> And the prospector try to say that this rock is nothing, and in return for the rock, the Elder lady was given a stovepipe, that's it. And the prospector, they never seen the prospector again. (Translating for YKDFN 52, 11 July 2018)

The GMRP CRP (2018) provides an encapsulation of the same story, placing it in 1896, and adding that "it was thought that the gold deposit was then explored by prospectors in the area at least as early as 1900, but it was not until the 1930s, with the advent of aircraft travel in the far North, that significant mineral development began" (3-4).

YKDFN members say that their ancestors were always aware of the presence of gold within their territory, but did not assign the same value to the mineral as the incoming prospectors and non-Indigenous population did.

> A lot of people used to travel around there, and used to stay all over the place there, and go hunting and stuff. And they would see all the yellow rocks and stuff. So, they keep some of the yellow rocks. But they didn't like it that much because it was heavy too. "Heavy yellow rocks," they used to say. In old stories, like elders used to remember about their grandparents talking about yellow rocks and being heavy, and not really good. Because with us, we used to go up to the Coppermine River and

> get copper for tools. So, copper was lighter and you could use it a lot easier, and shape it. Heat it up and bend it and all that. But the gold was too heavy and too hard, so they never used it that much. (YKDFN 225, 8 September 2018)

3.2 The Land Before The Giant Mine (Pre-Disturbance Conditions)

Generations of Yellowknives Dene used and occupied the area later taken up by Giant Mine and today contained within the Giant lease. Even after exploration and then mining got underway, today's generation of Elders recall traditional land use in and around the mine site during their lifetimes, while other YKDFN members hold knowledge of traditional land use in the area received from ancestors and Elders in the community.

> I remember from the '40s. People used to travel the land. It was a good hunting place. They used to go hunting. People had stayed around here but after that, '40s, people started coming in. Before that, the mine there was (a) good hunting area, good berries area. Blueberries area in Giant Mine. That he remembers. (Translating for YKDFN 81, 9 July 2018)

> This bay, this Yellowknife Bay here has been used for thousands and thousands of years, over and over and over people have come in. This bay here is a favorite place for Yellowknives. And it's a place for harvesting and berries and fishing and everything... not only at the shoreline but up, up in the land, little ponds there as well... that's where Yellowknives used to go for beaver trapping, muskrat trapping. Even trapping in the old days, you know, we were there. (YKDFN 2, 9 July 2018)

Elders describe geographic and landscape features that characterized the area prior to the mine.

> Before the Giant Mine, it was a really bushy area. Tall trees... at that time, they were just coming up. And they had to cut the brushes, they were doing brush cutting, because it was so bushy in that area. (Translating for YKDFN 81, 9 July 2018)

> And I wonder about that, why that tent ring was so far over there? And then I tell the elders, they said, "well there's berries there." (YKDFN 2, 9 July 2018)

> So from time to time, generations after generations, I was told a story of Giant Mine is that this little creek here, it used to be a creek going up like that... But the creek was much wider, like this...that's how the water used to flow. (YKDFN 2, 9 July 2018)

Elders often refer to an island that used to be near the site, likely at the mouth of Baker Creek, which was a significant landmark to Dene.

> It's where the women, when they come up, even the men, when they bring their children, this island, that's where they put their children. And they have someone there with the children. They put everybody there, and then the men and women would continue up the creek, get berries, and the men will hunt moose. There would be someone looking after their children on that island. That island has a lot of stories, a lot of stories. But that island is gone now. (YKDFN 2, 9 July 2018)

> There is no island there no more, but there used to be. (YKDFN 10, 7 September 2018)

> Before the mine, used to be an island there... before, back in '40s? '35, '40, around that time. (YKDFN 76, 5 September 2018)

Elders report that the Giant Mine site was a prized harvesting area for all manner of wildlife, including caribou and moose, and a wide variety of edible and medicinal plant species. Oral history and historical accounts (Freeman 2018) indicate that in order to minimize disturbance, YKDFN people avoided settling within this preferred harvesting area, and instead settled across Yellowknife Bay along the eastern shore.

> A lot of people stayed in camps on the east side of Yellowknife Bay. So all the Yellowknife Bay area, people had little camps, little fishing camps all around. At the Yellowknife River where the bridge is now, that's where people used to camp to get ready, prepared, in August for traveling up to the tundra for caribou... That's why we said everybody should stay on the east side of the bay, just because on the west side, on this side, where the city is now, that's where all the life was, all the animals and plants and berries and medicine and everything. (YKDFN 225, 8 September 2018)

> It was the most important area of the whole bay. If you look at the whole Yellowknife Bay and you look at the eastern shore, the eastern shore, it's not as good as the one in Giant Mine because Giant Mine creek [most likely Baker Creek] is the only place where blueberries grow, and a lot of raspberries, and many other berries. It's (an) abundance of berries, and to the Yellowknives, that berries are very very important... Eastern part of bay, it's not so much berries. It's rocky, but eastern part of the bay, there's a lot of muskrat, rabbits, those kind of things. But on Giant Mine property, it's probably much more than that. Everything you need was right there – fish, muskrat, berries, your birch, everything you need, your medicine plants was all there. (YKDFN 2, 9 July 2018)

> You know, one thing I disagree with, is like there's so many books written out there about Yellowknife, and they talk about how some of these books, they say there was

> no one living in the Yellowknife area when we first got here, they say. They would see the occasional First Nation person. But you know, it's not true. We occupied that whole area, all this area, we used to use, especially in the Yellowknife area where, you know, around the like airport, downtown, Franklin Avenue, Cam Lake. Cam Lake used to be one of the best fresh fish they used to have there. And long ago, people, they told each other not to use the airport area because it was a really good place for migration for the caribou and moose. And also Cam Lake area, Cam Lake itself used to be a good spot for fish. And that's why the Dene people didn't really establish themselves or, you know, there's a lot of nice places around Yellowknife that we could have easily just start building cabins and setting up camp and stuff, but we never did because our ancestors always told us never to establish there because want to leave it for the animals to migrate, and it's a good hunting area. So we never did. So when the prospectors, they came, you know, they just plopped themselves everywhere and anywhere without any consultation of our people, or even ask anyone. So it kind of destroyed the whole Yellowknife area for us, not only Giant Mine but the whole Yellowknife area because it used to be a really good place for animals. (YKDFN 10, 7 September 2018)

> Yellowknife Bay, very good country, good ground for caribou, good ground for the moose. So, they didn't want Dene to build a house on this [west] side of the shore, only on the east side. East side of Yellowknife Bay. All the way from Yellowknife River, all the way to Wool Bay. Dene people, they used to have a village at Yellowknife River. Used to be lots of people lived. And then this ground, Yellowknife Bay and the west side of the bay, they don't want nobody, even Dene, they don't want anybody to build a cabin. (YKDFN 79, 10 July 2018)

Participants describe the travel route people would take to arrive at harvesting areas in and around the mine site, prior to its development.

> They would camp here. From there, they would come across, looking for berries, and would go to the sandy area, around that airport. It's a really good place for moose; it's where they used to go hunting for moose. (Translating for YKDFN 81, 9 July 2018)

Description from multiple participants form a cohesive picture of the use of the area prior to mining development, and its direct relationship to the selection of village sites.

> My dad and my grandfather said that used to be the prime moose hunting area in that region. Since they built that mine, I guess nobody goes there anymore... I think it was like you know, back in the '30s, '40s anyway. We don't hardly go there

> anymore, too much bad stuff going on there I guess. (YKDFN 151, 7 September 2018)

> Before the mine start, they said there used to be lots of – they used that area lots because it was good berry-picking, and it was good fishing there, and a good hunting area for moose, and other small game like rabbit, grouse, beavers, and muskrat. In the springtime, when the ducks and geese, you know. So, that was a good area because it wasn't too far away from the mouth of the river, of the Yellowknife River, because the geese will land there, and the ducks will land there and everything. And muskrat in that area. So, there was a good, they had a good diet there at the time. (YKDFN 223, 11 July 2018)

Elders also report that the area was known for its abundance of berries, wood, and plant medicines.

> At that time, that area used to be good for picking blueberries around by that Baker Creek today. And there was a good area for woods, to get the good woods over there. And they have a cookout over there, while they're picking berries. (Translating for YKDFN 150, 6 September 2018)

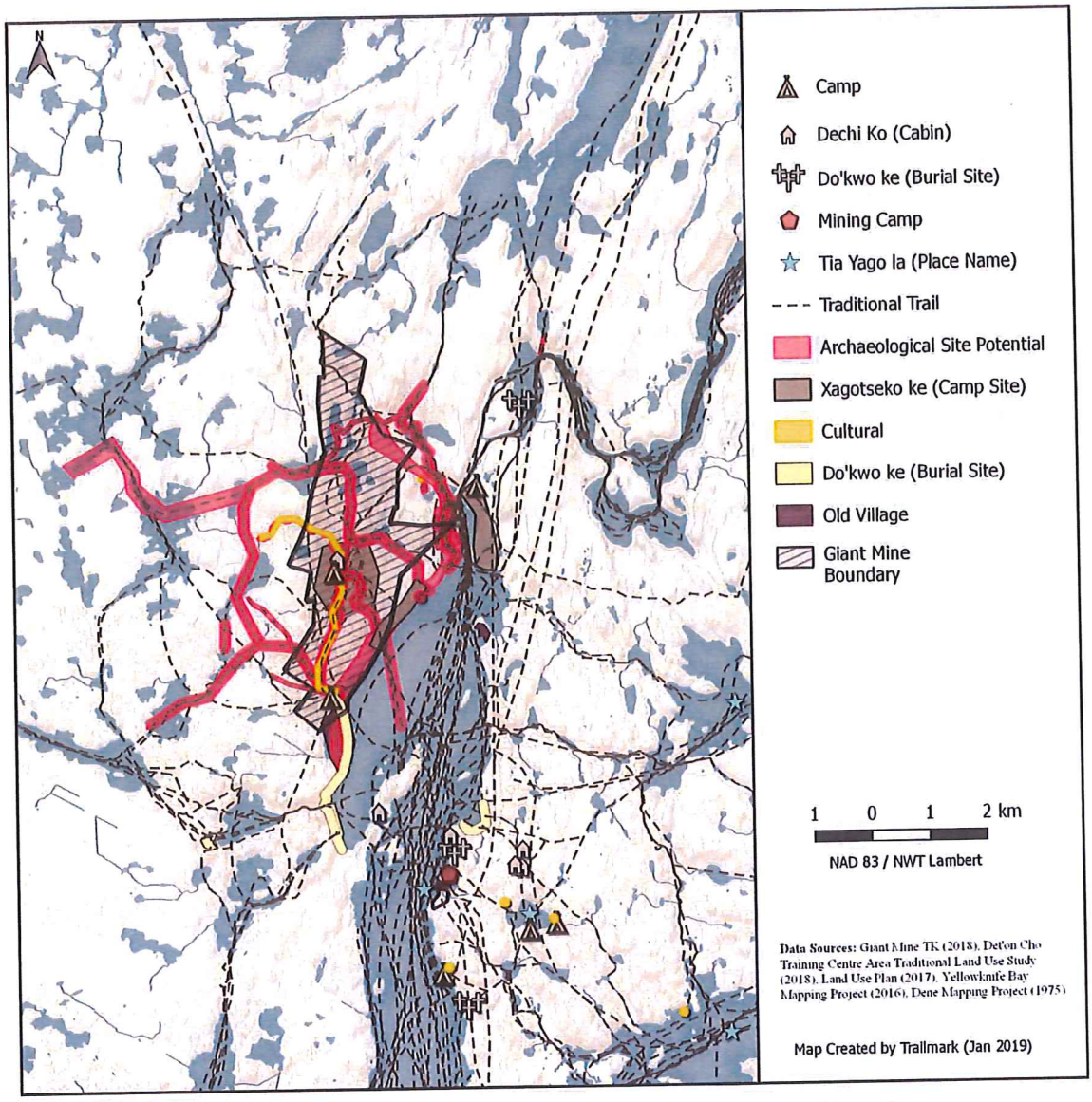
> What we were told is that that was probably the main place to pick berries and plants, and sometimes they would fish in that creek. It was mostly for berry-picking area, and small game I would say...along the Baker Creek they said there used to be lots of blueberries, raspberries. And also up on the hill. (YKDFN 10, 7 September 2018)

> Before that, that was really good for all kinds of berries, cloudberries, blueberries, cranberries. So a group of women, they used to go over there for berries. (Translating for YKDFN 157, 6 September 2018)

The shoreline and creek mouth were also important for fishing.

> We were in Baker Creek, about around that creek there. It was a really good fishing area, this fishing area, there was really a lot of fish in that creek... there was all kinds of fish that runs through there, you got whitefish, pikes, there was all kinds of fish. (Translating for YKDFN 81, 9 July 2018)

> In those days, Giant Mine was a very good place for all types of animals, and there was really plenty, plenty of connie fish. There was so much that the people, they used to make fish sticks, they get fish sticks for the whole year; they would get the fish stick for the whole year. And those fish sticks were for dogs and people to eat. (Translating for YKDFN 52, 11 July 2018)



Elders also report abundant bird populations and use of the area for bird hunting.

> You can almost drink water anywhere in this area. And camp, and sleep anywhere you like. Now, you see the impact. No more berries growing area, no birds. You don't hear them. You don't hear grouse, ducks. Nothing will grow in that area no more. Before, you camp anywhere, and sleep anywhere. In the morning you get up, you hear the beautiful sounds of the birds in the summertime. Now you will never hear that. (Translating for YKDFN 81, 9 July 2018)
>
> Where the pass for the bus route is, going into town, she said some pond used to be a really good area to shoot ducks, and along the way, as we go walking to the pond

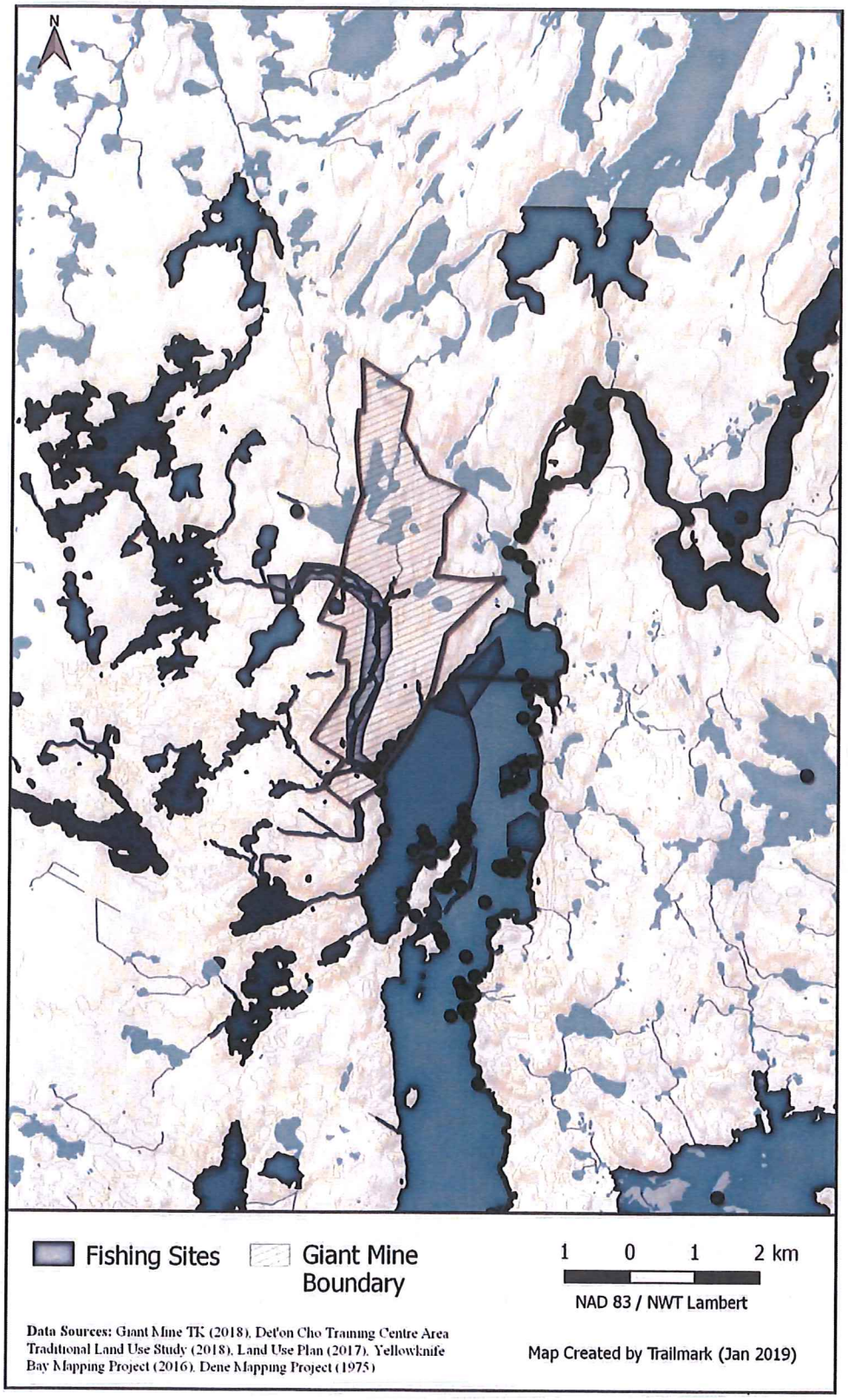
> shooting ducks, we used to have a cook; we would get a duck and maybe we would cook as we were walking. (Translating for YKDFN 150, 6 September 2018)

These contemporary statements from YKDFN members correspond with previously recorded traditional knowledge of the site being used for moose hunting, trapping furbearers, fishing, access to caribou hunting, fishing, collecting medicine plants and berries, and staging while traveling (YKDFN LEC 2005, INAC and GWT 2010). Some elders also recall a burial site within the current Giant Mine site.

> Also I was told by the elder ladies here with the Yellowknives Dene that there is a graveyard too, as well a child that's buried there. We didn't know about it from the first interviews, but now, more meetings with elders, and they'll tell us there's graveyard there. (YKDFN 2, 9 July 2018)

> He was born in 1936, and all he can remember of those times was that all the gravesites, that he remembers that one of his siblings that was buried [there]. (Translating for YKDFN 52, 11 July 2018).


N
Hunting/Trapping Sites
Giant Mine Boundary
1 0 1 2 km
NAD 83 / NWT Lambert
Data Sources: Giant Mine TK (2018), Det'on Cho Training Centre Area Traditional Land Use Study (2018), Land Use Plan (2017), Yellowknife Bay Mapping Project (2016), Dene Mapping Project (1975)
Map Created by Trailmark (Jan 2019)


N
Fishing Sites
Giant Mine Boundary
1 0 1 2 km
NAD 83 / NWT Lambert
Data Sources: Giant Mine TK (2018), Det'on Cho Training Centre Area Traditional Land Use Study (2018), Land Use Plan (2017), Yellowknife Bay Mapping Project (2016), Dene Mapping Project (1975)
Map Created by Trailmark (Jan 2019)


N
Gathering Sites
Giant Mine Boundary
1 0 1 2 km
NAD 83 / NWT Lambert
Data Sources: Giant Mine TK (2018), Det'on Cho Training Centre Area Traditional Land Use Study (2018), Land Use Plan (2017), Yellowknife Bay Mapping Project (2016), Dene Mapping Project (1975)
Map Created by Trailmark (Jan 2019)

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3.3 Contamination from Giant Mine

By the early 1930s, prospectors were frequenting what is now the Yellowknife area and staking the claims that would lead to multiple mining developments. In the summer of 1935, prospectors working for the Burwash Yellowknife Mine Ltd. staked 21 claims on Yellowknife Bay, including the area where YKDFN ancestor, Eliza Crookedhand, indicated finding the piece of gold she traded to a prospector for a stovepipe. Exploration in this area led to the discovery of the "giant" gold deposit that would become the Giant Mine. Giant Yellowknife Gold Mines was incorporated in 1937, and although exploration in the area of the eventual mine site continued until 1944, the gold extraction process known as roasting began at the site in 1941 (GMRP CRP 2018, p.3-4,3-8; NWT 1974).

The deposits mined on the Giant Mine properties contained gold occurring with arsenopyrite, which interferes with cyanide extraction of gold (Hocking et al., 1978). Arsenopyrite (iron arsenic sulfide) was, therefore, removed by roasting in air, converting arsenic and sulfur to arsenic trioxide and sulfur dioxide, respectively (Hocking et al., 1978). Roasting was continuous from 1948 until the mine's closure in 2004 (NWT 1974); as a result, gaseous and particulate waste products were released through stacks into the surrounding environment (Hocking et al., 1978). Cottrell precipitators were installed in 1951 and 1955 to refine emissions, and these measures were followed by increased milling and roasting in 1957 (Hocking et al., 1978). In 1958, a new roaster was installed, as well as a bag house dust collector to remove and store arsenic trioxide dust in sealed stopes (Hocking et al. 1978). Another increase in roasting occured in 1971 (Hocking et al., 1978).

Almost from the beginning these gold extraction activities were paralleled by an unknown number of deaths, although an official inquiry into the occurrences and causes of these deaths is still outstanding. As early as February 1949, two men working 1.5 miles north of Giant Mine were hospitalized with a confirmed diagnosis of arsenic poisoning from drinking contaminated snow-water (deVilliers and Baker, 1969). In May of the same year, a herd of cattle that had been imported for dairy production died from poisoning after consuming water and vegetation contaminated by arsenic (Maitland and Frome, 1975; Firth, 1977). In 1950, a Dene child was reported to have died after ingesting arsenic-contaminated snow (Tataryn, 1978). Additional deaths of Dene children were reported in 1951 (MVREIB 2012). These events prompted the establishment of arsenic monitoring programs, occuring at least once per year (Maitland and Frome 1975; Tataryn, 1978).

In 1967, efforts to reduce soluble arsenic by increasing processing efficiency (adding lime to effluents to precipitate arsenic into insoluble forms before discharging them as tailings) were adopted, reducing soluble arsenic content by 95% (NWT 1974). Tailings were transported to Baker Creek to settle out solids, however containment was only partially effective due to

seasonal weather conditions such as severe cold causing ice and tailings to combine and build-up, interfering with the process (NWT 1974). From 1966 to 1969, the Health Protection branch of Health and Welfare Canada (Health Canada) conducted a survey to determine effects of arsenic poisoning and impacts on people, including a mortality study of residents that compared death rates (of residents who stayed in the area) with those of an arsenic-free community (deVilliers and Baker, 1969; Maitland and Frome 1975; Tataryn, 1978). This research demonstrated an above-average prevalence of skin lesions and respiratory diseases, as well as higher than expected death rates resulting from them, codable electrocardiographic changes, liver problems, nervous disorders, and excess cancer deaths, which coincide with arsenic exposure (deVilliers and Baker, 1969). The same year the federal health study concluded, a pipeline was developed to pump clean water from Yellowknife River to the residents of Yellowknife (Tataryn, 1978). YKDFN, then Latham Island Indian Community, were excluded and members continued to take water from Yellowknife Bay (Tataryn, 1978). It was not until five years later that signs warning of hazards were posted in English (spring 1974), and later local languages (fall 1974), at Yellowknife Bay (Tataryn, 1978).

Records from the 1974 Water Board hearings indicate that the proceedings were abruptly adjourned after YKDFN representatives raised concerns over arsenic poisoning related to the death of Eliza Crookedhand from cancer (Maitland and Frome 1975). During this hearing, the Indian Brotherhood and Yellowknife Indian Band called for evidence that impacts to fish and humans affecting water quality, consuming fish, and human health, were being monitored, and requested autopsy reports and medical records relating to the death of Eliza Drygeese and others who may have died as a result of high arsenic concentrations (NWT 1974). YKDFN representatives also asked about a spill from the tailings area in March 1974, and for information on how often spills occur (NWT 1974). Chief Joe Charlo reported specific concerns about impacts to drinking water and to fish harvesting and consumption, and raised the issue of compensation (NWT 1974).

> They are using our land, they are using our water, and now he says, we have to turn around and if we get a water delivery we pay for it – why should we pay for our water? Actually, he says, I would sure like to see both mines pay the water fo us... the native peoples are not that rich to buy the water delivery. Now, he says, if the person does not pay for his water, then he doesn't get any water. So what they do is just bypass him—by pass that house, and if they don't pay their water, they probably just won't give him any water, so what they might do is just go down to the shore and get a pail of water and use that water which is dangerous if that water is really spoiling... not everybody is rich so if they don't pay their water, then they won't get any water so they use the lake water. And now, he says, I don't like to see this if the people might get into trouble in the future. So this is why I ask if we could get any

> help from both mines at least for water delivery, safe water to the native people. (Chief Joe Charlo, interpreted by Joe Tobie, 10 October 1974, Yellowknife).

At the following hearing in 1975, Giant Mine indicated water monitoring at the mine had begun in 1951, and that water and mill wastes had been monitored daily since 1964, but also that findings were reported as numerical data with no interpretation or implications for environmental and health impacts (NWT 1975). The hearing transcripts indicate that the quality of effluent flowing from the mine in 1975, remained a concern due to high arsenic content. They also note that warning signs were posted in October 1974, and that YKDFN continued to request free water delivery to replace the fresh water supply from Yellowknife Bay that was no longer safe to use due to arsenic contamination (NWT 1975).

In May 1975, Health and Welfare Canada announced the results of a study measuring arsenic levels in hair samples from approximately 700 volunteers, however no Indigenous participants were included in the study (Tataryn, 1978). When the Indian Brotherhood of the Northwest Territories (Dene Nation) informed the National Indian Brotherhood of their exclusion from the study, the latter arranged to have 18 Indigenous hair samples sent to the University of Toronto for analysis, which found they contained high levels of arsenic (Tataryn, 1978). The Federal response to these findings was muted (Tataryn, 1978). Two years later the Canadian Public Health Association Task Force on Arsenic concluded that native people, and particularly native children, proximate to Giant Mine demonstrated an increased arsenic load (Canadian Public Health Association Task Force on Arsenic, 1997:113).

A CBC radio documentary airing on "As It Happens" in 1975 detailed adverse toxic effects on the water and food chain due to arsenic, led, copper, zinc and cadmium pollution, and triggered public outrage over the fact that reports to this effect – completed as early as 1969 – had not been previously released (Maitland and Frome, 1975; Tataryn, 1978). The federal government subsequently appointed the Canadian Public Health Association Task Force (1977, p.66) to investigate the arsenic research study in 1977, which confirmed a failure to communicate findings of earlier studies to concerned groups and the public at-large, including findings such as: "in no one month could one estimate that the water would be of an acceptable standard for more than 30% of the time" (deVilliers and Baker, 1969:7).

Additional research indicated high levels of arsenic, copper, and zinc was being discharged by Giant Mine into Yellowknife Bay (Faulk et al., 1973; Wallace and Hardin, 1974). High arsenic, antimony, mercury, and cobalt contamination of soil, water, snow, and vegetation was also reported near Yellowknife, and human hair samples displayed higher than normal mean values of arsenic and mercury (O'Toole et al., 1972). Severe killing of trees and high arsenic levels near the stack (center of emissions) was also reported, with decreasing intensity with distance from the center (Hocking et al., 1978).

The CBC documentary also mentioned lack of running water for YKDFN and water having to be delivered but due to circumstances (e.g., some people cannot afford to pay for water delivery), YKDFN continue to use polluted water (Maitland and Frome 1975). Mrs Betsina suggested mine paying for water bill and hiring people to inspect around the mine often (Maitland and Frome 1975), indicating water was healthy back in 1914 before white men showed up (Maitland and Frome 1975). Fish from the bay were reported to be poor condition, and dogs becoming skinnier from fish, fish taste like oil and gas (Maitland and Frome 1975). Children swimming in water, (Mrs Betsina's children) because they are bored in the summer, 4 or 5 times a day, report water is green, they feel dizzy, eyes are burning (Maitland and Frome 1975). Reported Government not reporting to people, or in a way they understnad (do not understand English; Maitland and Frome 1975). Signs went up in May or June 1974 but government had known about arsenic, signs only in English (Maitland and Frome 1975)

During Water Board licence renewal hearings in 1981, Giant Mine representatives stated that the "concentration of arsenic in the groundwater pumped from the mine has steadily decreased over the life of the licence," down to an average monthly concentration that exceeds the license limit "61% of the time" (NWT 1981, p.13). The mine also noted that concentrations of cyanide flowing from the mine into Baker Creek exceed licence limits more than half the time, but that surveillance of the creek suggests these concentrations are being naturally reduced before the effluent enters Back Bay.

Congratulating the mine on the progress it has made to reduce its environmental impact, a representative for Environmental Protection Services states that "if Giant is successful this year in meeting the effluent quality objectives laid out in the current water licence, then the released tailing pond water should be non-acutely toxic to fish," in Yellowknife Bay (NWT 1981, p.50). He noted, however, that the survival of fish and fish habitat in the Bay would require further improvements to the quality and amount of effluent discharged.

Speaking through their lawyer, the Dene Nation also recommended a new section in the water licence to deal with stack emissions they assert are affecting water quality in Yellowknife Bay and elsewhere (NWT 1981, p.60-61). At the licence renewal hearing in 1985, the Nation's lawyer reported local Band Council concerns that fish caught in Yellowknife Bay were unusually soft and showed signs of contamination, and recommended the implementation of a sampling program in consultation "with the Band" (NWT 1985, p.73-74). The Nation also reiterated its concerns about effluent quality, noting that concentrations of arsenic and cyanide, in particular, were not meeting municipal guidelines for wastewater discharge in the Northwest Territories, let alone national drinking water guidelines.

During water licence renewal hearings in 1993, mine representatives explained how the historical absence of any form of treatment for contaminated water and tailings from the mine

site complicated the development and placement of treatment process and infrastructure by then in operation.

The reason the [effluent treatment] plant had to be located at the end of the tailings pond is because there was a great period of time where no treatment took place. If we had treated back at the mill, its source, we would still have this problem of having older material that was out in the tailings pond being released. So the choice was made to treat at the end of the tailings pond and thus we catch some of the material that is being leached out of the former old tailings that are sitting out in the tailings pond. (NWT 1993, p.37-38)

In application for a 10-year renewal of its water licence, the mine repeatedly contrasts current operations and historical operations to tout new containment lines that provide line of defence against escaping material that "normally would have run down the hill towards the creek," (NWT 1993, p.59), and the rerouting of a new effluent pipeline so that "when we do have a break in the future the tailings are more likely to stay within the confinement of the tailings impoundment area" (NWT 1993, p.57). With respect to spills, which it is stressed are bound to happen in a "a company run by individual people," the mine boasts that "things that ten years ago we would never think to have reported to a government agency, is today reported" (NWT 1993, p.56). The mine also indicates that the frequency of spills escaping the mill has remained constant over the life of the mine, are not due to the aging of the plant, and are now simply better able to be intercepted before reaching Baker Creek as a result of new measures (NWT 1993, p.90)

At the same 1993 hearing, the Water Resources Division of the Department of Indian and Northern Development (DIAND) reported that it had undertaken a joint study of water quality in Back Bay with YKDFN, the Dene Nation, the Métis Nation, and the GNWT Health Department, following a letter from YKDFN expressing concern that "as a result of the Mine's operation, the water, sediment and fish in Back Bay may be contaminated" (NWT 1993, p.110). Although analysis of the samples collected was still underway, DIAND urged the Giant Mine owners to improve the mine's effluent quality requirements and processes –rather than maintaining existing quality requirements as the mine proposed – in order to protect water users in Yellowknife Bay. A DIAND representative warned that the mine's current effluent quality requirements were leading to "higher than background levels" in Back Bay where Baker Creek deposited the treated and diluted effluent flowing from the mine, and noted concern for the recreational users and nearby residents of Back Bay (NWT 1993, p.105-106).

Noting that both Back and Yellowknife Bay are important and preferred subsistence fishing areas, the Department of Fisheries and Oceans (DFO) and Environment Canada (EC), describe the chemical loading in these bays as substantial, partly as a result of Giant Mine being

allowed to discharge "higher levels of contaminants than other mines in the same area using similar treatment technology" (NWT 1993, p.130).

During his subsequent presentation to the Board, an Ecology North board member referred to in the transcript as Mr. O'Brien records his shock that the study described by DIAND was apparently prompted by a request from YKDFN: "It has been known for a long time that Giant has been discharging arsenic and other toxic contaminants into Back Bay. Why is the possibility of the contamination of the water and fish in Back Bay only now being addressed? I have naively believed all these years that the effects of Giant's discharge were studied a long time ago and that as a result of such studies the discharge limits imposed on Giant by the NWT Water Board were set at levels that would ensure there would be no adverse impacts on either Back Bay or Yellowknife Bay. Now I find that not only are the effects unknown, but Giant is being allowed to discharge some contaminants at higher levels than another mine that also discharges waste into Yellowknife Bay... My question to DIAND, DFO, Environment Canada and the Water Board is this: why has it taken a request from the public to get a study done of this problem?" (NWT 1993, p. 229-230).

Speaking on behalf of the YKDFN and the Dene Nation, Chief Darrell Beaulieu reported that the Dene have observed "unnatural events" related to and caused by the Giant Mine for years, including changes to quality and toxicity of both fish and water, as well as changes in water behaviour and the development of seasonal flooding in Baker Creek (NWT 1993, p.200,205). Chief Beaulieu states concerns related to caribou consuming contaminated snow and/or drinking contaminated water from tailings ponds, and describes "recent sightings of caribou with loss of hair on their legs... dogs with no hair on their hips," and even mysterious hair loss in humans (NWT 1993, p.219). In response a Water Board member laments that the Board has tried to find experts in wildlife toxicology "and I don't think there are any... We as much as you would like answers to [this question], but those answers are not really forthcoming" (NWT 1993, p.218).

In a 1998 letter to the Water Board, YKDFN called for co-development of an arsenic management plan incorporating YKDFN traditional knowledge. Citing concerns over the amount of arsenic being stored underground, and the amount of arsenic and sulfur dioxide released by the mine daily, YKDFN requested that renewal of the mine's license be contingent on submissions and public review of a management plan, stating: "the arsenic trioxide issue is of great concern to the Dene people and needs to be addressed to insure that the environment, animals and people near the mine remain safe" (Bill Erasmus to Gordon Wray, February 5, 1998).

YKDFN members continued to report concerns over environmental pollution from mining activities contaminating water, plants, and animals in a 20015 survey. Almost all respondents

indicated concerns about eating traditional foods and almost half indicated there were areas they can no longer use for traditional food due to contamination (Boyd et al. 2005). In short, they indicated the same concerns YKDFN members had been articulating formally and informally for decades, and, as YKDFN members interviewed for this report demonstrate, continue to report today.

At the public hearings for MVEIRB environmental assessment of the MGRP in 2012, Chief Eddie Sangris said that the YKDFN do not view plans to bury arsenic underground (frozen block method) and to cover over the tailings as remediation, stating that the "problem is not being removed." YKDFN called for the arsenic to be removed, the water cleaned to drinking water standards, and the land to be returned to its natural state. Representatives reiterated the traditional protocol that the west side of Yellowknife Bay was to remain undisturbed for the benefit of preferred wildlife, and recalled that when it provided fish, caribou, moose, berries and medicine. They pointed out that compensation for YKDFN's suffering and losses has never been discussed, and highlighted the need for both financial compensation and employment agreements for YKDFN as part of the CRP.

4.0 GIANT MINE IMPACTS

Interview participants report knowledge and observations of a variety of environmental impacts caused by the Giant Mine that have created irreversible impacts to YKDFN health and wellbeing, including loss of life, loss of access to traditional land use areas, loss of access to subsistence foods, and corresponding social, cultural, psychological, medical, and financial impacts. Participants also describe a legacy bad faith and mistrust related to the mine and governments' approaches to operations, impacts, consultation and communications with YKDFN.

4.1 ENVIRONMENT AND HEALTH

Participants indicate that although some traditional land use in and around the mine site continued into the 40s, community members began avoiding the Giant Mine area with the advent of prospecting and development in the 1930s.

> When the mine went through there, lots of people stopped going there. Lots of drills and noise. Maybe back in the '20s I guess, '30s, a lot of people didn't stay there because there was just lots of noise, and lots of things going on there, lots of people, camps. Lots of trouble too, lots of drinking, lots of people who chase away First Nations people and stuff. (YKDFN 225, 8 September 2018)

> As soon as these prospectors, they came, probably in the '30s. [Yellowknives Dene] probably were going there until the '30s, but once they started establishing like houses and cabins and that work area, [Yellowknives Dene] don't go there anymore. (YKDFN 10, 7 September 2018)

Despite these barriers, contemporary Elders recall some harvesting and fishing at traditional land use sites around the mine continuing even after the mine began operating in the late 1940s. Research participants also report that YKDFN members employed at the site pursued traditional harvesting practices within the area, in order to gather food for meals while at work, for example.

> The guys that used to work there as laborers used to set a net right in that area here too. Not far from here, maybe it might be here. So when they were working there, they said they set nets there for their supper, they would check it every day after supper. Because I think at that time they were not allowed to eat in the cafeteria or the diner's mess. So they had to provide their own food. And they said they used to set nets right in that area. They check it every day for their supper when they work there as labourers, just shovelling or whatever kind of work they gave them. (YKDFN 10, 7 September 2018)

Participants indicate that eventual impacts to YKDFN health and wellbeing were enabled and compounded by continued land use in the contaminated areas surrounding the mine. Land users were not aware of the risks posed to them by continuing to harvest in these areas.

> We continue to hunt, trap on the rivers along that area. No one tells us anything harmful is going to happen to us. (YKDFN 2, 9 July 2018)

> No information was ever given out, saying that the water is not good, fish is not good... They used to set net around the shore here, and make dry fish. (Translating for YKDFN 81, 9 July 2018)

Interview participants state that avoidance of the area by the community at large was finally triggered by the death of two children as a result of toxic exposure attributed to the mine. Participants also report several other deaths within the community as a result of arsenic contamination.

> The time, I think in the fifties, they found out the reason that arsenic contaminated the water at that time, so they're saying that the water is no longer being used to drink, to pay for water, those time. And two kids also eating snow and they died, those two kids died, eating the snow. (Translating for YKDFN 81, 9 July 2018)

> There was a couple of kids that died from eating snow, and eating fish from around the bay there. Those little islands, there's three islands there. They used to have nets there and everything. But they eat fish, and I heard my mom and dad say there was an elder that passed away as a result of eating that Back Bay fish. (YKDFN 151, 7 September 2018)

> They found out after the kids died in N'dilo. Probably the arsenic from that roaster, roaster pipe... they found out by the kids and dogs that died. Horse too, he ate something from the Yellowknife River. So, that's when they found out. So, when we found out, they started telling people not to go in the bush. (YKDFN 79, 10 July 2018)

The most commonly reported concerns and impacts related to the mine are arsenic toxicity and contamination in the environment causing illness and death. Participants indicate that these concerns and perceived impacts are ongoing.

> I heard a few kids got sick, people died. Myself too, in Dettah, they used some of the gravel from the mine. The big gravel piles, they'd put it on roads and places like that in Dettah. I got sick. My sister got sick too, but her's wasn't as bad as me. I got surgery and all that too, when I was young. We found out all that gravel was from Giant Mine. So, a lot of that arsenic stuff was in there. But they just put it where the First Nation people were... well, there was, growing up and there was stuff in my stomach; they had to cut out some of that, intestines, and they had to carve out my stomach. Right now it's all still scarred up and everything. So, it's kind of hard to move around in a certain way sometimes. (YKDFN 225, 8 September 2018)

> The arsenic that's been stored underground has done a lot of damage to the people. You see today people have suffered and died with it. Some people got blind because of that chemical, the arsenic... a lot of people around this area have a hard time with their eyes because they can't see. A lot of people died of the arsenic. (Translating for YKDFN 52, 11 July 2018)

Participants report that their ongoing concerns are informed by knowledge and strong perceptions of health impacts to YKDFN community members who worked at the mine.

> They hire a lot of [YKDFN] people to do, just major work. And he said, when they come home they just shake their clothes, they shake their clothes outside, the kids are just standing beside them. They shake their clothes. Nobody warned them about anything like that, he said. And next thing you know, our babies were getting sick. They were dying. And then they were getting full-up rash, I was scared to even tell my husband to take a bath, you know, like in a big tub, or sponge bath then, I was

> scared, I was even afraid for myself, what I was doing to my own children. (YKDFN 222, 10 July 2018)
>
> The work was [in] 1951. We didn't have to worry about the dangers of arsenic at that time. We didn't have to use masks, or anything, when we were around that area, that Giant Mine. Today, everything is covered with the arsenic. It's pretty dangerous. We are afraid now of that place today. Now if we go to that area, we maybe have to use a mask, but before, it wasn't like that, people never got sick, nothing... and after that, I got sick. I worked for '51, at that mine, until '55. I got sick with tuberculosis, T.B., so I spent five years in the hospital. (Translating for YKDFN 81, 9 July 2018)
>
> As the mine went on, a lot of miners got, I know a few of them got killed in that area. But some died because of that, some died because of the chemical they breath in. This one guy there I kind of worked for one day and they've got to process the ore they use a deadly chemical, but this guy here constantly bleeding from the nose... But he told me that it was already too late, he has to work, he can't quit, because he had a wife and a kid. He says 'I have to go on, I can't really do nothing about it'. He was talking about money I guess, what they'll get compensated when he dies. (YKDFN 223, 11 July 2018)

Interview participants also share awareness of impacts related to toxicity that they and other community members have observed while employed and/or pursuing traditional land use practices areas surrounding the mine.

> I wanted to set a trap and I went up there, and it's small spruce tree, probably about this big, I hit it with an axe, dust came out. Little bit of snow, but lots of dust, you know, sand. So right away I know it has something to do with the sulfur from the mine. It's a lot of dust, I didn't cut it. The Elders when they were cutting trail up to Vee Lake years after the mine was in operation, they were cutting the trail and they were burning the wood, and when they lit it usually you see a nice orange colour, a nice normal campfire right. But the fire they built when they were burning the trees with a little bit of dust on it, it was green, it was blue, it was all kinds of colour. They said they've never seen a fire like it. There was one elder... he got scare of it. Right away he said 'poison'... he never seen a flame like that, blue and different colour, because of the sulfur, heavy sulfur on the trees. They were cutting it, and they burned it, and then that's what happened. That old man... he decided not to work there no more, he just left. Many of those guy who worked with him, many of those guys are gone. They're no longer alive. (YKDFN 2, 9 July 2018)
>
> Well this one elder who used to work there, and I noticed that he was eating berries on the property. There's little berries on the property, but he was eating it. Now he's

> got cancer now. I was wondering, like why are you eating blueberries on the Giant Mine property? It's not safe, it's contaminated with arsenic. And he says "still good," he said. I said "no." I won't be eating anything wrong here. That's what he was doing. Now he's an Elder, you can tell he's really kind of sick now. (YKDFN 226, 8 September 2018)

Participants report that toxicity in the environment surrounding the mine also affected dogs and dog teams causing corresponding impacts to travel routes and land use patterns.

> People used to travel on dog teams a lot, and dogs got sick too. Kind of hard for people to travel through there; dogs get sick, it gets lots of hardship on people because they need dogs for survival, a long time ago. It was pretty harsh for a while there. Lots of people travel all kinds of different places; they stayed away. People just stayed further away, even further away from these guys because there is just lots of noise pollution and everything. (YKDFN 225, 8 September 2018)

> The dogs went in through the water, within less than six days, I think five days, the hair of the dogs' feet fall off. The one of them, my dad's dogs went blind too. I don't know how that happen, you know, when the dogs are in line... they're splashing water to the second dog behind it... the arsenic might've got into his mouth or eyes. Within a few days three, four days he was blind. (YKDFN 2, 9 July 2018)

> About three, four [dogs], we used to across with dog team. And dogs would fall in there. And get that hairs, hairs falls off. We had to shoot them. [10 years ago] we used to go over there. Now they move to go here somewhere. (YKDFN 76, 5 September 2018)

In addition, participants link toxicity from mine activity with major ecological impacts to fish and wildlife and habitat, affecting their occurrence and prevalence in the area.

> So coney was the number one fish in the whole bay here at that time, before the mines. It provided medicines, it provided oil, it provided candle, and food too at the same time. So the coney was important. So, after the mines started using dynamiting further underground, the fish moved out. Coney moved out, trout moved out. The only fish that was in there was pickerel, suckers, jackfish, and whitefish, that's it. Everything else is gone. (YKDFN 2, 9 July 2018)

> She said a lot of pollution covered the whole area. Even there's a crack in a tree standing, there's a crack in there, she's sure inside the crack of the tree is solid dead from all the smoke. We went on a pond, we toured the place one time, and it seemed like there was a round lake up there, a pond at one time, and now just white, grey, and around that area, the pond, just red with all arsenic, poison arsenic

> in there. We can never ever go back over there and pick berries. She said about this time, used to be a good area to go moose hunting. They go to shoot the moose there, they set up a camp and they make dried meat there. It will never ever happen again. Even rabbits were all over the place those days, today rabbit goes there, they eat grass, they will die. Some days after remediation is done, if we go over there, maybe we eat a patch of blueberries, we'll probably end up dying too. (Translating for YKDFN 150, 6 September 2018)

> People used to go hunting that way all the time. Berry picking, moose, everything's there all the time. To hunt there all the time. Got all destroyed... back in '35? That's when the prospector came in... used to be lots of tent there. White people push them out. (YKDFN 76, 5 September 2018)

YKDFN members also report that toxicity from the mine has caused impacts to vegetation and traditional use of plants and trees.

> I think right over here, somewhere around here and way Yellowknife River, nobody can't eat berries or anything like that nowadays. Can't even go berry-picking. All around, as far as Yellowknife River, I guess I would say, all around there. If you go there in a boat on the river, on the left side, by the river you can see all the trees are dead. You'll notice that if you go by with a boat or something, you can see it with your own eyes. (YKDFN 62, 8 September 2018)

> I didn't know at that time, I didn't realize, I guess it was bad. All that... exhaust that comes out of the big stack there, that was pouring all over there, all over that region. That's why it was killing all the trees. (YKDFN 151, 7 September 2018)

> But what I hear, the story of the community, that really hurt me. You can't even pick berries. They used to live on medicine, traditional medicine. Spruce boughs, they boiled that some time, if you have a rash. Spruce boughs, they boil that, and they boil that syrup gum. That too, they boil it. But they never know nothing about the trees around here; it's polluted already from Giant Mine. (YKDFN 222, 10 July 2018)

> The children just love eating berries, something different for them every summer. Just all kinds of berries around here. They get picked berries and they eat it. They keep eating berries and those days, there was no autopsy. How you die, nobody knows how you die, except for their parents. Their parents hold their children in their arms, they die in their arms because they eat too much berries maybe. They can't eat, they can't swallow. Their throat is so sore they said, little kids. You don't know how much our people go through. (YKDFN 222, 10 July 2018)

Participants report that impacts to habitat and preferred species have corresponding impacts on human health within the YKDFN community. Out of fear of contamination, YKDFN members avoid their normal harvesting areas, spending additional effort and resources to travel to and secure access to traditional foods elsewhere. Meanwhile, those members who continued to harvest within the mine lease and in Yellowknife Bay are suspected to have had exposure to mine-related toxic chemicals.

> It affected their health, and this is the sad part, where we can prove that it was the mine that did it, right. But I feel like over the years people have gotten sick but they always blame it on cancer but it must start somewhere, like, how it started. So you know people get sick, a lot of different sickness. I think it has a lot to do with in the earlier years, the water was contaminated but they really didn't test it. God knows all the ducks we killed in this area, because people used to go hunting for ducks, all this area too. If they ate any vegetation on that side when it was contaminated, and you know, they shoot the ducks in that area, and we don't know whether they were in that area. Not only ducks, but you know, we have small game like muskrats, or beaver, ptarmigan, chicken, that's a small game. So it really prevented the people from gathering like they used to. Like medicine plants, there's certain vegetation that's on the land, like the plants that are used for certain medicine. So those kind of things too would be used together in that area. Now they can't do that anymore. You've got to be really cautious about what you gather and what you kill in that area. It affected people from being so paranoid about getting anything in the area. So, it destroyed the whole land for us. No longer freely go out and do things like we used to. (YKDFN 10, 7 September 2018)

> Long time ago, people used to go over here, all over. They used pick up berries, but all over, and right across the whole bay. Go along the riverbed and along that side too. But nowadays nobody don't go for berries any more. But you have to go further... you don't go for berries anymore, but you have to go further. This time of year people go for cranberries before the first snowfall comes on. Right now they're good to eat. Now people don't even go for cranberries anymore. (YKDFN 62, 8 September 2018)

> Eventually people started to realize that area, that's not safe to pick berry or go hunting in that area, or trap in that area. Because it's all the smell from the chemical they use. So, they kind of destroyed hunting and trapping in that area. They put it in the water eventually, so the fish, they used that area and now it's no longer used after all the pollution they put into the water. So, they know that the fish got deformed, some of them. People have nets in that area said the fish weren't... the muskrats all kind of disappeared, and beavers, muskrats, rabbits, you know. They all kind of faded away in that area. (YKDFN 223, 11 July 2018)

Participants indicate that the loss of traditional land use in this area and changes to perceptions of home are passed on to younger generations.

> Always told my son-in-law, anybody, young people, I lost my children because of this Giant Mine. Don't raise your children around here. Go out on the land, go out in the bush. Go somewhere, I tell them that, you know. Just don't come close to Yellowknife, don't even drink the water. And don't eat the berries too. (YKDFN 222, 10 July 2018)

Participants report that the Giant Mine has had major impacts on preferred drinking water sources and traditional recreational (swimming) areas used by YKDFN members for generations.

> From Back Bay to Yellowknife River was just a lot of people used to go out, Sunday, to just picnic here and there. I remember kids, they used to summertime, nice, sandy part down at the lake, and kids would just go swimming all day. Nice, warm day, kids were just in the water all the time. (YKDFN 32, 5 September 2018)

> On Latham Island there, right there in that area, right there. Swam in that area, that little point, and the channel there, towards the bridge. Swimming there. Some of swam out all the way around that Latham Island. Yeah, that's where we swam. And before we used to get water from that bay too. You know, where we swim, that area. (YKDFN 223, 11 July 2018)

> Just wondering about the water, at those times. It was still good water, or? We were jumping in. Was it contaminated water that we were jumping in with? I don't know. I'm sure a lot of our members at some point, they had died with cancer because of that arsenic. I'm sure of that. Nowadays people are just dying of cancer...those kids died of eating the snow, they said. So the news came out at that time. So, our parents used to tell us, "you play outside, don't drink water, don't eat snow on the land, I don't think it's pretty safe." They used to try to warn us. Us kids, I don't know, but we never did try that. But lot of time we drank the water from the lake, and swam in the lake. That's why I'm saying that I'm sure people have died of cancer, little bit of arsenic in their system. (YKDFN 32, 5 September 2018)

Interview participants indicate that these concerns are ongoing, and report continued community efforts to prevent swimming at traditional recreational areas today.

> The sediment's still there. Whenever there's big wind, you know, big waves, the sediment stirs up. And can't drink the water here, can't swim. Can't swim regularly, we keep telling the kids... We let the parents know, you know when they get home, get your kids to take a shower, and if they have a cut or something, you know, treat it a

> little bit. Kids still swim, even though they know. Where else are you going to go? (YKDFN 2, 9 July 2018)

Participants describe their indicators for and observations of toxicity in traditional harvesting areas around the mine, such as unusual qualities in fish harvested for consumption, and die-offs of fish.

> Just off the island there, N'dilo that first island, my dad set a net one day in '73 or '74... where the fish was soft, and it taste funny. It tastes like fuel or gasoline... And then it was springtime just after the bay thawed out and then the whole bay was—fish was floating around... My dad said don't give those fish to the dogs, there's something wrong with the fish, they're all dying. (YKDFN 2, 9 July 2018)

> While we catch fish we're way out Great Slave Lake, fish are hard, healthy... When the fish are soft they're sick, not good to eat... That's why fish are soft. Arsenic. (YKDFN 76, 5 September 2018)

> When we eat that fish, it tastes like fuel. It tastes like gas, or it tastes like fuel. It don't taste, not like dry meat, even though we smoke it. We dry it, and boy, I tell you, my mother was scared. She tasted a little bit of it. Every time somebody come around I'm drying fish, we taste a little bit of it, a little bit of that fat in the centre, and a little bit at the edge. We taste it. We just spit it out. We rinse our mouth. We brush our teeth. She didn't even want to smell it. (YKDFN 222, 10 July 2018)

Analysis of participant interview transcripts demonstrates that the mine has had direct effects on YKDFN members, their traditional land use, the environment, and YKDFN relationships to the environment. These impacts, and the experience of them by YKDFN members, inform the adaptations YKDFN members have been forced to make in response when pursuing traditional land use in and/or around the mine site area.

4.1 TRADITIONAL LAND USE

A key message that emerged from the interviews is that as a result of impacts to the local environment and to human health, community members today have to travel farther to practise their traditional hunting, fishing, and gathering activities. The distance individuals travel to areas considered unaffected by the mine vary, and a number of factors contribute to an individual's feeling of safety.

> We've got to go further out. Way out, about 20, 30 kilometers out. We go out, we pass Mason Lake and Duck Lake, towards Wall Bay area, and further out past there too, a lot of people I know. The elders told us not to put nets around the city,

> around the Back Bay or Burwash, and you know where those two islands are close to Dettah, they said don't put the nets past that side; stay on this side here. So, that's why we're sticking that way, further out away from the city... just to make sure everybody's safe, make sure none of the contamination stuff from the lake, from the mine." (YKDFN 225, 8 September 2018)

> I don't go skidooing in that area now... because I don't want to shoot no ptarmigans or any kind an animal. I don't kill it due to arsenic wherever. Maybe I'll go out further. I'll just go out right across the lake here, and I'll go to—sometime I go to Prelude Lake, and go skidooing from there. From there, it's just past Prelude there. If I see any animals wherever I just shoot to eat, like ptarmigans. Safe distance, safe anyway, far away from Yellowknife. (YKDFN 62, 8 September 2018)

> I go further down. I go about 10 kilometers down to do all my fishing. So that's what happened to Yellowknives Dene in the bay here, and they can't fish there. They know the harm of fish, that bay. So now we go past Dettah. We have to go further out. (YKDFN 2, 9 July 2018)

> I prefer to go out to Drybone Bay, Moose Bay, because it's more clean there. I don't think dust carried that far. Probably around Dettah, I wouldn't be eating cranberries, nothing. No, because we're closer to town. Same thing with fish. I won't be eating fish around this Great Slave Lake closer to town. Our brother go out to Drybone Bay, Moose Bay, East Arm. (YKDFN 226, 8 September 2018)

> Yeah, they don't trust anything around Yellowknife Bay area. They usually go past Wool Bay. Or else past, towards Reid Lake, or any of those areas. Nobody hardly ever goes hunting, I don't remember that lately, saying they hunted in that area. I don't think nobody trusts that area anymore, to pick berries or anything. (YKDFN 10, 7 September 2018)

> Right now I'm scared to eat a fish now. Even same thing with anything you eat out of the woods, like a rabbit, ptarmigan, beaver... it's scary. The meat is scary." (YKDFN 79, 10 July 2018)

These impacts to traditional land use areas represent changes in perception of preferred resources by YKDFN members, and exist irrespective of science-based assessments.

> And for the water, you know, the western scientists says oh the water's okay now. It's not okay. We know it's polluted. All the sediments settle, but any earthquake or sudden movement of it will, you know, disturb that and we can say bye-bye to the fish forever, whatever is living in that area will be all gone. (YKDFN 223, 11 July 2018)

> I think that area is really kind of sensitive area now... They have water treatment plant that they're talking about. Collect and treat the water, put it back in the lake. Think it's possible for them. But for us to think about it, who wants to drink that water from that treatment plant, up to the standard drinking. Pretty impossible. (YKDFN 32, 5 September 2018)

> She says she heard them talk about cleaning up the place but she's not really sure how are they going to do that... Water quality around this area, the arsenic probably so high that the doctor maybe they found out that we can't sit in it in this area. Before they used to sit in it all along the shore... [Now] if you sit in it around these areas, or if somebody gave you a fish you can't even eat it, she said... I'm not sure how the cleanup, how it would turn out. But I went to meetings, and how the arsenic is frozen underground, how that's going to be watched. And those open pits, they said they're going to throw stuff in there, and cover it with some kind of fine material, and then they're going to put rocks on top of it. Even how much they try to clean up the place, people can never ever go back over there for cooking area, have picnic together, and pick berries again. That will never happen. Even the animals that eat around that area, they might die. So far what she's hearing she doesn't know even after the cleanup how it might look. (Translating for YKDFN 150, 6 September 2018)

Impacts to traditional land use are compounded by economic implications, such as the need for more gas and supplies to support longer-distance travel to "safe" hunting areas, and the need to pay for clean water delivery. Participants report that impacts to local drinking water sources caused new and increased financial hardship for YKDFN community members, who are required to pay for fresh water delivery services instead of drawing water from Yellowknife Bay as they did formerly.

> Our health has been compromised because of that arsenic, and our way of life. So the government really needs to take a good look at that and compensate the First Nation accordingly for what we have lost. Ever since the mine had started we started having water deliveries. By rights, none of our people in N'dilo or Dettah should be paying for water. You know, they told us that we had to have water delivered to us and we started paying the water. Before that, we used to take water from the lake. We hauled our own water. The water was fresh. But up until the '60s, you know, around or '60s, that's when we started talking about the water. They wanted water delivery. I think it started in the '70s actually. So by rights I think that government should be paying for our water. We shouldn't pay for stuff like that. (YKDFN 10, 7 September 2018)

> They were told, "you are responsible because you didn't look after the water." We use that water, that water for drinking and bathing, washing. We should get free water; at the time they were told that. So, figure out how many years [we have been paying for water]. Just think, how many years you think that is? How many years ago is that, since those two kids died. (YKDFN 223, 11 July 2018)

Analysis of interview participant transcripts clearly indicates that the presence and activities of the Giant Mine has caused significant changes to YKDFN traditional land use and practices within and contiguous with the GMRP study area. Participants report that community members are now unable and/or unwilling to use preferred traditional land use areas that have been impacted by the Giant Mine.

> I mean that whole mine [site] was the lifeline of the Yellowknives. It was where they went and got their berries, where they got their moose, it's where they got their medicines, that whole area was the most important part of the whole bay. But now it's all destroyed. We can't use nothing there. We can't use spruce gum, we can't use berries, we can't use—eat the berries, beavers, muskrat, nothing in that whole area. (YKDFN 2, 9 July 2018)

Participants report that this loss of access to their preferred traditional land use areas will continue to have lasting impacts on the health and continuity of traditional YKDFN culture and lifestyle, and the overall health and wellbeing of future YKDFN people. Increases in travel time and costs to access food and medicine harvesting areas considered safe present barriers to the transfer of land use knowledge from one generation to the next.

> Now the hunters and trappers in the Yellowknives have to go further out, which means they have to spend more money, more time to go further. The moose in this area is not good, so now you go further away. Two things, if you want to die young, you want to get sick, go hunting in here. If you want to have good health, go further away from this mine. That's what we're told by our people. We're not forced to do it, but we're told to do it for our own health. And it's our decision. Some of us can't afford to get out. We don't have the means to get out, the boats, whatever. Not everybody's got access to those things. So, what happens to those people? (YKDFN 2, 9 July 2018)

> It's really difficult. How those kids will be in the future, the young people in the future of YKDFN. Knowledge, of the traditional knowledge, nothing. In my time, there was no white people, and we had, we were taught, by our parents, to be on the land. I used to go out on the land, and hunt for moose and caribou. Before it gets too cold, I'd go back to travel to my camp before the nightfall, and you'd sleep with two hides. Moose hide, you'd sleep on the moosehide, and a moose hide blanket on top. Like, it's

> very warm. At those times, we had no blankets. It's very difficult today to say. How all the kids will be into the future. They don't hold onto it, they haven't learned the culture. It would be difficult for them. (Translating for YKDFN 81, 9 July 2018)

4.2 SOCIAL, CULTURAL AND PSYCHOLOGICAL

YKDFN members indicate that along with the loss of important sites and land use areas, the Giant Mine has had social and cultural impacts on the Yellowknives Dene community.

> People's life has been impacted. People lost children, people lost family members, and that's probably a great loss. You know, you lose your children to something like that, and then as well you lose your land. You lose your most important hunting and fishing and gathering area. It's gone forever. It's a huge loss, it's a huge loss, meaning that the Yellowknives will never go back and regain their lands again, or use it again, as our ancestors did, you know for berry-picking, medicines, all those things. It can never be returned back. I talked to the Elders about selecting lands in there for land claims and they said no. That whole area is dead. Why would we want to take land contaminated? So, it's a huge loss. Because it's a huge loss it should be apologize Yellowknives and then compensation to repair the lives of some of the people that have been impacted by this. (YKDFN 2, 9 July 2018)

> I think what happened to the people is that they were not allowed to use that area anymore. I know a lot of the guys would say they hunt small game in that area, like muskrat, some beaver, ptarmigan maybe, that kind of thing in that area, ducks. And they no longer were allowed, just like, I feel like the land was taken away from them because they're not able to use that area anymore like they used to. Even in the Weledeh site. I mean that's where people used to always gather this time of year to, you know, prepare to go up north and prepare, like fixing their hides or make a dry fish and dry meat to carry with them...So they used to feast together and have drum dances, hand games. They help each other fix hides and stuff, and they celebrated before they all left each other to the barrenlands for the winter season. So that was a really significant site that I feel like it's been taken away from the people. They no longer did that after the 1930s and '40s, people stop going there because of activity. There was a lot of activity going on there, like the last thing that you know, that kind of killed the land as well and prevented animals to go there. (YKDFN 10, 7 September 2018)

> We're still struggling... But as a YKDFN we're not getting nothing. There's always a talk saying that we might get something like compensation. But when and how long

> would be? It's really difficult to see what's happened to our land today. And here the company, the government, they got all the money out of that gold. We've been left behind with the big arsenic that's been stored, and the whole area is covered with arsenic today. They left a damage behind and they just went away" (Translating for YKDFN 157, 6 September 2018)

Participants indicate emotional and psychological impacts resulting from experiencing the loss of close family members from premature death within the YKDFN community, and that these deaths are suspected as resulting from exposure to a toxic environment.

> She lost her other children too. Two babies... They take water from there. There's no running water or, there's no water delivery to your house. You've got to take water from the shore, and now you drink that... and you bathe your children there. You know really, nobody ever told them... A lot of people died with sore throat. A lot of Elders too, they died with sore throat. You don't know why. There was no X-ray in those days, nothing. Nobody ever know nothing about anything like that. Oh. I have so much story to tell. You know, for the people. Even some young children lost their parents, there are homeless, and, some Elders take them, but they, they never learn to be hugged. (YKDFN 222, 10 July 2018)

They also report that monetary income from the mine contributed to social issues within the community.

> There was lots of money that came in when they worked there, but with money you just think, lots of people just used it for the wrong things. Just spend lots on booze and staying partying in town, and that kind of stuff. Put a lot of hardships on the community as well too. (YKDFN 225, 8 September 2018)

Transcript analysis indicates that traditional lifestyles and cultural well-being have shifted as a result of the Giant Mine and that this remains an ongoing concern for community members. Participants indicate that the absence and loss of traditions no longer practised today (e.g., by younger generations) are due in part to the loss of important traditional land use areas around the mine.

4.3 LEGACY OF BAD FAITH AND MISTRUST

Assessed collectively, participants comments indicate that the Giant Mine is associated with a historical legacy of wrongdoings and lack of transparency that contributes to ongoing mistrust and tension between YKDFN and the government and GMRP working groups. All of the interview participants describe concerns and negative perceptions related to inadequate

consultation and insufficient communication of environmental impacts throughout the lifespan of the mine and following its closure.

> No information was ever given out... We didn't know nothing about the government telling the Dene First Nation that the water is not good, fish is not good, no mention of that. (Translating for YKDFN 81, 9 July 2018)

> We knew nothing about the Giant Mine in Dettah. They never told the people that the roaster pipes had arsenic smoke. For how many years those roaster pipes... after everybody started talking about it and everybody know, then they put something there. (YKDFN 79, 10 July 2018)

> There's no really big concern for anybody, so they just did whatever they want. Had big stacks going there. Like, there's no regulations, they just do whatever they want. (YKDFN 151, 7 September 2018)

> Today the government or the company that started developing the Giant Mine, they never ever did consult with YKDFN when the work was beginning there, and what they were doing, they never consulted with YKDFN members. (Translating for YKDFN 150, 6 September 2018)

> Nobody came to N'dilo, house to house and explain to the people living here, you know, about that [warning] sign they put on the island. Nobody explain to them. So they were in the dark here all the time. Except for some of us who were educated and were able to read. We kind of knew what was happening. And at that time, the Ilders' sense was that the government wasn't going go talk to them, they were going to continue in that mine regardless of what people were saying. (YKDFN 2, 9 July 2018)

In particular, participants report that communication strategies failed to address the risk to community members posed through YKDFN traditional land and water use activities.

> There's no communication. They don't tell us anything... Only one they probably told us is about the Yellowknife Bay... They didn't tell us officially it's contaminated, they say the water's no good. They put a sign up saying the drinking water from this bay will be a hazard to your health. "Danger." That's a sign I read down there. It's only water, doesn't say "don't eat fish" or anything... "Don't eat rabbit" or anything, doesn't say that. So during mid '70s to early '80s there were lot of cancer cases here. Lot of elders have cancer. And that's what I was worried about, is because they eat a lot of fish from the bay... so when Health Canada did another study here where they said the fish might be contaminated, you know, not good for you to consume and eat it. That's when we started communicating with the community people here, older people, saying you know, "this paper says you shouldn't eat fish because the mine is

> no good; the mine is contaminating the fish, so it's affecting the fish here." But there were still some elderly people who still love their traditional fish. Still fish, even though they know they harmful. They are tied to their traditional fish and they continue having fish... Some of them got [little bit] sick. But there was no communication on their traditional food that was contaminated. Only thing they were told to us, is that the Back Bay, the water's no good. "Don't drink it." (YKDFN 2, 9 July 2018)

> The way I know it's harmful, in early '61 I think, when I move here, there's a bulletin board, big bulletin board, out and and everything is that – I don't know who wrote that – it said: "do not swim in this bay." Do not. And then it said: "do not even wash your face in that water." I guess it was that much. And that's when my all my dogs died, were right from that lake, we give them fish, the fish is still kicking. We give them two fish each. All summer long. We want to have a good dog in the winter. But that year, boy I tell you, the arsenic was so bad. (YKDFN 222, 10 July 2018)

> It's after the fact that something occur, you know, we lost a few people, and few kids and that, on the water. Because they were going swimming. Then they put up the sign. For a while anyways, "don't go swimming in this area because of arsenic in the water." Well, it didn't say arsenic, but it's not good to go swimming. But the sign didn't stay there for a couple of years. It got knocked down by wind or something and I think... and they didn't say anything, you know, "don't go fishing, don't drink water." Don't say anything like that. And those are the people that, the government that issued the license for the mine. Usually they got on the license, it would say terms and conditions on the license, make sure you follow that. When it says something like that on the license, the government has to go check it, inspect it, make sure they follow the terms and conditions on the license. As far as I know they never did that, I don't think. That's why the damage and the pollution occurred. (YKDFN 223, 11 July 2018)

The lack of adequate consultation and insufficient communication of impacts in the past that YKDFN members describe contributes to a sense of betrayal and mistrust articulated by community members today.

> At that time, in late '70s and early '80s there was probably, I say about five or six people had cancer in N'dilo here, at the same time. It was unusual. And that one man that used to fish in the bay here, his name was (anonymous), and he also got cancer. And a few other people too got cancer. My dad was one of them. My mom, (anonymous), a few other people. We knew what was happening to us, but nobody was there to help us, to explain to us what was happening. And the mine, they just

> continued to continue too, regardless... My memory of that whole [time] is that you know, this Giant Mine is a "golden cow" and they're going to continue to milk that cow regardless of what anybody says. The golden cow was the most important thing, regardless of anybody's health. That's what I found out. That's my feeling of this whole area, when DFO give Giant Mine the water licence [to] continue even though people were affected. INAC and Indian Affairs continued to support that mine, many people in city of Yellowknife all supported that mine. Regardless what was happening. So here we are today, many people passed away, arsenic, we're not allowed to eat the fish in the river, we're not allowed to eat the fish in the bay or drink the water here. Four inches of the mud in the Back Bay, I was told is arsenic. So nothing is safe here, even our community in N'dilo here. We have arsenic right by the school here. We're trying to do gardening here but most of us are afraid to do gardening because the dirt, we don't know what's in the dirt here. Could be bad health to us. We have berries in the community but we don't, we ask our children not to eat them, might not be good. So we've been impacted by this whole mine for 70, 80 years... Even after the mine shutdown and we were still impact today. But what's left behind? We're the ones who have to live with it and watch this whole thing across the lake for the rest of our lives, and generations after generations after generations, we'll also see that too. (YKDFN 2, 9 July 2018)

> To this day, they still are repeating it. And nothing occur, because they don't care. They don't care, period. Like talking to a dog, you know, a dog; you repeat yourself, repeat yourself. They won't move unless you kick them hard enough to get them to move, or hit them hard enough. They were told that. You guys issued a license, you look after what they're doing, like they've got terms and conditions on that license. If they had done that, this could have never happened. Now that happened, we say we want free water. To this day, nothing on it. So, I don't know what kind of people are they, that don't listen. Because water's really important to us, the land is important to us, air is important to us. Just the three elements that are really important to us. We're here, you know, to look after it. When the treaty was signed, we warned about those three things: "the sun, the sun shine, the water flows, and the grass grow." At the time, you know, the treaty making, there will be no destruction, no destruction whatsoever. We will share the land, water and the air with you. But they broke the promise. They didn't pass on, relay the message. (YKDFN 223, 11 July 2018)

Participants indicate that the inadequate consultation and insufficient communication they describe continues to contribute to a lack of trust and related barriers that informs the relationship between contemporary YKDFN members and the GMRP.

5.0 GIANT MINE REMEDIATION PROJECT (GMRP)

Interview participants report concerns and feedback on the GMRP consultation process and the closure and remediation plan (CRP). These comments provide insight into potential impacts of the forthcoming CRP, and into the expectations and needs of YKDFN members.

5.1 ENGAGEMENT AND PARTICIPATION

In general, interview participants indicate that a remediation and closure planning process that includes YKDFN knowledge, perspectives and community members is a preferred approach.

> The process, the way they're going with it, they're having it, YKDFN, their concerns, that's been put forward to the companies. They're using some of our concerns. I think that would work better. (YKDFN 32, 5 September 2018)

Transcript analysis indicates that YKDFN community members vary in their familiarity with the GMRP, as well as their level of engagement and participation in the development of the CRP. For example, some participants report little knowledge of what the CRP involved and/or how it was developed.

> I haven't talked to anybody so I don't know. Never attended meetings. (YKDFN 226, 8 September 2018)

> I heard of remediation, but I don't know the story of it. (Translating for YKDFN 52, 11 July 2018)

> We don't know anything about that stuff, 'cause, like [YKDFN 2], everybody knew all that stuff but we are not going to get involved that kind of stuff... [Would be good to go] to meeting and it's too busy all the time. (YKDFN 76, 5 September 2018)

Others demonstrated knowledge of specific CRP components. It should be noted that interview participants were selected and preferred based on their knowledge of the Giant Mine; therefore, familiarity with CRP components amongst participants may not be representative of knowledge and awareness of the CRP amongst YKDFN community members in general.

> They just had a meeting last week, and we been interpreting those meetings as interpreters, so I guess there's going to be long-term care for that area. (YKDFN 32, 5 September 2018)

> Here we attend the workshop and they said clean up sand. They had mentioned how they gonna remediate the place and return the place one time—there's a big, just like

> a big building... All the flat area, just grey. All the tailing pond. And that's going to be covered at some point. And how, we don't know yet. And open pit. Looks like they're going to be throwing some stuff in that. Maybe they might cover with the clean soil or gravel. And what we're hearing after that, they're gonna cover that top off with— they're gonna put the cement on top after that. And that's what we're hearing at the workshop. And they said they would get back to us, the next workshop. As they go along talking about the cleanup plan they will get back to us and talk about more of the how they gonna do it, the cleanup. (Translating for YKDFN 157, 6 September 2018)

> We hear from the workshop they have in Dettah, and some meeting that goes on, she attends that meeting and how they recommend remediation that going to begin. How the pollution from that stovepipe, all that smoke that was coming up out in the air, and all the arsenic smoke that went and touched the ground, that touched the whole ground and disturbed the whole area, even the pond. What we hear from the meeting is they're going to put some cement in there, cover it with cement, block some area off...That Baker Creek, before the development, it used to be a good creek that's running down, that's really strong. They're talking about diverting that creek in some way too. (Translating for YKDFN 150, 6 September 2018)

> Well should be covered with a lot of gravel, I tell you that. I told them that they should bring in sand from Behchoko [Rae-Edzo], 50 miles away from me Yellowknife. They're going to use the material... from that site. I was hoping they would bring material in from somewhere else. Cover that whole place with gravel and then sand on top. Just so it contains everything, nothing blowing around. If it rains it just stays there, contains itself. And the water will be going through some kind of a system, and filtered I suppose, they have to. I mean, that whole tailings area is a huge area, huge. (YKDFN 2, 9 July 2018)

YKDFN members report that despite their interest and concerns regarding existing mine-related impacts and remediation plans and priorities for the site, they experience barriers to participating in collaborative CRP planning. They report challenges related to the timing and scheduling of meetings.

> So, every time there is something going on it's too late because I just finished working. I work different hours. (YKDFN 226, 8 September 2018)

> I try to attend some meetings, but I'm so busy myself working up north... I'm learning quite a bit about it... I've been to maybe a couple [meetings] in the past years. But like I said, I'm so busy with my work and family, so I just don't have time. But I would attend if they give me a call and all that. (YKDFN 151, 7 September 2018)

> Yes, I went to a lot of meetings there. I went and I listened, Giant Mine and what their plans are for future... Hopefully they'll work something out. But I never went to a couple meetings there last week. I was too busy. But other than that, I don't know what to say. If there are some more meetings in the future I'll probably attend. Depends on the day too, because I'll be working for the school and everything. (YKDFN 62, 8 September 2018)

Barriers to participation reported by interview participants also include inadequate understanding of the CRP, the collaboration process, and of the roles involved in each.

> I don't know what our government's plans are, and what the government's plans are, and the band, I don't know what's going. I don't really know what the plans are right now, I don't even know what's happening. All I know is they say "hey there's a meeting, people are supposed to attend." But I don't really know what's happening right now. (YKDFN 62, 8 September 2018)

> I can't say too much how things should be done. But it's up to our leaders to consult with the government and to get back to us, consulting with us. (Translating for YKDFN 150, 6 September 2018)

YKDFN members report that both insufficient communication efforts and ineffective communication materials are also barriers to full participation in the CRP process.

> We're still learning about that too because we get those reports from the Giant Mine saying that 15-billion parts per million, and what the hell's that? How much do you compare that to? Like a little fish or a little something, or a berry or cranberry or whatever; how much is that for that? And how much will it harm people? We're telling them too, better graphs and better language or whatever you call that, like simple language, help people out as much as possible. They're still sending us those same reports because that's what they're getting; maybe it's a scaled down version of what they're getting. But we don't know that, we don't have experts of our own to do that too... they're not doing those simple language things for us. It's kind of hard to understand what they're talking about. They've got environmentalists, they're the federal government, they've got billions of dollars to do all this stuff, but they don't. Even with the Council we say "why aren't they helping us do that?" Like, it's the second most contaminated mine in Canada. They should be making it simpler for everybody. And here they found out Cam Lake was contaminated with arsenic, they got signs and posters and going door-to-door. They're doing all that, but they're not even doing that for us. (YKDFN 225, 8 September 2018)

> Most of the information they give us is pretty clear forward. But information, that should be updated maybe once a month. How are they going about doing things, if there's any employment in place that they want to have, [etc.] (YKDFN 32, 5 September 2018)

Participants report that unequal distribution of resources, and in particular insufficient capacity on the part of YKDFN are also barriers to full and effective participation.

> We don't have the staff. The money we have isn't enough for staff just to get by and just get as much information as they can. But we need more staff, we need more funding for that. And even the fine little things like that is hard to do too, because we don't have enough people. It's just difficult moving forward on all of these things. (YKDFN 225, 8 September 2018) Perhaps as a result of one or more of these barriers, participants indicate that when they do attend meetings some community members do not participate in discussions or voice their concerns.

> I think it's good, but people should say something. They just sit there, they don't say nothing, they just listen to all the people, you know, talking. You know people go there just for the money, that's it. They should put their opinions in there, you know. How they think about a Giant Mine. It's their lives, it's our property. They should say something about it. Why just keep don't say nothing, just listen from the other people that's it. Everybody should get a chance to say anything. It's for rights, this is where we should look after our land. They keep on saying our land, our land. But they're not saying enough, not doing nothing, like I don't know. I don't understand these people. (YKDFN 226, 8 September 2018)

YKDFN members indicate that potential strategies for overcoming some of these barriers could include consistent representation in the planning process, and improved communication between all participants and interested parties.

> Sometimes I wonder if we're spending time and money on certain people that come to these workshops, they sat there for three days, they don't say one word. They're just sitting there. Sometimes they don't even listen. Whether we're wasting money and time, I think so. So we need to get a little bit smarter. And, what do you call that, selecting certain people that we think is going to speak up and have something to say about it. Because, especially these men that already had worked in mines, I'm noticing that some of these men that worked in mines before they have really good questions, questions that I as an ordinary person in the community would never have asked if I'd never worked in a mine...Being consistent with the same people as well, it makes a big difference. I know we're trying to involve as many people as possible. But sometimes people don't say nothing, and it's always the same old people speaking

> up. So we need to encourage other people... And always keeping the Chief and Council updated on these activity too. I think it makes a big difference. The more information you know, you know, the more you're able to speak up on topics, you know. If you're not sure of anything, any topic, people won't ask questions, they won't say anything, they'll just let it go, you know. They won't ask the right questions. (YKDFN 10, 7 September 2018)

YKDFN members indicate that the Giant Mine's legacy of bad faith and mistrust is yet another barrier to YKDFN participation in the closure and remediation planning process. YKDFN members report that the need for compensation for the mine's negative financial impacts on the YKDFN community is a prerequisite to alleviating feelings of mistrust and resentment that serve as barriers to participation. YKDFN members also stress the critical role that financial compensation for suffering and hardship (including loss of life, and impacts to health and wellbeing, environment, traditional land use, culture, etc.) plays in beginning to heal the damage done to the YKDFN community, and to rehabilitate relationships between YKDFN and the government agencies responsible for the mine.

> I would like to have the compensation in place as soon as possible. Today we have to pay for water, $800 a month. You know with that we should have been helped, maybe with light bills. We pay too much light bills. We as the YKDFN, some of the other reserves, places down south, people know about us. "We thought you guys were the wealthiest community of the north." Here people are just struggling every day. Some members don't have jobs, some of them they're just homeless. We were never rich at some point because of that mine, we're not. This development make millions and millions of money, and some of the money maybe went to governments. What the YKDFN got out of that? Nothing. Now that we need one of our members, negotiation, get on top of that and start working on that. We shouldn't have to wait any more longer [for compensation]. All the elders they had a concern about it, they're not here with us today. We need our leader to stand up for us and start working on this. (YKDFN 32, 5 September 2018)

> Well some people can't afford water, it's too expensive. So maybe they can pay for the water for them. That's another option. There's lot of people who don't have jobs. If they want to, they're worried about the water concern, maybe they should pay for water from them, for the people. That's a start. (YKDFN 226, 8 September 2018)

Participants also report concerns about the lack of youth participation in the GMRP. They report strong feelings that youth participation is critical to the success of any long-term initiatives.

> Into the future, we never know what can happen. It can thaw out. Now you know they, the young kids, the young members, they have no knowledge of that arsenic, not much. Concern that he has is, [if it] ever thaws out, start to melt. (Translating for YKDFN 81, 9 July 2018)

> And the other thing is we've never really targeted young people. We've never really had a good, I think we had one or two workshop with the youth, but we haven't done that in a while. So you know we need to reach out to them whether through surveys or just talking with them about the project and see how much they know. So I think we need to do that as well. (YKDFN 10, 7 September 2018)

> We need to have the kids, students. We had students come and listen to the last workshop. Some of the students or some young people just sit there and they listen. But they don't get enough, nothing for appreciation for being there and listening to a meeting. Even me if I had some money, I had something on me I would've give to those youth for listening. They need to be taught the leadership skills and what's happening... and their meeting. They need to be talked to, and seems like they're not doing too much with the youth. They always saying, those elders always mention about the youth attending meetings. But most time we go to meetings maybe youth will sit for a while and comes and go, but they don't get them anything. Lot of times they, the elders, they're always saying the youth are more important, that they're following us. They'll be our leaders some day. Now that we have meetings and workshop that goes on they need to be attending those meeting. So they know the whole—what we talking about. And put the land and leadership skill, they need to be taught now. We can't just leave all those youth alone. We need to have them with us. On the land or at the meetings. (Translating for YKDFN 157, 6 September 2018)

Participants indicate that a principle barrier to youth participation is lack of awareness and understanding of YKDFN traditional land use in the Giant Mine area, and the mine-related impacts on that use, the environment, and YKDFN health and wellbeing.

> All the elders that knew that area at one time, the people that knew the area so well, they don't think that much young people know about that area or the story. (Translating for YKDFN 150, 6 September 2018)

YKDFN members recommend the development of specific initiatives and education campaigns to promote awareness of the GMRP amongst young people, and their participation in the CRP process.

> I think they should have more more meetings about the Giant Mine. I know they keep talking about what their plans are. Lots of people, elders and everything, they should

get young people to go to the meeting too. Nowadays it's only elders... but the mine, what they did to the Yellowknife, that's for our future, for the kids. So, I think the young kids should go to the meetings too. So, they know what's happening. Maybe teach them, teach them in school, what they did to the Yellowknife. (YKDFN 62, 8 September 2018)

Maybe put something out there to educate the people more. Schools, some kind of lesson need to be created for the schools, not only the elementary but also the high school. Maybe in different levels, along with...I know they're doing, creating lesson plans for residential school. So maybe they need to do something with the Giant Mine as well. Same thing that they're doing with the information on residential school, and teach the students about what happened when people were at school. So that kind of information needs to go out I think too. This will be a start of educating our people. (YKDFN 10, 7 September 2018)

I think there should be an article written on a newspaper so you know this way that our kids will know why the mine and everything's, like, what happened, what they got out of it, the gold and everything, and contaminated with arsenic, and there's arsenic in the ground and frozen. They should know about it. They're going to ask, I know they're going to ask question, but hey we'll have to tell them. That's why some people don't want to come back here, because it's contaminated with arsenic underground. It's not safe. But before something happened to it, they should take care of it good. (YKDFN 226, 8 September 2018)

I think it's got to be, like I said, it's got to be more involved in all the different groups, like Yellowknives Dene, the city, even like museums and that, just to in a way like try to keep how the old mines operated and that so it don't happen in the future and that. Keep the memory alive sort of thing...Yeah like I said you know, it's going to be some of legacy that should be kept alive about this place. So that in the future people don't do that again, to keep the area. If you're going to do that try to do it in a way that's environment friendly. (YKDFN 151, 7 September 2018)

We need to somehow also get a story out into the future. We talked about creating a legend or some kind of story so that we can make up and, because legends are passed down orally, you know, century after centuries. So we need to come up with something to tell the people in the future not to go in that area or establish there at all. So I think that's one story, one thing that needs to be told over and over, and we need to create that story. Whether it's our elders, maybe with our elders with the youth, with the people in the community; we need to come up with something to tell

> a story how dangerous it is. So I think that's one thing I would like to try to tell to the future. (YKDFN 10, 7 September 2018)

5.2 FEEDBACK AND INPUT

Interview participants provided a variety of feedback and input based on their knowledge, understanding and concerns about the CRP and ongoing maintenance and monitoring related to the Giant Mine site.

5.2.1 Closure and Remediation Plan

Analysis of the interview transcripts indicates that YKDFN concerns regarding the CRP center on existing and potential environmental impacts to human health and wellbeing throughout the YKDFN community. The significant majority of interview participants indicate that the Giant Mint site should never be used again, and that restoring it to its predisturbance state is simply not possible.

> I've been thinking about it. That's a very difficult... It can never be cleaned up again. The land that can never be before. (Translating for YKDFN 81, 9 July 2018)

> Maybe the way we might replace it with, you know how some people they do the grass and they put grass in a block of grass and put it on the land around their yard? Maybe that's how they want to do it. I felt like she was saying, like, moss, put a clean moss on top of that area. I think she can't picture that area. It's impossible, is what she thinks. (Translating for YKDFN 150, 6 September 2018)

YKDFN members refer to the land as "dead" and report that no amount or type of remediation will return it to an acceptable state for traditional land use.

> The whole land is dead anyway. (YKDFN 76, 5 September 2018)

> Everybody knows the ground is dead, all dead... Never be the same again ever. (YKDFN 79, 10 July 2018)

> They're not going to put it back the way it was. The whole area is dead. We're not going to use that area for, not in my time, or my kids, or my grandkids. Because that area is dead. (YKDFN 223, 11 July 2018)

> He told me, "my girl," he said, "look after your children really good. I don't want nothing to happen to you, to my grandchildren from Giant Mine," he said... "You too have grandchildren someday, you will have great-grandchildren. You will make sure they're healthy, they have a good life, that they [don't] eat anything around this area.

> Even cutting wood. Don't cut wood and make fire and cook something on the fire. Maybe that wood will be full of arsenic too." (YKDFN 222, 10 July 2018)

Only one interview informant, who reported comparatively less knowledge of the mine's impacts, indicates greater optimism about potential future uses for the area.

> I think it's going to be like, it's going to be alright. It's just got to be managed more and effectively. They can put a lot of stuff in there. I don't know, maybe put a golf course in there. Might be all right, like get lots of campers in Yellowknife in the summer. That would be a good place for a little bit of camping maybe. (YKDFN 151, 7 September 2018)

In order to discourage public access and use of the site, and to promote ongoing public awareness of impacts related to the mine – namely to serve as a reminder – the majority of interview participants recommend against any efforts to beautify the site or to return it to its natural state.

> The other thing that worries me is that when they reclaim that area, I don't really want them to reclaim to beautify it. We need to leave it like plain grey, grey areas. Not to replant or nothing because once you do that I think in the future some people might forget what's there, when they think it looks normal, but really it isn't normal. That's the thing I'm worried about. I know they're trying to clean it up as best as they can, and they talk about residential standards, you know. What's residential standards mean? People can plant themself there and build a house or whatever. Like, I wouldn't want that to happen...I would prefer that it's fenced off, and leave it all grey... I don't want it to get too beautiful so that people will forget these easily. There needs to be a reminder there somewhere. (YKDFN 10, 7 September 2018)

> That plan they're talking about is the one to make it to stable standard. It's going to be a residential area; there should never ever be a residential area. Just shouldn't be a place where nobody should be stepping on it, or going around that area. Just fence it off, and just say "keep off, keep off the property." (YKDFN 32, 5 September 2018)

> There's a whole bunch of people come in and out; it's a transient town in Yellowknife here. If they make it nice, then people come here, and they go walk around over there after it's done and they get sick and stuff, and they're going to blame us. So, that's why we're saying make it look really rough. (YKDFN 225, 8 September 2018)

> For future I guess I would say, what do you call it, don't try to make it look good. Just keep that ugly the way it is. Try to make flowers and whatever, people will think great, it looks nice, the mine company, that's what they did. But just leave it the way it is and don't touch it. But people could talk about it for the future to know what the

> mining company did, and to people living around here too. (YKDFN 62, 8 September 2018)

> Should leave it for generations to see it and say "see, our grandfathers did this." It was not a good practice...because this was a political, and it was not only political but it was greed as well. They know the harmfulness happening to Aboriginal people here but they still continued. Because of politics they continued to mine that gold until the gold ran out. That's what happened, and basically destroyed it. (YKDFN 2, 9 July 2018)

In addition to these recommendations, interview participants emphasize the need for the CRP to include decontaminating the site, closing tailing ponds, and restricting access by both the public and wildlife.

> The cleanup can get rid of all that, most of that contaminated stuff and storage or else ship it back down south. I think things should be shipped down south. What they call the arsenic dust... Nothing should be left here. It should be shipped down somewhere. (YKDFN 32, 5 September 2018)

> From where the tailings ponds are, like all the way around there you just cut down all the trees, and all the soil and everything you just take it, and you mulch it up and then spread it back out, and try to get all the arsenic out as much as possible; just cover everything with gravel, the whole mine area, the whole everything, make it look ugly so animals don't come around. Make it like people don't come around either...Don't make it look nice, and just let the the rain and the water and all the solution stuff, just clean up as much as possible. Because we don't even want that water, and the sediments; they said it'll take about a thousand years for like an inch of sediment to go out in the lake, out in the water. So, that's a long time. (YKDFN 225, 8 September 2018)

> Tailing pond they should just cover over with what you call it that pave road, tar on like a pave road, on the road? Should cover the tailing pond with that...Besides that, where's the road there? Should cover that too, that road. (YKDFN 76, 5 September 2018)

> Leave that area and just fence it off and make sure little small and small mesh fence, so even little small animals can't get through there as well too, just to make sure it's safe for the future. Because we don't want the animals harmed or anything. (YKDFN 225, 8 September 2018)

Some of these recommendations are already incorporated into the CRP. This could indicate that these participants are fully aware of all CRP components. Most do indicate awareness of existing plans to perpetually store arsenic trioxide underground and report considerable concerns with this approach. Many YKDFN members indicate that arsenic should be removed altogether. This too may indicate a lack of awareness or understanding on the part of participants regarding the existence and/or consideration of alternatives to underground storage.

> We should try to stop anybody from building anything on that site until that whole arsenic is underground removed, and stored or shipped somewhere else. Like, if that ever happens, you know. But up until then I don't think we should use it for anything at all. (YKDFN 10, 7 September 2018)

> Said there was a frozen arsenic stored underground. How would that keep from thawing out and if it's in the chamber what's the chamber looks like, and on top of it in the chamber would they're cover it with the cement around again? And we don't know the whole thing of it...Say that there's a lot of open shaft, open pit. They say this and that how they're gonna close it up. We're not quite understand completely how they're gonna shut those things. Open pit and shaft out and I guess the main thing that would be is a frozen arsenic that's in the chamber that's been stored underground. That's the main concern. Along with the underground floor. Some day they might find new technology that you can get rid of it? (Translating for YKDFN 157, 6 September 2018)

> I think they should take everything out of the place. Nothing left. You know even all these little pipes and everything out of the ground, they should take them all out, and these pipes they should just ship them down south...They should clean everything right up...There should be nothing at all...It should be dug out and sent out, and get it cleaned up.(YKDFN 226, 8 September 2018)

YKDFN members report concerns regarding potential threats to safely storing arsenic trioxide underground, including earthquakes, floods, forest fires, wind, etc...

> Another one could be a earthquake. Forest fires. The earthquake is probably the number one. That's what we're afraid of here. If there was something there you know it would probably release all, what's under there. Another thing is flood, big floods coming down, from the mine, you know? And that could have, it could flood the mines, it could flood the open pits. And there's arsenic and other things stored on the property yet, that hasn't been removed yet. The other risk is that they have sea can containers sitting right about here somewhere...and I worry about that. I ask them what they plan to do with it. They said well they don't know, they for the time being,

> they want to keep it there. Then I heard they were going to put it underground. I said well that's not good. (YKDFN 2, 9 July 2018)
>
> Were we ever to have earthquake, just smelling that, it would just fill in your lung and you'll die. That's how powerful the arsenic is. It's nothing—I mean it's not fair just to deal with it and freeze it. What about a hundred years from now, when our great-grandchildren, great-great grandchildren, our grandchildren's siblings. What kind of lives are they going to have? You know? And I pray that nobody ever get hurt again. (YKDFN 222, 10 July 2018)

YKDFN members also report concerns about arsenic contamination in the environment surrounding the mine as a result of strong winds depositing dust from the mine site.

> I grew up here. Majority of the winds from this mine is going this way. My grandfather, my dad, said anything in this area here, don't eat it. Because that's where a lot of that stuff was going. Once in a while the wind will come from the north, blow onto the lake. But majority of the winds are going up. So, I wouldn't eat anything in this area. This is a bad one too, Walsh Lake. There's residents living there. A lot of people live there. (YKDFN 2, 9 July 2018)
>
> See how long it takes to clean up all that stuff there, because now they're saying, they're trying to give us only a 25-year contract and we said "no, we want a hundred year contract" to make sure it's going to be clean. Because we live here, so we're going to make sure it's safe for our families. So, that's why we're trying to push for that right now, and hopefully the contracts and all that, they continue, and make sure it's done the right way. But one reason too, we keep asking them, like the south wind in August, we told them to test over up that way, and we told them to test on this whole, because the west wind in August too, the west wind goes that way too. So this whole east side here, we told them test the ground, test the water, test the plants, just to see if there's a concentration of all the stuff from that tailings pond, and all the dust that comes off of there, and the runoff. Test the currents and everything, just to make sure that everything is clean on that side. Because they're not even looking across there too. It's been like, when did the mine open, 1920s? That's a long, long time, and every year all that dust and the wind and everything pushing everything all over. (YKDFN 225, 8 September 2018)
>
> Told me not to collect medicine around Yellowknife, so all the dust fly and everything. The wind blows too, go up beside Giant Mine—the tailing pond. There's a west wind, kinda goes through it too eh. Lot of people go through, that's where the people get sick from it...the dust flying eh. All wide around, goes through it. So, a lot of people get sick from it...If we haul out the big truck, dust would be flying. Arsenic

> goes long ways. No way we'd ever deal with it...Before, 20 years ago, went over there, caribou eating the food, from that dust. Some of my friends they think caribou's going down 'cause of eating all that dust from their food, 'cause they will eh. They will here. Like, you won't get a caribou baby or something like that. 'Cause all that dust. (YKDFN 76, 5 September 2018)

Participants report that fish and wildlife that can access the area are impacted by contamination and should not be harvested.

> As long as they fix it and put a sign around that area that there should be no hunting, trapping or fishing in that area. Because anything that you harvest in that area I think there will be some kind of disease or sore on that animal...small game and big game, and fish. I guess fish already, some that go deformed. As long as they clean up good and they put a good sign that says just keep away. (YKDFN 223, 11 July 2018)

Participants report concerns related to lack of security, public awareness of the impacts associated with the site, and ongoing public access to and use of the site.

> When I was security, I'd drive right by it and sometime we see people walking on property...You know it's not 100 percent proof security, it's only, you're driving around right? If somebody wants to hide they could hide, we won't be able to see them. And that's what happened with [anonymous]...She got off the car, she walked through the property and nobody saw her...She walked way up here to one of the big tent, white tent right here and I ask her do you see anybody? They see nobody she said. Well where's the security?...Supposed to be 24-hour security. So there was no security and she walked through that. So if she can do it anybody can do it, so that's the other thing I'm worried about is they don't have good security you know. (YKDFN 2, 9 July 2018)

> Even though we try and keep the people out but they're still walk in. I don't know why, but. There's nothing there. Just empty building nothing else. Good for the mice...There's [signs] everywhere it says private property...It just says "hazard, stay away from hazard, be aware of it," or something like that. There's signs everywhere you look. But people seem to come to property anyway, during the day, during the night. I remember seeing a wolf around there too. Six wolves walking by there, every day, early in the morning...I think people are just curious to see what's still there. I think that's why they are checking out the site. Because I ran into them some of them and I talked to them and I said "what are you guys doing here?" "I'm just curious just to see what else is still up at this side of the property." I said "there's not much, according to what we are watching." But it's, I have to kick them out, got to kick them out. (YKDFN 226, 8 September 2018).

> But you know there's all the open pits, that's got to be barricaded, sealed off and all that, because a lot of people walk around, go exploring near to the pits and that. (YKDFN 151, 7 September 2018)

Analysis of the interview transcripts indicates that conventional standards for remediating the Giant Mine site may not reflect or incorporate standards expected by or acceptable to YKDFN community members. YKDFN members report that long-term efforts to seek alternative solutions to storing arsenic trioxide are necessary. They report concerns about plans to store arsenic trioxide underground perpetually, and indicate the need for ongoing research to improve closure and remediation plans. YKDFN members use long-term (distant future) time scales to describe the need for ongoing awareness of and responsiveness to site conditions, and report particular concern that financial support for remediation initiatives be ongoing.

> I know they provided funding for [underground storage of arsenic trioxide]. But I worry that it's not guaranteed funding for the future. You know, what if the government changes and they change their mind about funding this project? Or in the future, whether there's even going to be a government in place, like in 500 years, 5000 years. What kind of government system will be in place that's going to continue to protect that underground storage? We're not guaranteed, right. And that really worries me about that...But I'm also thinking and hoping that maybe one day they would find a solution to neutralize that arsenic or something to minimize the toxicity of that. But the arsenic hopefully maybe one day somebody, a good smart chemist person will find that solution. I'm hoping that would happen. (YKDFN 10, 7 September 2018)

> Now [YKDFN members are] really pushing for that arsenic to be removed. But it would take time until they find something, new technology some day. That would be good. But to maintain it forever, the way I look at it, how about some day the government has no more money to maintain that area? Then that would be a disaster maybe. The company, the people in the government, they'll never be around forever around here. But we as the YKDFN we will stay and die here...we need to start preparing ourselves for long-term care. How that's going to be, long-term care? I know they're talking about it now, but someday they'll find new, like every day people come up with new technology. Maybe there's going to be a day that we can get rid of that frozen arsenic. (YKDFN 32, 5 September 2018)

5.2.2 Monitoring

Participants report a need for ongoing monitoring, both of the site to ensure security and containment of impacts, and of the surrounding environment for ongoing effects to preferred species and their habitat.

> We have to monitor the land and the water. Make sure no one fish in that area, or hunt and trap that area. Even walking, I don't think that's a good idea, for family to walk around that area. We should fence it, a fence off that area would be good to keep off mostly the big game, maybe some small game away from that area. So, that's my recommendation is to fence it. Fence it and monitor. Like you can fence it, then just monitor that area maybe twice a day. Once in the morning and once in the afternoon. And the water, make sure somebody sitting in this area...We didn't fish that area for a long time, so maybe if we start doing that then we'll know for sure if it's safe enough to drink the water or to bath in that water. (YKDFN 223, 11 July 2018)

Community members recommend frequent and ongoing monitoring of the Giant Mine site for toxicity.

> And watch the place for contaminated stuff, or the runoff, all the little streams, before it gets into our big lake. Make sure that there's clean water going into the water instead of arsenic water. Hoping that they watch all of those things. (YKDFN 32, 5 September 2018)

> We should be monitoring like every season. Four times a year, five times a year they should be testing everything. The ice and everything they should be testing as much as possible to make sure. (YKDFN 225, 8 September 2018)

> They [should] so often look at the arsenic once a month, test it to see if it's leaking or anything. Like, summertime when it starts to thaw out in the ground, because the ground shifted eh. Because you never know, it can go right through the crack and wind up right in the water. So they should check waters every month to be safe they get. (YKDFN 226, 8 September 2018)

Interview participants also share specific recommendations for monitoring priorities.

> You've got to monitor all this area here. When it was raining a few days ago all the rain goes into this area here. It remains in the stream. They should have some kind of gauge in the stream that comes down into the lake here. They should have some kind of gauge to see how much arsenic flows down into the lake. So every time it rains they should monitor maybe the lake, and maybe set net here, set net here just to collect the sample every time it rains, maybe two days after set nets, and see how it affect the fish. They should do that every time it rains, and in the springtime too when it thaws out, they should do that. (YKDFN 223, 11 July 2018)

> Well it should monitor the fish if they're going to monitor the mines. The mines themselves destroyed most of the fish on those lakes. They should look after the fish as well. Do studies on the fish, see how much arsenic or sulfur they have. Just so

> people like ourselves know we shouldn't fish. If the fish is no good, then we shouldn't bother at all. If the fish is good, then we should know as well. (YKDFN 2, 9 July 2018)

YKDFN members report that areas beyond the site boundary should also be monitored for contamination.

> Check everything as much as possible. Not just the mine site, but way bigger just to make sure. All the way down there, and towards up here. Just to check everything, just to make sure. Because it's so hard on people just to travel and they don't know if the water's safe to drink or berries and plants and all that stuff is okay to eat. A lot of people get nervous about all the things like that, because a lot of people still use traditional medicine too. A lot of times there's not much access if you don't have a boat or a snowmobile. So, people use the road system, you go for walks here or there from the road, but most of the roads are around those contaminated spots too. So, it's kind of hard. It would be good to test as much as possible everywhere. We were talking to them at that meeting there, we said maybe like five, 10 kilometres all the way around that centre point there, just to make sure that it's good for people. (YKDFN 225, 8 September 2018)

Participants report that monitoring should occur in collaboration with YKDFN, and involve YKDFN community members.

> The members there were saying that they wanted to be there as a monitoring, they want to take that over. There might be monitoring training some time for YKDFN members to work in that area, to be monitors. I hope that they get that contract someday too, that one. Have a member employed in that area. (YKDFN 32, 5 September 2018)

6.0 ANALYSIS, CONCERNS AND RECOMMENDATIONS

The impacts, concerns, and perspectives reported by interview participants in 2018 are consistent with those recorded by YKDFN community members during previous research, indicating that local knowledge and views related to the Giant Mine and its remediation persist and have not significantly changed over time. This suggests that current engagement processes and recent GMRP-related efforts to rehabilitate relationships with the YKDFN may not be meeting the needs and/or expectations of YKDFN members.

Local perspectives and recommendations on how and why to address the impacts, incidents and attitudes that participants indicate contributed to a legacy of bad faith and mistrust related to the mine (ie. formal apology and compensation) are beyond the scope of this work,

but they provide context for rethinking how to approach and establish meaningful relationships with YKDFN most effectively. Interview participants are unanimous in their call for compensation, both to offset the cost of financial impacts incurred as a result of the mine (eg. having to pay for water delivery) and to acknowledge the pain and suffering as a result of health impacts (including loss of life, chronic illness, etc.) caused by the mine. YKDFN members report considerably more mixed feelings about a formal apology, and are clear that an apology could not be accepted or respected without payment of compensation. In other words, participants indicate that acknowledging, addressing and seeking to correct historical wrongs is a prerequisite to moving forward collaboratively; simply introducing improved processes, attitudes and approaches may not be sufficient to demonstrate good faith, and will not alleviate ongoing feelings of mistrust and resentment.

Interview transcripts indicate that participants associate the Giant Mine with trauma in the individual lives of YKDFN members, and in the collective experience of the community. In order to be productive, discussions involving the Giant Mine are highly likely to continue to require space for YKDFN members to share their experiences and express their views related to this source of both historical and ongoing trauma. In order to establish trust and to attempt to rehabilitate the relationship with YKDFN it may be essential for the GMRP to acknowledge and demonstrate respect for members' experience of the Giant Mine by working with them to identify the impacts that underlie their individual and collective trauma, and on remediation plans that will address them to members' satisfaction. Given the historical absence of consultation, transparency and inclusion, establishing trusting, productive, rehabilitative relationships will hinge on all parties working to ensure that YKDFN views guide and shape remediation and monitoring efforts and decision-making process involving the Giant Mine.

The following recommendations for collaborative remediation planning with the GMRP are drawn directly from participant interviews and/or analysis thereof.

6.1 CONCERNS

» Participants report that toxicity from the mine has made traditional use of plants impossible in areas around the mine site, and express concerns that vegetation affected will never recover.

> I think right over here, somewhere around here and way Yellowknife River, nobody can't eat berries or anything like that nowadays. Can't even go berry-picking. All around, as far as Yellowknife River, I guess I would say, all around there. If you go there in a boat on the river, on the left side, by the river you can see all the trees are dead. (YKDFN 62, 8 September 2018)

> Today rabbit goes there, they eat grass, they will die. Some days after remediation is done, if we go over there, maybe we eat a patch of blueberries, we'll probably end up dying too. (Translating for YKDFN 150, 6 September 2018)
>
> Always told my son-in-law, anybody, young people... don't raise your children around here. Go out on the land, go out in the bush. Go somewhere, I tell them that, you know. Just don't come close to Yellowknife, don't even drink the water. And don't eat the berries too. (YKDFN 222, 10 July 2018)

» Participants report concerns that YKDFN members who continued to harvest within the mine lease and in Yellowknife Bay have been exposed to mine-related toxic chemicals.

> Well this one elder who used to work there, and I noticed that he was eating berries on the property. There's little berries on the property, but he was eating it. Now he's got cancer now. I was wondering, like why are you eating blueberries on the Giant Mine property? It's not safe, it's contaminated with arsenic. And he says "still good," he said. I said "no." I won't be eating anything wrong here. That's what he was doing. Now he's an Elder, you can tell he's really kind of sick now. (YKDFN 226, 8 September 2018)

» Participants report concerns that fish have been contaminated and/or rendered inedible by toxicity from the mine.

> While we catch fish we're way out Great Slave Lake, fish are hard, healthy... When the fish are soft they're sick, not good to eat... That's why fish are soft. Arsenic. (YKDFN 76, 5 September 2018)
>
> When we eat that fish, it tastes like fuel. It tastes like gas, or it tastes like fuel. It don't taste, not like dry meat, even though we smoke it. We dry it, and boy, I tell you, my mother was scared. She tasted a little bit of it. Every time somebody come around I'm drying fish, we taste a little bit of it, a little bit of that fat in the centre, and a little bit at the edge. We taste it. We just spit it out. We rinse our mouth. We brush our teeth. She didn't even want to smell it. (YKDFN 222, 10 July 2018)
>
> Right now I'm scared to eat a fish now. Even same thing with anything you eat out of the woods, like a rabbit, ptarmigan, beaver... it's scary. The meat is scary." (YKDFN 79, 10 July 2018)

» Interview participants report ongoing concerns related to the contamination of traditional recreational (swimming) areas, and a resultant need to prevent swimming in these areas today.

> The sediment's still there. Whenever there's big wind, you know, big waves, the sediment stirs up. And can't drink the water here, can't swim. Can't swim regularly, we keep telling the kids... We let the parents know, you know when they get home, get your kids to take a shower, and if they have a cut or something, you know, treat it a little bit. Kids still swim, even though they know. Where else are you going to go? (YKDFN 2, 9 July 2018)

» A key concern that emerged from the interviews is that as a result of impacts to the local environment and to human health, YKDFN members have to travel further to practice their traditional hunting, fishing, and gathering activities. The distance individuals travel to areas considered unaffected by the mine vary, and a number of factors contribute to an individual's feeling of safety.

> We're sticking that way, further out away from the city... just to make sure everybody's safe, make sure none of the contamination stuff from the lake, from the mine." (YKDFN 225, 8 September 2018)

> Yeah, they don't trust anything around Yellowknife Bay area. They usually go past Wool Bay. Or else past, towards Reid Lake, or any of those areas. Nobody hardly ever goes hunting, I don't remember that lately, saying they hunted in that area. I don't think nobody trusts that area anymore, to pick berries or anything. (YKDFN 10, 7 September 2018)

> Now the hunters and trappers in the Yellowknives have to go further out, which means they have to spend more money, more time to go further. The moose in this area is not good, so now you go further away. Two things, if you want to die young, you want to get sick, go hunting in here. If you want to have good health, go further away from this mine. (YKDFN 2, 9 July 2018)

» Participants also report concerns about arsenic contamination in the environment surrounding the mine as a result of strong winds depositing dust from the mine site.

> I grew up here. Majority of the winds from this mine is going this way. My grandfather, my dad, said anything in this area here, don't eat it. Because that's where a lot of that stuff was going. Once in a while the wind will come from the north, blow onto the lake. But majority of the winds are going up. So, I wouldn't eat anything in this area. This is a bad one too, Walsh Lake. There's residents living there. A lot of people live there. (YKDFN 2, 9 July 2018)

» Participants report concerns that the need to travel further away from the Giant mine site to harvest creates additional barriers to accessing traditional foods, and also to the maintenance of traditional knowledge and lifestyles, which they fear may be lost if people are unable to pursue traditional land use practices.

> Some of us can't afford to get out. We don't have the means to get out, the boats, whatever. Not everybody's got access to those things. So, what happens to those people? (YKDFN 2, 9 July 2018)

> It's really difficult. How those kids will be in the future, the young people in the future of YKDFN. Knowledge, of the traditional knowledge, nothing. In my time, there was no white people, and we had, we were taught, by our parents, to be on the land. I used to go out on the land, and hunt for moose and caribou. Before it gets too cold, I'd go back to travel to my camp before the nightfall, and you'd sleep with two hides. Moose hide, you'd sleep on the moosehide, and a moose hide blanket on top. Like, it's very warm. At those times, we had no blankets. It's very difficult today to say. How all the kids will be into the future. They don't hold onto it, they haven't learned the culture. It would be difficult for them. (Translating for YKDFN 81, 9 July 2018)

» The ongoing need to pay for clean water delivery is another key concern reported by participants. Participants indicate a strong desire for the CRP to result in the alleviation of this longstanding impact caused by the mine's contamination of traditional drinking water sources.

» Participants share concerns that science-based assessments of toxicity and contamination are unreliable and/or untrustworthy, and are insufficient to overcome barriers caused by perceptions of contamination amongst YKDFN members.

> And for the water, you know, the western scientists says oh the water's okay now. It's not okay. We know it's polluted. All the sediments settle, but any earthquake or sudden movement of it will, you know, disturb that and we can say bye-bye to the fish forever, whatever is living in that area will be all gone. (YKDFN 223, 11 July 2018)

> I think that area is really kind of sensitive area now... They have water treatment plant that they're talking about. Collect and treat the water, put it back in the lake. Think it's possible for them. But for us to think about it, who wants to drink that water from that treatment plant, up to the standard drinking. Pretty impossible. (YKDFN 32, 5 September 2018)

» Participants report concerns that information related to the CRP and scientific assessments of toxicity and contamination are not clearly communicated to YKDFN using language and methods that can be easily understood by laymen.

> We're still learning about that too because we get those reports from the Giant Mine saying that 15-billion parts per million, and what the hell's that? How much do you compare that to? Like a little fish or a little something, or a berry or cranberry or whatever; how much is that for that? And how much will it harm people? We're telling them too, better graphs and better language or whatever you call that, like simple language, help people out as much as possible. They're still sending us those same reports because that's what they're getting; maybe it's a scaled down version of what they're getting. But we don't know that, we don't have experts of our own to do that too... they're not doing those simple language things for us. It's kind of hard to understand what they're talking about. (YKDFN 225, 8 September 2018)

» Participants also report concerns that unequal distribution of resources, and in particular insufficient capacity on the part of YKDFN, are barriers to full and effective participation in the CRP.

> They've got environmentalists, they're the federal government, they've got billions of dollars to do all this stuff, but... we don't have the staff. The money we have isn't enough for staff just to get by and just get as much information as they can. But we need more staff, we need more funding for that. And even the fine little things like that is hard to do too, because we don't have enough people. It's just difficult moving forward on all of these things. (YKDFN 225, 8 September 2018)

» Participants also report concerns about the lack of youth participation in the GMRP. They report strong feelings that youth participation is critical to the success of any long-term initiatives.

> Into the future, we never know what can happen. It can thaw out. Now you know they, the young kids, the young members, they have no knowledge of that arsenic, not much. Concern that he has is, [if it] ever thaws out, start to melt. (Translating for YKDFN 81, 9 July 2018)

> And the other thing is we've never really targeted young people. We've never really had a good, I think we had one or two workshop with the youth, but we haven't done that in a while. So you know we need to reach out to them whether through surveys or just talking with them about the project and see

how much they know. So I think we need to do that as well. (YKDFN 10, 7 September 2018)

We need to have the kids, students. We had students come and listen to the last workshop. Some of the students or some young people just sit there and they listen. But they don't get enough, nothing for appreciation for being there and listening to a meeting. Even me if I had some money, I had something on me I would've give to those youth for listening. They need to be taught the leadership skills and what's happening... and their meeting. They need to be talked to, and seems like they're not doing too much with the youth. They always saying, those elders always mention about the youth attending meetings. But most time we go to meetings maybe youth will sit for a while and comes and go, but they don't get them anything. Lot of times they, the elders, they're always saying the youth are more important, that they're following us. They'll be our leaders some day. Now that we have meetings and workshop that goes on they need to be attending those meeting. So they know the whole – what we talking about. And put the land and leadership skill, they need to be taught now. We can't just leave all those youth alone. We need to have them with us. On the land or at the meetings. (Translating for YKDFN 157, 6 September 2018)

» Participants report concerns that young YKDFN members lack awareness and understanding of traditional land use in the Giant Mine area, and of the mine-related impacts on that use, the environment, and YKDFN health and wellbeing.

All the elders that knew that area at one time, the people that knew the area so well, they don't think that much young people know about that area or the story. (Translating for YKDFN 150, 6 September 2018)

» Participants express concerns that the impacts from the mine are irreversible and that nothing can be done to prevent them from negatively affecting YKDFN for generations to come.

I've been thinking about it. That's a very difficult... It can never be cleaned up again. The land that can never be before. (Translating for YKDFN 81, 9 July 2018)

So here we are today, many people passed away, arsenic, we're not allowed to eat the fish in the river, we're not allowed to eat the fish in the bay or drink the water here. Four inches of the mud in the Back Bay, I was told is arsenic. So nothing is safe here, even our community in N'dilo here. We have arsenic right by the school here. We're trying to do gardening here but most of us are afraid

> to do gardening because the dirt, we don't know what's in the dirt here. Could be bad health to us. We have berries in the community but we don't, we ask our children not to eat them, might not be good. So we've been impacted by this whole mine for 70, 80 years... Even after the mine shutdown and we were still impact today. But what's left behind? We're the ones who have to live with it and watch this whole thing across the lake for the rest of our lives, and generations after generations after generations will also see that too. (YKDFN 2, 9 July 2018)

» Participants also express concerns that the Giant Mine's legacy of bad faith and mistrust extends to the GMRP and the CRP process.

> To this day, they still are repeating it. And nothing occur, because they don't care. They don't care, period. Like talking to a dog, you know, a dog; you repeat yourself, repeat yourself. They won't move unless you kick them hard enough to get them to move, or hit them hard enough. They were told that. You guys issued a license, you look after what they're doing, like they've got terms and conditions on that license. If they had done that, this could have never happened. Now that happened, we say we want free water. To this day, nothing on it. So, I don't know what kind of people are they, that don't listen. Because water's really important to us, the land is important to us, air is important to us. Just the three elements that are really important to us. We're here, you know, to look after it. When the treaty was signed, we warned about those three things: "the sun, the sun shine, the water flows, and the grass grow." At the time, you know, the treaty making, there will be no destruction, no destruction whatsoever. We will share the land, water and the air with you. But they broke the promise. They didn't pass on, relay the message. (YKDFN 223, 11 July 2018)

» Another key concern expressed by participants is that beautification or even naturalization of the mine site will lead to increased use of the area in the future, which may place the public at risk of harm through contamination. Participants are also concerned that the harm caused by the mine will be forgotten if the site is returned to a natural appearance.

> The other thing that worries me is that when they reclaim that area, I don't really want them to reclaim to beautify it. We need to leave it like plain grey, grey areas. Not to replant or nothing because once you do that I think in the future some people might forget what's there, when they think it looks normal, but really it isn't normal. That's the thing I'm worried about. (YKDFN 10, 7 September 2018)

> If they make it nice, then people come here, and they go walk around over there after it's done and they get sick and stuff, and they're going to blame us. So, that's why we're saying make it look really rough. (YKDFN 225, 8 September 2018)

» Participants report concerns to the continued absence of compensation for both collective and individual YKDFN harm and suffering as a result of impacts caused by the mine.

> Some members don't have jobs, some of them they're just homeless. We were never rich at some point because of that mine, we're not. This development make millions and millions of money, and some of the money maybe went to governments. What the YKDFN got out of that? Nothing. Now that we need one of our members, negotiation, get on top of that and start working on that. We shouldn't have to wait any more longer [for compensation]. All the elders they had a concern about it, they're not here with us today. We need our leader to stand up for us and start working on this. (YKDFN 32, 5 September 2018)

6.2 RECOMMENDATIONS FOR ENGAGEMENT AND PROCESS

» It is evident that engagement and efforts to establish meaningful relationships with YKDFN could be improved. Efforts are also needed to re-establish trust and acknowledge the historical relationships between the Giant Mine and YKDFN. Listening to, and demonstrating respect and consideration for views and concerns that may be beyond the scope of the project may be foundational to achieving these objectives.

» There are still barriers to achieving meaningful YKDFN involvement, which may require more communication efforts, time, and patience to overcome. Additional efforts are needed to understand and consider YKDFN values and social impacts.

» Some participants report feeling that the current CRP was developed without them. While the CRP incorporated some community feedback (e.g., through the Surface Design Experiment engagement processes) this may not be considered meaningful and adequate consultation by all community members. Collaborating with YKDFN members on how to define and implement adequate consultation is recommended, as is clear and transparent communication about how community members' participation will factor into and effect outcomes.

» Interview participants indicate that the Giant Mine's legacy of bad faith and mistrust is an ongoing barrier to YKDFN participation in the closure and remediation planning process. Participants report that the need for compensation for the mine's negative financial impacts on the YKDFN community (eg. need to pay for fresh water delivery,

for additional fuel and supplies to travel further from home for harvesting) is a prerequisite to alleviating feelings of mistrust and resentment that serve as barriers to participation.

» Participants also stress the critical role that financial compensation for suffering and hardship (including loss of life, and impacts to health and wellbeing, environment, traditional land use, culture, etc.) plays in beginning to heal the damage done to the YKDFN community, and to rehabilitate relationships between YKDFN and the government agencies responsible for the mine.

> I would like to have the compensation in place as soon as possible. Today we have to pay for water, $800 a month. You know with that we should have been helped, maybe with light bills. We pay too much light bills. We as the YKDFN, some of the other reserves, places down south, people know about us. "We thought you guys were the wealthiest community of the north." Here people are just struggling every day. Some members don't have jobs, some of them they're just homeless. We were never rich at some point because of that mine, we're not. This development make millions and millions of money, and some of the money maybe went to governments. What the YKDFN got out of that? Nothing. Now that we need one of our members, negotiation, get on top of that and start working on that. We shouldn't have to wait any more longer [for compensation]. All the elders they had a concern about it, they're not here with us today. We need our leader to stand up for us and start working on this. (YKDFN 32, 5 September 2018)

> Well some people can't afford water, it's too expensive. So maybe they can pay for the water for them. That's another option. There's lot of people who don't have jobs. If they want to, they're worried about the water concern, maybe they should pay for water from them, for the people. That's a start. (YKDFN 226, 8 September 2018)

» There is a need not only for ongoing engagement but, more importantly, efforts to build meaningful relationships with the YKDFN community at-large, beyond individual YKDFN community member representatives. This is necessary to effectively include YKDFN, share knowledge, and allow community members to understand the material and information being asked of them. Community members need time with proposed plans well in advance before their input and consultation is being sought, especially to allow for discussions and perspectives to be shared among members within the community.

» There is a general need to support and build capacity for community members to be engaged and included in decision-making processes (e.g., developing the CRP). Within the community, communications and engagement between community

representatives (e.g., negotiators, chiefs and council, working group participants) and other community members is needed. Where community input and consultation is being sought, non-community groups should facilitate and provide support for capacity in communication and engagement among community members.

» Including YKDFN members, knowledge, and young people in particular in remediation and closure planning will not only help to support the long-term success of the CRP, but may encourage greater awareness and more effective stewardship of affected areas and resources by community members in the future.

» Participants propose specific recommendations for the development of initiatives and education campaigns to promote awareness of the GMRP amongst young people, and their participation in the CRP process.

> I think they should have more more meetings about the Giant Mine. I know they keep talking about what their plans are. Lots of people, elders and everything, they should get young people to go to the meeting too. Nowadays it's only elders... but the mine, what they did to the Yellowknife, that's for our future, for the kids. So, I think the young kids should go to the meetings too. So, they know what's happening. Maybe teach them, teach them in school, what they did to the Yellowknife. (YKDFN 62, 8 September 2018)

> Maybe put something out there to educate the people more. Schools, some kind of lesson need to be created for the schools, not only the elementary but also the high school. Maybe in different levels, along with...I know they're doing, creating lesson plans for residential school. So maybe they need to do something with the Giant Mine as well. Same thing that they're doing with the information on residential school, and teach the students about what happened when people were at school. So that kind of information needs to go out I think too. This will be a start of educating our people. (YKDFN 10, 7 September 2018)

> I think there should be an article written on a newspaper so you know this way that our kids will know why the mine and everything's, like, what happened, what they got out of it, the gold and everything, and contaminated with arsenic, and there's arsenic in the ground and frozen. They should know about it. They're going to ask, I know they're going to ask question, but hey we'll have to tell them. That's why some people don't want to come back here, because it's contaminated with arsenic underground. It's not safe. But before something happened to it, they should take care of it good. (YKDFN 226, 8 September 2018)

> I think it's got to be, like I said, it's got to be more involved in all the different groups, like Yellowknives Dene, the city, even like museums and that, just to in a way like try to keep how the old mines operated and that so it don't happen in the future and that. Keep the memory alive sort of thing...Yeah like I said you know, it's going to be some of legacy that should be kept alive about this place. So that in the future people don't do that again, to keep the area. If you're going to do that try to do it in a way that's environment friendly. (YKDFN 151, 7 September 2018)

> We need to somehow also get a story out into the future. We talked about creating a legend or some kind of story so that we can make up and, because legends are passed down orally, you know, century after centuries. So we need to come up with something to tell the people in the future not to go in that area or establish there at all. So I think that's one story, one thing that needs to be told over and over, and we need to create that story. Whether it's our elders, maybe with our elders with the youth, with the people in the community; we need to come up with something to tell a story how dangerous it is. So I think that's one thing I would like to try to tell to the future. (YKDFN 10, 7 September 2018)

- Participants report that despite their interest and concerns regarding existing mine-related impacts and remediation plans and priorities for the site, they experience challenges related to the timing and scheduling of meetings. From a logistical standpoint, providing multiple opportunities for participation and/or scheduling meetings at times that maximize community attendance is important, versus scheduling meetings according to project deadlines.
- Participants indicate that potential strategies for overcoming some of the barriers to participation in collaborative remediation and closure planning processes could include consistent representation in the planning process, and improved communication between all participants and interested parties.

6.3 RECOMMENDATIONS FOR THE CRP

- In order to be legitimate and effective in the eyes YKDFN members, the CRP and any conversations and/or projects involving the Giant Mine must consider, acknowledge and address the impacts and mine-related issues observed and reported by YKDFN members.
- Interview participants emphasize the need for the CRP to include decontaminating the site, closing tailing ponds, and restricting access by the both the public and wildlife.

» In order to discourage public access and use of the site, and to promote ongoing public awareness of impacts related to the mine – namely to serve as a reminder – the majority of interview participants recommend against any efforts to beautify the site or to return it to its natural state.

> For future I guess I would say, what do you call it, don't try to make it look good. Just keep that ugly the way it is. Try to make flowers and whatever, people will think great, it looks nice, the mine company, that's what they did. But just leave it the way it is and don't touch it. (YKDFN 62, 8 September 2018)

» Participants report concerns about public access to the mine site now and in the future.

» They indicate public engagement to facilitate awareness of existing impacts and potential dangers is important to dissuade public use of the area, and to ensure that efforts to secure the site are maintained and respected by future generations.

» Conventional standards for remediating the Giant Mine site may not reflect or incorporate standards expected by or acceptable to YKDFN community members. YKDFN members report that long-term efforts to seek alternative solutions to storing arsenic trioxide are necessary.

» Participants report a need for ongoing monitoring, both of the site to ensure security and containment of toxicity and impacts, and of the surrounding environment for ongoing effects to preferred species and their habitat.

» Participants recommend incorporating YKDFN concerns and priorities, and employing YKDFN members in monitoring efforts. Including community members in monitoring efforts could enable local and traditional knowledge of indicators to inform awareness and understanding of environmental impacts.

» The CRP indicates that some frequent, weekly monitoring data (e.g., air quality) is sent to the Giant Mine Remediation Project distribution list and posted on the Mackenzie Valley Land and Water Board public registry. Community members may not be aware of this and additional engagement and improved communication strategies, as well as support for communications among community members could ensure that community members have access to and are aware of existing monitoring data and efforts. In addition, interpretations of quantitative data (e.g., action-levels and their responses) should reflect YKDFN needs and impacts, and be communicated in such a way that implications and impacts to YKDFN are clear.

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