

The Trees All Changed to Wood

Remembering Rayrock Uranium Mine



Tłıchǫ
Traditional Knowledge Reports:
Series 2



Dedats'eetsaa:
Tłıchǫ Research & Training Institute
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2015

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Report prepared by

***Dogrib Renewable Resources Committee, Dogrib
Treaty 11 Council***

For the

***Arctic Environmental Strategy, Department of Indian
Affairs and Northern Development***

March 1997

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The Trees All Changed to Wood

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Dedication

We dedicate this report to the Tłıchǫ people who called Kwetı̄łǰàa¹ home, who worked at the Rayrock Uranium Mine, and who harvested wildlife near the mine site.

Acronyms

DIAND = Department of Indian Affairs and Northern Development

DRRC = Dogrib Renewable Resources Committee

PWGSC = Public Works and Government Services Canada

Tłıchǫ Words and Pronunciation

This report uses some Tłıchǫ words. We follow the orthography found in the Tłıchǫ dictionary *Tłıchǫ Yatı̄ Enı̄htł'è* (1996).

We first printed this report in 1997. At that time, Dogrib was the common English term for Tłıchǫ. We use Tłıchǫ throughout this report, except in some proper names.

¹ Kwetı̄łǰàa translates as 'rock extends into water'

Photo credits

Credit © the photographer if you use any photos from this report.

All photos of Tłıchq elders credit Alice Legat.

All photos of Rayrock mine site credit documents from Public Works and Government Services Canada (PWGSC).

- *Decommissioning Plan for Rayrock Mine, NWT: Final Design*
December 1995
- *Environmental Screening of the Proposed Activity to Rehabilitate Mine Tailings, Radioactive Waste, and Secure Mine Openings at the Abandoned Rayrock Uranium Mine* February 1996

All other photos credit the source.

Map credits

Public Works and Government Services Canada provided the maps.

- Map I was first published in the document *Environmental Screening of the Proposed Activity to Rehabilitate Mine Tailings, Radioactive Waste, and Secure Mine Openings at the Abandoned Rayrock Uranium Mine* February 1996
- Maps II and III were first published in the document *Decommissioning Plan for Rayrock Mine, NWT: Final Design* December 1995

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The mine was in production from 1957 to 1959. The mining company milled about 78,000 tons of uranium ore at the site. They deposited radioactive tailings on the land, in two locations not designed to contain tailings⁵.



Location Rayrock mine site. From the report *Development of a Long-term Monitoring Program for the Rehabilitated Rayrock Uranium Mine*
<http://pdf.library.laurentian.ca/medb/conf/Sudbury03/UranRadionuclides/145.pdf> (November 2015)

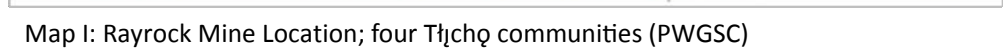
During that time, the Tłıchǫ watched as mining activities contaminated the resources they used and caused those resources to die. They watched as mining activities destroyed a part of their dè⁶.

In 1995 and 1996, DIAND produced two reports. The first report is a decommissioning plan that provides guidelines to restore the site. The second describes the proposed activities to restore the area. These reports were an obligation under the federal Environmental Assessment and Review Process Guidelines Order of that time.

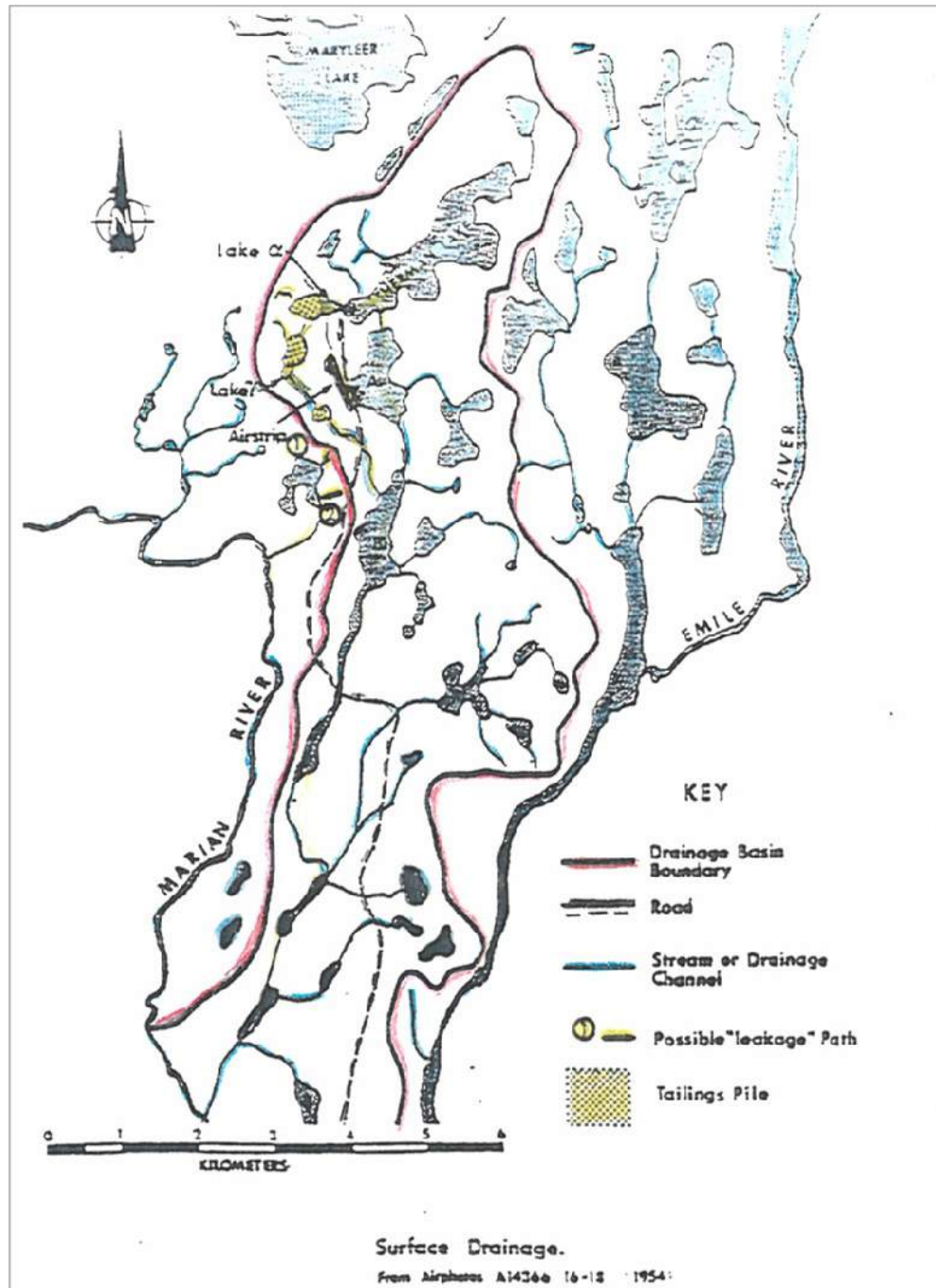
⁵ See Map III

⁶ Translates as 'land' but the concept is closer to ecosystem, and includes all that is part of the living and physical environment.

Evidence suggests that no one monitored mining activities during the 1950s. DIAND and the mining industry were well aware of at least some of the problems associated with uranium mining. But no one ever formally told the Tł̓ch̓q of the serious nature of uranium mining, or asked them to monitor the dè.

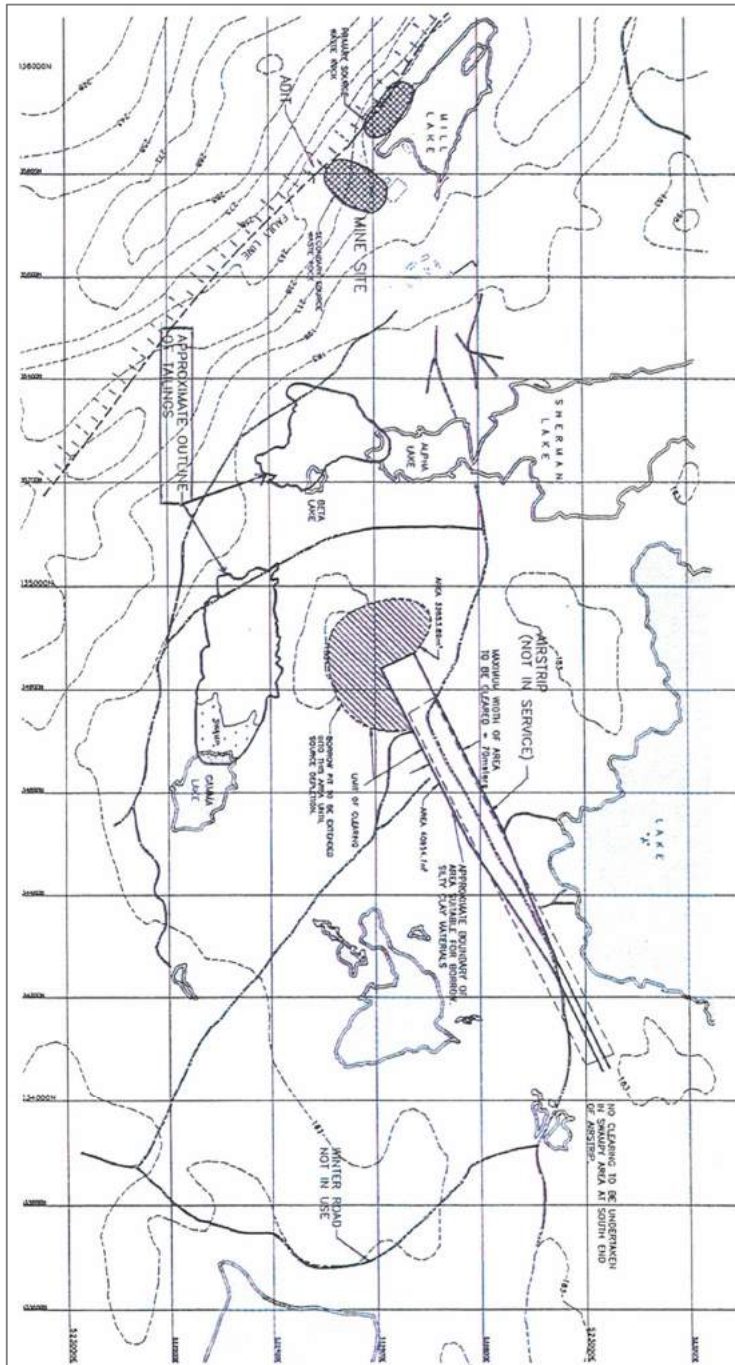


Map II



Map II: Drainage Basin—shows drainage from tailings to Sherman Lake to A Lake to B Lake to Marian River; possible leakage path to Marian River (PWGSC)

Map III



Map III: Rayrock uranium mine base plan: mine site, waste rock, tailings ponds, and slope contour from mine to mill; Alpha Lake, Beta Lake, Gamma Lake, and Sherman Lake (PWGSC)

Objectives

The objectives of this project are to document:

- The state of the dè before the mine opened
- Indicators of change to the dè between May 1957 and July 1959
- The state of the dè after the mine closed

For the Tłıchq elders, the dè includes humans. The elders interviewed discussed their knowledge of illnesses and deaths that they believe relate to the mine. Those currently ill include people who “shake”⁷.

Many Tłıchq elders travelled and lived around Kwetłı̀àa before the mine opened. These elders’ knowledge of wildlife, water, air, their own health, and the ecosystem would have provided a general environmental baseline from which to measure environmental change.

Harvesters are the first to see indications of environmental change. Tłıchq continued to harvest resources during the life of the mine. These people were in an excellent position to describe the dè before the mine opened, during production, and after the mine closed.

The DRRC wants to show that active Tłıchq harvesters of renewable resources should have been monitoring the environment during the life of the Rayrock mine. They want to ensure that Tłıchq who harvest and know the dè will monitor current and future industrial sites.

Research team and method

The research team included:

- Sally Ann Zoe, Researcher
- Marie Adele Rabesca, Researcher
- Madeleine Chocolate, Translator
- Joan Ryan, Assistant Analyst
- Alice Legat, Principle Investigator

⁷ Some interviews show that, of those still alive, a number of people “shake”. The symptoms are similar to Minimata disease suffered by many Japanese in areas where the US dropped nuclear bombs and among the Ojibwa of northern Ontario where Reid Paper Mills dumped effluent into the streams where people fished.

DRRC members chose the researchers—individuals involved in traditional knowledge research in Whatì and Gamètì. Through that work, they developed an efficient working relationship and gained respect among the elders.

This is partly due to their using the participatory action research (PAR) method⁸. PAR ensures that the holders of Tłchq knowledge own the information. Ownership means the research team recognizes the Tłchq for their knowledge and the Tłchq control the process used to document their knowledge.

DRRC members chose the elders to be interviewed, based on these criteria:

- Elders who lived on and harvested resources in the Kwetłàa area before the mine opened.
- Elders who worked at the Rayrock mine or who lived in the area during the life of the mine.
- Elders who observed the area since the mine closed.

DRRC members first chose the oldest males in families who had used the area. If the male had passed away, they named the oldest female.

The two researchers Sally Anne Zoe and Marie Adele Rabesca challenged the DRRC on the lack of women. The DRRC agreed to include women.

⁸ Legat 1994; Ryan 1995; Johnson and Ryan 1994; Ryan and Robinson 1996

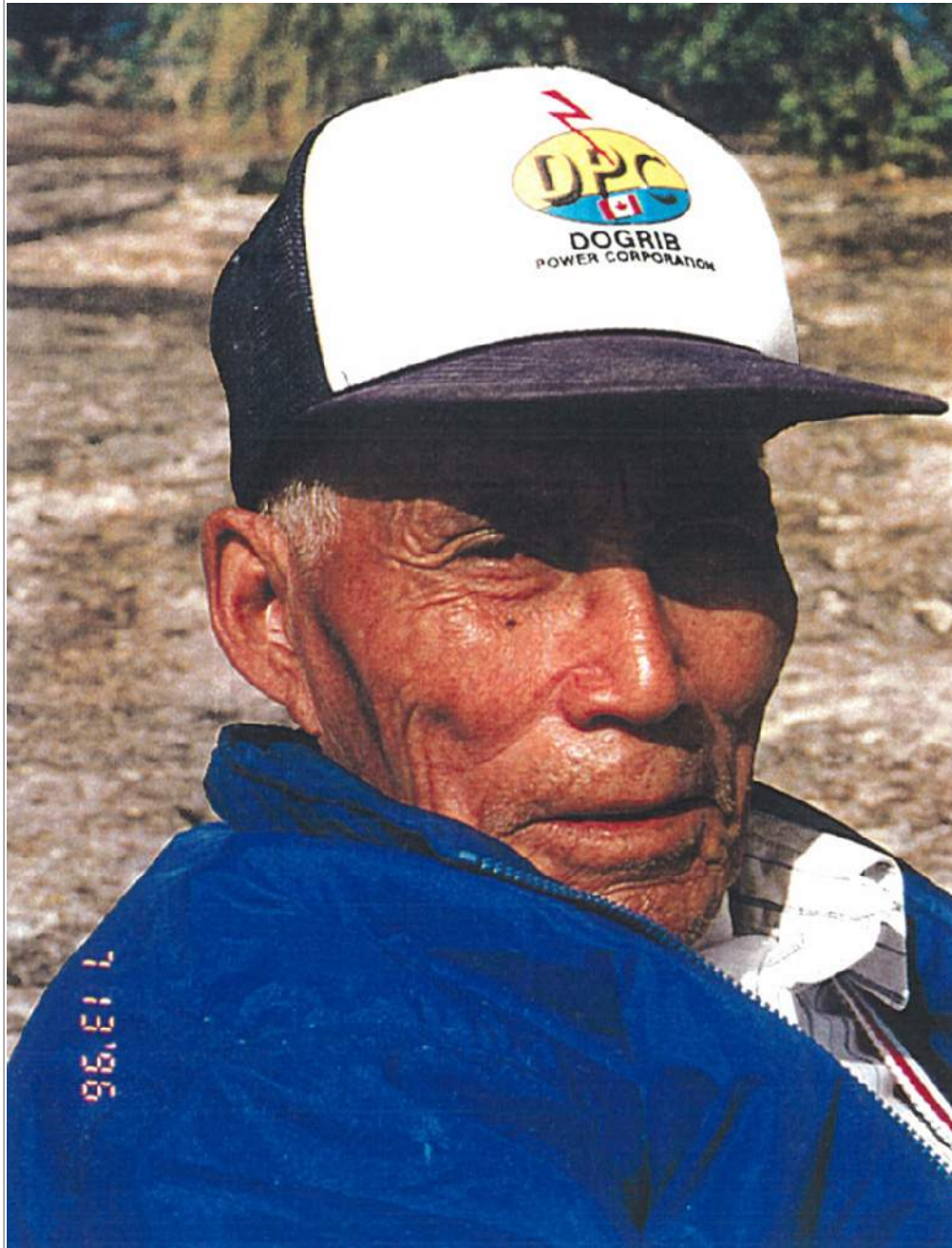
Table I—Elders approached for an interview

Behchokò		Whatì	Gamètì
Philip Beaulieu	Nick Black	Harry Beaulieu	Alphonse Apple
Lucy Chocolate	Philip Chocolate	Johnny Beaulieu	Elizabeth Chocolate
Rosalie Drybones	Monique Etlonzo	Joe Champlain	Madelaine Drybone
Francis Gon	Laiza Germain	Alexis Flunkie	Andrew Gon
Gabriel Gon	Philip Huskey	Elizabeth Mantla	Pierre Jr. Mantla
Harry Koyina	Laiza Koyina	Elizabeth Nitsiza	Alphonse Quitte
Elizabeth Lacorde	Menton Mantla	Jimmy Nitsiza	John Quitte
Philip Mantla	Bella Naedzo	Johnny Nitsiza	Harry Simpson
Paul Quitte	Johnny Rabesca	Phillip Nitsiza	Amen Tailbone
Michel Rabesca	Paul Rabesca	Jimmy B. Rabesca	Paul Wetrade
Philip Tatsia	Adele Wedawin	Joe Rabesca	Romie Wetrade
Edward Weyallon	Francis Williah	Louis Simpson	Rosalie Wetrade
Edward Zoe		Albert Wedawin	Louis Zoe
		Louis Wedawin	Phillip Zoe
		Louis Williah	
		Philip Zoe	

People from Gamètì—some who now live in Behchokò—most often frequented the Kwetųàa area. Because of this, we recorded Gamètì elders' words⁹ first. People from Whatì and Behchokò also used the area, so DRRC members provided elders' names from those communities. People from Wekweètì¹⁰ did not traditionally use the area, so the DRRC decided not to interview elders from that community.

⁹ Words are sacred. (Legat, Blackduck and Zoe 1994-95) Words are carefully chosen, as are the individuals who pass on knowledge. Oral tradition is how people remember events and how they pass knowledge to the next generation and to outsiders.

¹⁰ See Map I



Alphonse Quitte 1996 (© Alice Legat)

DRRC members reviewed and agreed to the interview guide. Violet Camsell-Blondin, coordinator for the DRRC, and Allice Legat developed the guide and discussed it in depth with DRRC members. The guide included these questions:

- When did you spend time around the Rayrock area?
- What did you do in the area? Did you work in the mine? Did you work on the land?
- Tell us about Kwetłpàa. What was the land like before the mine opened? Tell us about the fish, moose, caribou, berries, fur-bearing animals, trees, plants, the people who lived off the land.
- How did you see the land become sick? [changed, polluted, contaminated]
- What caused the land to become sick? [indicators]
- How did you know what caused the people and land to be sick?
- What was the land used for before the mine?
- What is the area used for now?

The research guide consisted of open-ended questions focusing on the area around the Rayrock mine site. We needed this focus to avoid collecting information on other areas of Tł̥chq̓ traditional lands.

If we try to speak about our ancestors' knowledge, we will never complete it [in a month or even a year]. Our ancestors really spoke the truth [because they really understood the dè]. (Suzie Mackenzie 95/05/10)¹¹

The members of the research team each had specific areas of responsibility. Sally Anne Zoe interviewed elders in Gamètì and Behchokò. Marie Adele Rabesca interviewed elders in Whati. The two researchers discussed the interview guide in depth to ensure they were asking questions and soliciting responses in a similar way. And each has her own personal style.

Sally Anne's method solicited long responses; Mary Adele asked more questions and got shorter answers. Together they spent about 60 hours locating the individuals to interview and explaining the project. They spent another 100 hours preparing elders for interviews and doing the

¹¹ From Legat, Zoe and Chocolate (1995:3)

interviews. The researches recorded all the interviews.

Marie Adele translated all the interviews she taped. Madeleine Chocolate translated most of the interviews that Sally Anne taped, while Sally Anne continued to interview elders in Gamètì and Behchokò. Sally Anne helped to select quotes for this report and she did a limited number of translations near the end of the project. Joan Ryan (Keano Social Analysts) helped with the analysis and report writing. Aalice Legat coordinated the project and completed the final analysis and report.



Francis Williah 2012 (© Aalice Legat)

For Tłıchǫ elders to be recognized as knowledgeable about the dè of a certain area, a person must have lived there. This includes travelling on the land, and observing and knowing details of places. It means understanding the landscape, wildlife, and their habitat. It means knowing the oral traditions passed down through the generations.

The elders themselves provided information to establish their credibility and knowledge of the dè of Kwetɪɪʔàa and Rayrock.

... a resident of [Kwetɪɪʔàa and] ... while hunting for moose, there were many times when I slept on top of that rock and listened for the bull moose. (David Chocolate 96/08/21)

Like many other Tłıchq̓ that traditionally used the area around Kwetɪɪʔàa, Adele Wedawin explains that she lived and travelled between Kwetɪɪʔàa and Hislop Lake as a small child.

We didn't live only in Kwetɪɪʔàa; ... my father used to take us from K'eàgotì (Hislop Lake) to Kwetɪɪʔàa. We used to set nets. ... [Through Kwetɪɪʔàa] that's where the major boat route is, so that was where my father would canoe with us. ... It was there that my father would set a net. When we caught a fish, we would eat fish. Sometimes he would shoot a rabbit. ... We lived [there] until we all became young women. ... Then I married and had several children when [by the time] Rayrock [mine] started. (Adele Wedawin 96/09/25)

The elders interviewed considered themselves knowledgeable about the Kwetɪɪʔàa area. They worked at Rayrock mine and/or harvested in the area. Most elders wanted to tell their story.

Our relatives have truly struggled and that's how big a story about Rayrock that I'm sharing with my grandchild here, and that's what I mean. (Paul Rabesca 96/09/24)

A few elders declined to be interviewed; they did not consider themselves knowledgeable.

I was not able to work, but I went with them [to Rayrock] from November to April and then we moved back to Behchok̓. I heard about Rayrock, but I do not know about it. (Paul Quitte 96/10/09)

Research limitations

This project intended to determine indicators of change around the Rayrock mine site and to show that Tł̥chq̓ should be involved in monitoring mining activities in their traditional territory. It is not an inclusive study of Tł̥chq̓ views of the abandoned uranium mine at Rayrock. We designed the project as a short-term investigation into people's knowledge of the land base, wildlife and human conditions, and Tł̥chq̓ activities before, during, and after mine operation.

Interviews took place between August and October 1996. This was a very stressful time for the Tł̥chq̓. Three people¹² were lost to Tìdeè (Great Slave Lake). Members of all four communities travelled to Behchok̓q̓ to help with the search. Several elders became sick and passed away during the three months, including members of our researchers' families. Negotiations with BHP Billiton were taking place, causing many elders to feel strongly about the mining industry and about monitoring their land.

As well as their concerns over additional mining, community meetings associated with land claims, self-government, and community transfers were underway October through December and into the new year. The research team was unable to bring the elders together as a group to explain the project; group interviews were not possible¹³.

The research team explained the project to each elder individually. The numerous activities and stressful events had an emotional impact on the people interviewed. And the subject of Rayrock mine is itself emotional and stressful to the elders.

¹² The forth, a small boy was found alive on an island.

¹³ Interviewing individuals rather than groups is unusual for Sally Anne Zoe and Allice Legat. The elders interviewed in Gamètì during the Traditional Governance Project preferred to hear what others had to say so they could build on the knowledge. But during this project, the elders and researchers had family obligations; researchers interviewed elders whenever they and the elders had time.

Research Results

Research results reflect information that Tłıchq elders provided during interviews. Direct quotes illustrate specific points. We organized the results under four general headings.

- The dè of Kwetłı̀àa—before Rayrock mine
- Tłıchq elders' story of the Rayrock mine
- Indicators of change to the dè attributed to the Rayrock mine
- The dè after the Rayrock mine closed

The dè of Kwetłı̀àa—before Rayrock mine

There is consensus among the elders interviewed that the landscape around Kwetłı̀àa used to be beautiful, and that the resources in the area were plentiful. The elders say that before the mine opened they were unaware of anything that would disrupt the dè or that would cause the people, animals, and plants to have sores or to become sick and die.

It [uranium] might be underground, but we never saw ... it. The elders have talked about it [whether or not they were aware of this mineral] and ... they never knew about it [in the past]. ... Because it [uranium] stayed underground and never came to the top, everything grew and the animals grew and we ate from it [the dè]. ... We've never heard the dè was like that, only since the whites came ... [and] bothered ... the rocks ... (Romie Wetrade 96/08/28)

The people would gather there several times a year. They arrived by canoe or dogsled and slept on the rock.

Kwetłı̀àa as we call it, with rocks projecting outwards and a river flowing close by. We call it Kwetłı̀àa because the rocks project out of the water. Over there, that's where the major boat route¹⁴ is, so that was where my father would canoe with us and we'd be several nights, and it was at Kwetłı̀àa that we would overnight. (Adele Wedawin 96/09/25)

¹⁴ See Andrews and Zoe (1995) for a description of Tłıchq travel routes.

Depending on the time of year, the Tłıchǫ would trap muskrat, beaver, lynx, and fox; harvest fish; pick roots, berries, and medicine plants; and hunt ducks, geese, and moose.



Louis Zoe, Elizabeth Chocolate, Adele Wedawin, Therese Zoe cleaning fish 1996 (© Allice Legat)

The following are representative quotes from elders who considered the Kwetųǰàa area their home. They were traditional harvesters in the area before the mine opened. They described the resources as healthy.

Before—when the land was still new like—all the land was really good. All of the land, like the hills around Gamètì, and the land everywhere was good. The land used to be beautiful. Even Kwetųǰàa was like that. ... Our fathers would kill moose. When they went walking for rabbits, they would kill rabbits. They would kill little animals like grouse and ptarmigan. ... The trees that stood ... looked beautiful; truly, really beautiful. When the green comes out, it looks really nice. We used to look for cranberries as we walked to its [the rock] top. We used to walk for blueberries too. We used to look for berries all around it. It used to be like that and at the time, because the land was new like, it was like all the people were new like too. (Adele Wedawin 96/10/04)

The elders describe the resources as plentiful. Elizabeth Chocolate emphasizes the fish and berries.

We ... pulled out some fish and we made ourselves some dry fish. ... We fed our dogs real good. ... There were lots of people there [Kwetjɔ̀àà]. People were in really good spirits. The dè was really good. ... When we wanted to eat berries, we would walk there and on top [of the rock] ... the women sat picking berries ... blueberries. (Elizabeth Chocolate 96/09/18)



Elizabeth Chocolate 1996 (© Alice Legat)

When we were trapping, the dè was good and there was much game. (Jimmy Rabesca 96/09/19)

Although the elders agree there were no caribou¹⁵ in the area at the time, they also agree that there was an abundance of other animals.

... When they killed a moose it was usually a fat moose. (Adele Wedawin 96/10/04)

For the Tłıchq everything has its purpose in the dè, including the landscape. Hunters used the high hills around Kwetı̀àa to sit and listen for moose.

We listened for moose [on top that rock]. When we heard a moose, we would set out after it the next day. And where we heard it that's where we'd go and kill it. So we would sleep on top of that rock for that reason. That rock in Kwetı̀àa is pretty high, and when there's no wind we can hear a long ways. So where the moose hang out and when they mate you can hear their antlers make a ruckus and you can hear it grunting. ... We can hear it and the next day we'll go after it and when we get to it we'll kill the moose. So in doing that we used to kill moose. So moose meat and fish meat is what we used to strive for. The moose is fat, so you can harvest a lot of fat from its meat. (David Chocolate 96/08/21)

The elders described the resources at Kwetı̀àa as accessible. They were located just off the İdaà trail¹⁶, the river and lake system between Tıdeè (Great Slave Lake) and Sahtı (Great Bear Lake)¹⁷.

Well Kwetı̀àa ... there's a passageway, a way for canoes and so we always travelled that way in the summer. [In] winter we always went that way too. We always went that way. We hunted there ... and we set traps there too. We'll kill ducks and eat them too. The beaver that we kill, we eat that too. ... It's like there's two passageways. If going for beaver we go this way. And if for muskrat we go this way. And also just below that, the passage goes through

¹⁵ Before the Rayrock mine opened, the caribou migration pattern changed. No one interviewed thought the mine caused the change in migration.

¹⁶ Tom Andrews and John B. Zoe 1996

¹⁷ See Map I for general location and Map II for more detailed information of river system associated with Rayrock.

there, we'll stop to camp, we set a net where we stop to camp, as we make our way to Behchokò. (Romie Wetrade 96/08/28)



Fish drying 1996 (© Allice Legat)

In summary, the Tłıchq were part of the dè around the Kwetı̀àa area. Before the mine opened, the Kwetı̀àa area was a place where people gathered. They knew they could find resources there to support their families: ptarmigan, duck, rabbit, muskrat, beaver, moose, lynx, spruce, birch, willow, blueberries, cranberries, roots, trout, and whitefish.

Tłıchq elders' story of the Rayrock mine

The elders interviewed tell the story of two white men travelling south from Sahtı̀ (Great Bear Lake). They tell of how several Tłıchq were hunting moose and harvesting fish, berries, and plants. It seems that the same white men had visited the area in earlier years and had obtained a rock sample from a young Tłıchq man. He gave it to them when they expressed interest. The rock analysis showed some “yellowcake”, which suggests uranium deposits.

The men returned year after year to try to find where the rock had come from. Eventually, they met up with the Tłıchq family who gave them the rock. At first, the family members didn't tell the white men

where it was from.

*But then, that white man walked in on dad. ... [The man said,]
“That rock that your son-in-law had given me, where did he get it?
He didn’t tell me. ... He has given me this rock and I didn’t ask him
where he got it from. He never told me. ... I’m trying to find out. I
try to find out every summer, I look and look and look. I’ve looked
for many years. I’ve looked for over 10 years for it.”*

*My father was sick and ... ready to die when he walked in on us. He
had become an old man. As he [the white man] sat by my dad, my
dad said, “It’s no good to you.”*

I told him, “What does it matter?”

*“It’s alright,” said my dad. “[It is from] Kwetɥɔ̀àa [rock that stands
out, the rock that stands out] that is where he got it from,” ... my
late father said to him.*

*So then as soon as he told him that, he [the white man] was happy.
He knew! (David Chocolate 96/09/16)*



David Chocolate and Pierre Junior Mantla 1996 (© Alices Legat)

In 1957, the men returned with barges, heavy-duty equipment, and trucks to build a road through the bush.

When they were building the mine, they even made a road to their disposal site; also to Marian Lake. (Harry Simpson 96/09/18)



Route across islands—land link (PWGSC)

We were one of the first to live with them. There was us and there was also old Harry Zoe and also Mantla. (Adele Wedawin 96/09/25)



Route across islands—land link (PWGSC)

Soon after the mine management people arrived, they offered work to Tł̓ch̓q. Some people negotiated in an attempt to clarify whose land the company was mining on. Several elders say that Jimmy Drybone translated for them and people made the following statements.

“Even if all of the people work, that is alright,” the boss [of the mine] said. “Because it’s your land and you live here, and it’s your land.”

“You [mine manager] are not our chief nor are you the boss, but those who live [here] will work if they are able to work,” he [Jimmy Drybone] said.

And the boss said, “Yes!” So we said we will work and they wrote our names down. (Paul Rabesca 96/09/24)

Before long, mostly those who didn’t understand were employed. (Phillip Zoe 96/09/16)



Rayrock mine and camp area with mill, 1957 (Ryan Silke 2009)

Edward Zoe tells of his position as supervisor; he explained to those Tł̓ch̓q who did not understand English what to do.

They put me on the mill. All the cement work I had to do. ... I was working at the mill there for most of the time, with carpenters. I was kind of a ‘boss for the cement’. I told the other natives what to do. ... I was talking in both languages, English and Tł̓ch̓q, so I hired all the native people. So they did all the cement work for me, on mixer, eh. (Edward Zoe 96/09/25)

They were paid at different rates. Paul Rabesca said he was “paid one dollar and a quarter” per hour. (96/09/24) Menton Mantla said they were paid “only six dollars!” (96/10/13) Phillip Zoe tells how they never saw the money, but were offered food, which few took. (96/09/16) Elizabeth Chocolate remembers that during the Rayrock days they didn’t lack for anything.

Whatever we wanted we would buy from them. Even mattresses were cheap. ... We lacked for nothing! ... That was how the people [lived] at Rayrock. (Elizabeth Chocolate 96/09/18)



Workers leave the bunkhouse going to work. (NWT Mining Heritage Society)

Traditionally the Tł̥chq used all parts of a resource. There was no garbage. They returned to the land or water what they could not use.

With the mine came garbage dumps, which the Tł̥chq viewed as unused resources. They used what resources they could from the dumps. This exposed them to radiation and chemicals, which they now

believe caused cancer in their relatives and friends.

The garbage man was dumping out the garbage at the dumpsite ... [there was dust] just like flour. ... People were just picking out things and taking stuff for the dogs too. They usually cut up legs from the cow and there was waste ... anyone would take it. As for myself, I did that many times. We would boil them with the other meat ... and fat for my dogs. We even ate them. (Joe Champlain 96/10/25)



Joe Champlain 2015 (© Alice Legat)

Using these resources shows that the government and mining company did not tell the Tłıchǫ about the problems associated with the chemicals or uranium debris; nor did they properly dispose of them. Using all of a resource was normally a desirable behaviour. But that behaviour proved destructive to people who tried to use resources that otherwise would be wasted.

Tłıchǫ who did not work at the mine continued as harvesters and shared those resources with Tłıchǫ mineworkers.

[Sometimes] there was no meat and the people would have nothing to eat. ... [I would go to] Łıetı̄(Fish Lake) [and] I would take fish over to them by dog team. ... I'd give them fish. Sometimes I would kill moose, so I would take them meat with my dog team. (Menton Mantla 96/10/03)

My father used to say, “That is a fishing spot, Kweṭṭṭàa. The lake is round and it’s really, really deep,” he said. Trout from there and the whitefish was really, really good. That’s why the late Paul Etlonzo ... used to fish. So he used to go around and give us fish, like I said. Here we didn’t know that poison had got into the water. ... It used to be an old fishing spot. ... So Paul Etlonzo used to catch good fish from there. He used to take trout around to us when we lived there, because he didn’t work [at the mine]. (Bella Naedzo 96/09/24)



Rusted cans, north tailings (PWGSC)

Traditional harvesters were exposed to the ‘poisons’, becoming sick and dying.

This poison that they spilled, it is no good. The road that stretched that way, Alphonse’s father lived in the middle of the bush. It became wood¹⁸ so he lived right in the middle of it, and from there he looked for muskrat. He died not long after. So with the wood [dead trees] ... he set his tent and camped there. He probably ate from it [wildlife living in the polluted area], that’s why he died. (Paul Wetrade 96/09/16)

Mine management seems to have recognized the area as Tḥchq

¹⁸ The trees died but people burned them or used them as tent poles, etc.

territory. Tłıchǫ continued to use all resources available to them. But there is no evidence that mine management met with the Tłıchǫ to explain the implications of uranium mining.

*... The white people never talked with the Tłıchǫ people.
[Management never] ... explained we were working with poison.
We knew they were working with poison because the trees dried
up, and poison was going into the underground, and all the trees ...
were all drying up. ... It must have been going into the river. (Romie
Wetrade 96/08/28)*

*They didn't let people know they were using poison. They were
letting the dirty water flow into the ponds. It goes into Sherman
Lake and into the [Marian} River¹⁹. We couldn't eat the fish,
rabbits, moose; we can't eat them, their skin we can't eat also. ...
The beavers and muskrats fur was coming off and it smelled. They
didn't tell us they were working with the poison. (Harry Koyina
96/09/24)*



South tailings—heavier growth, southwest corner (PWGSC)

¹⁹ See Map II

The elders also knew mining activities were causing problems.

A year after it [the mine] opened, the animals started to look different. The animals became lean too. And also fish. ... Some men that worked ... got something on their hands. ... They got sores on their hands; their hands didn't heal. That is how we know. So that happens to human skin and people do that. Even me, I had sores for eight years; then they went away. (Philip Huskey 96/10/03)

And their clothing did not protect them.

Those of us who got on the job first used our own clothes. ... [But] the clothes we wore, even if we wore jeans [did not protect us]. When water [that had chemicals to break up uranium rock] splashed on them [the clothes]... [the chemicals] ... cut right through. It burned right through and left a big hole. ... Sometime later clothes [were provided], like rubber jackets and pants and boots. (Paul Rabesca 96/09/24)

Working underground exposed Tł̥chq men to radiation as well as chemicals. As Mr. Rabesca explains when visiting a skin specialist in the south, he and his son were told that “those who were afflicted are dying; both white and also native. ... In all, 18 have died. That’s what the white man [specialist] said.”

Although mine management did not explain the pollution and contamination, the elders suggest that individual miners tried to explain how to avoid harmful exposure to radiation and chemicals. The following quotes are representative.

[After a year] ... the trees died ... the birch bark all dried up, trees all dried up. ... They [some miners] told people, if you guys are using that for fire don't cook meat on it. ... We didn't know. (Louis Zoe 96/08/26)

Once there were three white people there and beside them something was flowing. They [the miners] were going back to work, and my husband, who worked underground said, “There is something very smelly when we walk by those white people. ... What is it?” he said. When we thought about it, we thought it must be the water flowing down. ... We didn't know what was going on. And a year later, when spring came it was flowing down. It flowed into the trees, and they [the people] lived in that area. ... The

people walked around there for berries. ... A Chinese man told us, ... "Those white people are using chemicals that have been spilled. Maybe later on you guys will be sick because of it. That is why I am leaving. They [mine management] are arguing among themselves about the money rock [uranium]. And they are afraid of the chemicals that have been spilled. They are arguing about the money rock. That is why I am leaving. Once I get home I am going to write to the government. After I leave, soon it [the mine] will be closed. The money [mine] will be closed. You will see. I am telling you this." ... And he left after about a week later. (Monique Etlonzo 96/10/03)



North end of dump near rock face (PWGSC)

Although mine management did not seem to explain the harmful effects of radiation and chemicals, Elizabeth Chocolate suggests that they wanted people at the Rayrock site to be aware of the dangers associated with blasting.

In the evening ... after they returned home from work, sometimes, somewhere in the kitchen I think, they would watch movies; scary shows about how they work with rocks is what they showed. ... We used to look at the show. They made us look at that ... after two days ... they would blast rocks. ... So when they blasted rocks, they would tell the women not to go walking. (Elizabeth Chocolate 96/09/18)

In addition to keeping people away from the blasting area, mine management took a few other safety precautions.

... While working there and when they came out of the rock, close by were their houses. So they used to take all of their clothes off and put another set of clothes on and go home. That was how they worked. That I know. Even the whites did that too. Because there was a building for changing clothes, there used to be a lot of clothes hanging and I saw that. (Amen Tailbone 96/09/06)

According to the elders, these protective measures were inadequate.

I worked in the mine for over a year. We used a mask to cover our mouth and nose, because of the poison medicine [chemicals]. That's how we did the work then. ... They asked me if I could work in a skyscraper where they crush all the rocks, so I told them yes, and worked with them there. There they used the bad medicine [chemicals] for grinding and crushing the rocks. The chemical can broke [open] and I inhaled so badly in my nose that I got real sick and they had to send me out to the hospital where I stayed for over a month. After I returned I was hired once more to work, on an outside job. (Joe Rabesca 96/09/17)

The elders' statements suggest that the mine management may have been concerned with immediate safety issues, but they did not seem aware of the long-term effects on people. Although they tried to remove the tailings through a pipe, by-products from the mine were everywhere.

They used to spill [it] ... into the ground ... it was like gravel and just white. It was in this that kids²⁰ would walk, and I used to see that. (Phillip Zoe from Gamètì 09/09/16)

Consistent with their negligence concerning the chemical and radiation dangers, management apparently did not explain why they were closing the mine²¹. They did not contain the tailings or explain what the Tł̥chq̓ should monitor in the future, to keep the dè from further

²⁰ PWGSC 1996:B:21 suggests that children are more sensitive to radiation found in food and to exposure such as drinking water, eating fish and other wildlife, and walking in a contaminated area.

²¹ The mine operated for two years: 1957 to 1959. The ore did not have high enough concentration and amount for commercial production to continue (PWGSC 1996:3)

contamination. Again, the evidence suggests that individual miners explained the situation.

“There’s nothing [little uranium worth anything],” is what this white man said. We even had a translator walking [travelling] with us. (Bella Naedzo 96/09/24)



South tailings—heavier growth, southwest corner (PWGSC)

Rather than contain the tailings for the long term, mining personnel broke open the tailings ponds; contaminated waste flowed into Gamma, Alpha, and Sherman Lakes; and eventually reached the Marian River system²².

Just as the mine was about to close down they opened the pond and dirty water gushed down into the lake, and that is why the water became bad (polluted). The miners used the chemical [poison medicine] to wash out the rocks, and that stuff went down into the lake. (Joe Rabesca 06/09/17)

The elders agree that they were unaware of the extent of the dangers of uranium mining and radiation exposure. They also agree on what happened to the dè. The T̥chq̥ watched and observed as the mining company blasted the landscape; they watched what was happening to

²² See Maps II and III

the dè as the mine developed. They watched as the miners drilled and blasted a large hole in the rock bed, a place that once provided an outlook for moose.

We say how they blasted the rock with an explosive charge. They made a hole in the rock with explosives and [it] became a tunnel. ... They kept on drilling the highest rock until there was a big hole in the rock. ... They used the big tractor for hauling rocks and were crushing the rocks with the crusher too. ... We saw how they spilled out the dirty water that was used for the washing of rocks. (Jimmy B. Rabesca 96/09/16)

They put down a shaft, pulled up rocks, and crushed them and washed them down with a chemical. The waste went into two tailing ponds through a pipe in the woods. Sometimes the waste products did not flow through the pipe, but instead flowed down the slopes to the small lake and river systems leading into Sherman Lake²³.

... Down from there [the blasting area] is a river. There's a downward slope to where the river slopes. The rocks, whatever they use with it would flow down into the water. Where it flowed down into the water ... by the next year it made all the trees white. All the trees! Where it flows downward, where it flows downward into the river, there's nothing but white trees in its place. The needles were also white. There's nothing left of it. (David Chocolate 96/09/16)

The elders are aware of the interconnectedness of the various parts of the dè. Some elders became concerned as soon as the mine blasted the rock. As Romie Wetrade explained, rock has spirit and when it is blasted, the rock dies. (pers. comm. 96/06) It soon became obvious that mining activities were destroying many parts of the dè. Romie Wetrade chose not to work at the mine, but he visited the mine at times.

Before that [mine] we had nothing to worry about. We know the spots for muskrat and beaver. We went there ... for muskrat or beaver and for the duck hunting, and ... we looked after the animals²⁴. ... The beaver and muskrat, they lived under the water

²³ See Map III

²⁴ When looking after and respecting an animal it is important to use all parts, and to place the unused parts in an appropriate place.

and they eat from ... there. The moose gets fat [because] it eats grass. ... And the rabbit eats the sticks. [For] us if we don't look after the animal ... they will die somewhere else. (Romie Wetrade 96/08/28)



South tailings—deadfall centre of pile (PWGSC)

For many, watching mining activities destroy their land and resources was too much. Some Tłıchq who traditionally used the area chose to leave²⁵. Some later became angry and returned, because for them it is Tłıchq Dè²⁶.

We went to Behchokq̃ for Easter. ... We didn't go back there [Rayrock] so my brother-in-law said he wasn't going back so they went off on their own. ... They went on the Wekweètì trail²⁷. Them! But ... my late father said, "We are going back. It's our land and we're not living here [Behchokq̃]." So we went back there. ... Wally Drybone, they were living there and some people, in five tents, had returned. Over here our leader Harry, they used to live there too. We moved to them. (Bella Naedzo 96/09/24)

Others worked for the mine, exposing themselves to the contaminants.

When a barge comes in with supplies ... we would then go [haul] to the long point. There we hauled the poison powder that comes in a barrel; some of them broke open. (Louie Williah 96/09/27)

Those who chose to stay created a settlement next to the dump.

... A settlement ... was also near where they spilled out the waste. My uncle Eddie's house was near the rocky hill where they used to dump the sewage and the house was close to it. (Alexis Flunkie 96/09/18)

The Tłıchq that lived and worked at Rayrock did a variety of jobs and had various responsibilities. They worked as supervisors, equipment operators, woodcutters, janitors, cooks, watchmen, fire stokers, rock crushers, and miners. The women sewed for mine employees.

... The big fat boss, and for his son who is living in Yellowknife, I would sew footwear for him, like canvas mukluks. ... Sometimes I

²⁵ Traditionally, individuals decided what leader they would follow. If they did not like a leader, they could choose to follow another leader. (Legat and Zoe 2000) In this context, choosing to leave Rayrock made sense to some individuals. They did not like how the mine management/leadership was treating the dè. The elders' statements suggest that later these same individuals returned. They wanted to protect Tłıchq traditional territory.

²⁶ Tłıchq land. See also *Tłıchq Ndè: Importance of Knowing* (Legat et al 1995)

²⁷ See Andrews and Zoe (1996)

would give the mukluks to the white men and they would pay me well for them. (Elizabeth Chocolate 96/09/18)

From these positions, they watched the dè slowly change.

It was only recently that they [white people] came and it seems like to us that they've already made themselves bosses. ... The things we depend on, that are set for us, they bother them despite us. We don't bother the [dè] but it is they who ruin the native people. ... It's like they are destroying the people. That's why they are put on the earth ... they put people in anguish. (Madelaine Drybone 96/09/06)



Madelaine Drybone 1996 (© Aalice Legat)

Indicators of change to the dè attributed to the Rayrock mine

The elders think that the blasting destroyed the beauty of the place and changed its physical appearance.

Even the rocks were getting destroyed with that [chemical]. (Harry Koyina 96/09/24)

The elders believe that destroying the landscape and the rocks was wrong. Destroying the earth with blasting and chemicals kills the spirit of the rocks, and the dè starts to die.

So it's like the land is close to tears. It's in anguish. Before it wasn't like that. ... It's like the land is ready to cry ... it worries and it worries. It's like it is sick. ... So then all the waters became like poison. Because of that there were a lot of dead animal bodies floating they said. People who canoed down the river knew [saw] this ... like muskrat and even dead ducks were floating. (Madelaine Drybone 96/09/06)



North tailings, Beta Lake and Alpha Lake (PWGSC)

The elders know that if a part of the ecosystem is contaminated, the contamination spreads and affects other parts of the dè.

So even the poison, the poison that's in the discarded rocks and those that they spill [will affect other parts of the dè]. When it [the wind] blows in this direction, the poison will probably blow into the water and ... onto the land. ... When the snow starts to melt, the water flows, [and carries the poison downstream]. Also when it rains, water flows. [again moving the poison to other parts of the ecosystem] (Philip Huskey 96/10/03)

Elders describe the blasts that destroyed their hill and left rubble all around; and created the mineshaft. A pipe removed tailings to a depression in the land. Spillage from the pipe and the tailings ponds flowed toward the rivers and lakes²⁸, causing contamination. Tł̓ch̓q elders believe that this 'poisonous water' affected all life and killed many.

Where it flows downward, where it flows downward into the river, there's nothing but white trees in its path. The needles were also white. There's nothing left of them. When we cut, the core [of the trees] is just yellow. I'm pretty certain there's still some [trees] standing. [The tailings flowed] down from Rayrock to the river. To the river! ... Everything was affected. That's how I saw it. ... That year, Bruneau and some others lived in its midst. From where he lived ... he trapped. ... Not long after they died ... [Bruneau], his younger brother, [and] ... his son. (David Chocolate 96/09/16)

Although most elders state they did not know for certain the drainage from the mine was poisonous, they did link 'poisonous' water and air quality with causing sickness, sores on their bodies, and changes in wildlife. At first the men did not have protective clothing, which exposed their bodies to chemicals. Their "palms were always wet with water" (Paul Rabesca 96/09/24) that contained chemicals.

... Bennycho ... had problems with his skin. His skin became affected. With that he died. ... Bennycho, the palms of his hands were pretty big, but there was nothing left of either palm. They had become just bones! With that, he lost his mind and he died. (Paul Rabesca 96/09/24)

... Right now those who used to work at Rayrock are passing away;

²⁸ See Map III

all of them are dying from cancer²⁹. ... My husband used to work underground; I just want you guys to hear about it. ... What we said it's all true what people said; it's all true, that's all I know. (Lucy Chocolate 96/10/23)



North tailings—northeast corner towards Alpha Lake (PWGSC)

Tł̥chq realized that the water started to taste funny. People were getting sick; some were dying. This caused (and continues to cause) tremendous stress.

When the mine was opened a lot of elders died. They would suddenly get sick, and then die. My older sisters ... bodies shake all the time. That's what happened to both of them. One of my older sisters, called Julie, as soon as sickness hit her, she died. Maybe it was because of the water? ... Now the two who are alive in Behchokò, their bodies shake³⁰. ... Even Kwetł̥àa is like that. He can barely walk. (Harry Simpson 96/08/22)

Zeremie Lacorde had worked there but he died. So did Jimmy Drybone and Harry Zoe and Angeline's late husband Jimmy Rabesca. Many people did work there and many of them have died

²⁹ Lucy Chocolate's husband died of cancer. (Zoe pers. Comm. 96/11)

³⁰ May be Minimata disease

too. The chemical can [barrel] got busted and I inhaled so badly ... I got real sick. They had to send me to hospital where I stayed for over a month. (Joe Rabesca 96/09/17)

It's just like people were dying with cancer. ... At the time when they used to work there they were working with the poison rocks and [the chemicals]. ... [The poisons would] spill on us but it didn't destroy our skin right away because we put water on it right away. Later on people died from it. That's why the animals died right away. That's why the animals were destroyed, and the animal's fur came off, and animals got sores on their bodies, and we can't eat them. People didn't die right away with it [poisonous rock and chemical] but many years down the road. Even rocks were being destroyed with that [chemical]. (Harry Koyina 96/09/24)

The elders think that these problems are directly related to the poisons that entered their bodies while working at the mine—from working directly with the uranium rock or through the water and the air. The federal report³¹ confirms the elders' observations.

The report discusses the danger of exposure to gamma rays, still found at the tailings ponds, camp, and dump. It discusses problems with the air in the Rayrock area. The air carries radioactive radon decay products that people can inhale if they are around the tailings ponds, mine vent, or shed. The report discusses that exposure is dangerous—drinking or washing in the contaminated water.

The elders think another reason that the water became contaminated was because of the empty barrels that fell in the water. The company left empty barrels in the dump and the chemicals flowed from them to the water.

... For example, an old metal barrel had fallen in some water. ... I saw a lot of dead fish [around it]. ... Dead fish were floating near the shores ... where they used to dump their garbage, where they dumped their poison. ... [for a while the land is frozen but then] it starts to melt. Because of that [poison] fish died. And also on the river, there was a dead beaver floating on the river. The beaver is a smart animal but because the poison overpowered him, it ... died and floated like that. That's what used to happen. So then, the land

³¹ PWGSC 1996:B:21-58

is dead, and the water is dead, and all the things that we eat and all the sticks upon it are all dead. In Rayrock! (Philip Huskey 96/10/03)



South tailings—natural drainage, west side (PWGSC)

Given that they believed they should use available resources, the Tłıchǫ tried to use the dead trees. They found the inside cores had turned yellow.

So the logs, when we cut them, it's yellow inside. ... They probably all died from the poison. Where it [the poison water] flowed is

where it happened. ... That's how it is! (David Chocolate 96/09/16)

The elders say the ground could become white and hard; if you poked through the hard crust, you found a flour-like powder underneath (Zoe pers. comm. 97/03). Or they found that "the sandy area close to the road got kind of dark." (Louie Williah 96/09/27)

... The miners continued to drill in the hole [shaft] and kept on spilling the chemical on the ground. That was when the land got really damaged. The trees had changed their colour, they became dried and dead, and the berries no longer ripen and the stem became dead too. So as for now, the land is dead and that is how it looks to this day. (Jimmy B. Rabesca 96/09/16)

We used to pick berries by the road when they were good. As for now, that area is withered all around that place and looks very dry and dead as well. (Elizabeth Mantla 96/10/26)

Not only did the elders notice the changes to their own bodies, to trees and bushes, to the water, air, and ground; they also noticed animals showing signs of physical stress. The following quotes show the effects of environmental contamination on the animals.

In the winter time, where they spilled the poison, because it doesn't freeze, and it was near the road, when we used dogs and the dogs stepped into it, the dogs developed sores. (Amen Tailbone 96/09/06)

Fish are easy to tell [when there is a problem in the dè]. The fish lost their fat and their skin looked dark and inside their guts looked dark ... and [the fish] tasted funny, so we couldn't eat them. That's how they turned, and by that we knew. (Romie Wetrade 96/08/28)

[The beavers] even their fur would peel off. That's how it was! Also the ducks, when the ducks went on the lake, the ducks looked like they were swimming in oil. That's how they looked. (Philip Huskey 96/10/03)

So animals, like fox and other fur bearers, ate from the trash. So ... because that's where they ate, their fur is no longer good. ... When we killed fox [or other animals] that's how they used to know. (Harry Simpson 96/08/22)

Their meat [of the dead carcasses] was just white! It was just white and that's how they were. I guess they would die like that from the

poison. That was how we used to see them. They were decayed. It used to be! That wasn't all. Even muskrat! Out on the lake, we used to see ducks died. ... With a boat I went throughout that area. I'm talking about what I saw! (Menton Mantla 96/10/03)

Others reported that, “when we cleaned ducks, we would see that it had pus in the meat; same thing with the fish.” (Elizabeth Mantla 96/10/26)

To summarize this section, the ecosystem began to change for the Tł̓ch̓q, with the blasting of the rock and taking from the dè without respect³². The water and air became poisonous. The change and destruction continued. The contamination affected the plants and the land. The poison entered the waterways after spreading through ground water and through streams and rivers. With poisonous water the trees and other plants died: berry bushes, willows, and birch bark. Eventually animals were affected. Several indicators told the Tł̓ch̓q of environmental problems.



South tailings—midpoint east side (PWGSC)

³² Very simply, respect means to reciprocate by giving back to the dè what has been taken, and returning what is not used to an appropriate place. For example, what is not used from a fish should be returned to the water, and what is not used from a caribou or moose should be placed on the land where it will not be noticed by other humans.

Table II—Indicators of change to the dè during mine operation

Animals	Plants	Ground/Water/Air	Humans
Sores on dogs' feet	Few berries ripening	Rocks blasted	Sores on skin
Fox fur in poor condition	Berry bushes wither	Rocks crushed and broken	Damage to air passage
Fish start to lose fat	Increase in dead bushes	Water tasted funny	Some people shaking
Fish scales turn dark colour	Trees turn white	Flour-like powder under surface of crusty ground	Increase in deaths
Pus pockets in fish meat	Bark on trees dries up	Sandy areas turned dark	
Increase in fish deaths	Increase in dead trees	Large areas of dead water	
Pus pockets in beaver meat		Large areas of dead ground	
Beaver and muskrat fur smells			
Beaver and muskrat fur peels off easily			
Increase in beaver deaths			
Ducks look oily			
Pus pocket in duck meat			
Increase in duck deaths			
Meat of carcasses turns white			

The dè after the Rayrock mine closed

There is consensus among the elders that mining activity destroyed the dè of the Kwetł̀àa area. Trees have died; willows, plants, and berries are dead; and the fish still living in the lake are contaminated and taste bad. They generally believe that the land and waters are dangerous. People should not harvest animals, fish, and plants from the area; no one should go to the area.

The elders interviewed know that the poison continues to contaminate the area. They say when spring runoff comes, the tailings ponds overflow into the creek. The creek flows into the Marian River. The river carries the effluent to Marian Lake and to the North Arm of Great Slave Lake³³.



'Hot' area—reading up to 11 mS/hr (PWGSC)

³³ See Map II

Some people have flown over the area; others have driven by on the winter road between Behchokò, Whatì, and Gamètì. They refer to the present state of Rayrock.

To us, it's like the dè has become dead. (Phillip Zoe 96/09/18)



Phillip Zoe making a drum frame 1996 (© Alice Legat)

The land is affected by a powerful poison like a powerful disease. Today, that's the way it sits. ... Before the land looked good, but today the land is kind of sick like. Even the animals can't seem to feed upon the land. (Amen Tailbone 96/09/19)

I don't think any living [thing] will ever set their foot close to where I mentioned about the withering of the trees. And if any of the living [animals] get close to the withered trees and eats any of the plants, I don't think they will live. (Albert Wedawin 96/09/27)

Immediately after the company abandoned the mine, a group of Tł̓chq returned to monitor the site.

... "Let's just go check. Let's check the empty place." they said. ... [We did] and it was like the trees were all torn apart. In the middle! The poison flowed into it, surely. When the whitemen left they said "let's spill the poison" {let's release the tailing ponds}. Half of the trees were just white. It looked like something had eaten away at them. Nothing happened to the tops, but the bottom half was just white. The water was just like this, but it had drained into it. ... "If the people were to see it, they might not like it," they said. I guess it happened from the waste that they threw away. There was no hole in the ground; they did it on top the ground. That was how it was when we checked it again. We went over there. (Bella Naedzo 96/09/24)

All the elders say they would be afraid to hunt, trap, or fish in the area again. Many consider it a 'dangerous' place to be. Most feel there are likely dead animals in the area. All attribute the death of a moose in 1995—found on the road near Rayrock—to eating poisoned willow. All think that the 'rock poison' from the mine destroyed the land and that it continues to kill.

After some time had passed we were finished and so were they [white miners]. They [other Tł̓chq] said that there was a dead moose, near the road. And there was a dead rabbit too. (Amen Tailbone 96/09/19)

They know that they cannot use wildlife that inhabit or migrate through the Rayrock area.

I do not want people to go back to that area again ... because of the things that got damaged. (Elizabeth Nitsiza 97/01/11)

People are afraid to use it. That is why no one goes there. Since the white people have used the chemicals in the mine, people have said everything is polluted—water and forest, and animals too. ... The land was worth living on but now it's just a waste. Rayrock is an unhealthy place ... we can't go in that area again. ... The animals that eat their food from the polluted ground will get sick and if we kill the animal in that area and eat its meat, for sure we will get sick too. (Jimmy B. Rabesca 96/09/16)



Jimmy Rabesca 2012 (© Aalice Legat)

Most elders believe that the ‘poisons’ are spreading into new areas of the dè because Rayrock was not cleaned up.

So even the poison, the poison that is in the discarded rocks and those that they spill, when it blows in this direction, it probably blows into the water and it blows into the land. So because of the wind, and when it snows it's like that; when it starts to melt, the water flows. And also when it rains, water flows. ... The river was very valuable to us! Even so, since they started to work in that way, it's like we can't eat anything near the river. ... Rarely does anybody go near the river. (Paul Wetrade 96/09/16)

Not only can the Tł̓chq̓ not use the Rayrock area, they worry that the larger ecosystem is polluted because of the water flow.

... The water is no longer any good. [And] ... it is hard to say just when it will be good again. The way into Rayrock among the rocks, there are five ways around the rocks. When it rains, it must flow underneath. When it snows, and when it begins to melt, the waters must flow surely. That and all the holes in the rocks and wherever they worked with poison rocks must all flow out. So how can it make things well again? Whatever it flows into probably dies. (Philip Huskey 96/10/03)

The elders have concerns that the contaminants are reaching larger portions of the ecosystem. Scientific testing confirms their concerns.

The radioactivity has spread to the neighbouring environment through the transport of radionuclides in water, soil, and air. Also of concern is the leaching of heavy metals and acidity from the tailings through acid mine drainage. (PWGSC:B:5)

The elders fear that the contaminants are spreading not only through the dè by water and air, but by equipment and houses moved from Rayrock to Behchok̓.

In Rayrock ... he took the house apart. They [mine management] told him, "You can have the plywood that is in good shape. ... You can build a house in Behchok̓." So he took it apart ... they took the plywood to Behchok̓ for him. They took it to Behchok̓ with a big truck. When we arrived in Behchok̓ he [Harry Koyina] put the plywood back in place and it was just like the house. We lived there and since then his [Harry Koyina] legs became weak; and his legs are like different legs. He can't walk around with them. It's been so many years; it must have been over twenty years. (Laiza Koyina 96/11/20)

As well as contamination in houses and other goods, the remaining garbage is a concern for the elders.

Everything was left behind. Even metal is sitting in the water. Empty barrels are in the water. ... [The fish] really look different; the land looks ruined and the trees [still] don't grow. (Harry Simpson 96/09/18)

Harry Simpson said (96/08/22) in a later interview that, “lynx and fox, no longer have good fur on them. Some of them are pitiful like.”

Most elders agree with the following statement.

They even distress the land. Now ... the land has become pitiful. It is no longer joyful. It worries so much that it's almost become miserable. ... They [animals] eat from the land. Some of the sticks and willows ... is what the moose eats. The caribou eats white lichen. And the rabbit, it depends only on willows. ... So then some, who used to be fat in the past, they are not today. (Madelaine Drybone 96/09/17)



Sampling ‘hot’ barrels (PWGSC)

The federal report states that the land is scarred. The effluent entering Marian Lake from the Marian River leaves a scum that seems to affect fish. In fact, the uranium site and a few pits are ‘hot spots’—high in radioactivity. Significant radioactive readings occur within a two-kilometre radius. These readings may have been significantly higher during peak production³⁴. Since the mine closed, the elders have seen many people who worked at the Rayrock mine, or lived near it, become very sick or die.

³⁴ PWGSC 1996:B:5-7

Some of them that worked underground have died. (Louie Zoe 96/09/18)

Some young people used to work around Rayrock and some of them are still alive and many of them are sick and not healthy; ... half of them are dead. ... My brother Johnny Chocolate who used to work there is not alive³⁵. My brother was still a young man when he passed away and even his son passed away. (Adele Wedawin 96/10/04)

The rocks were all blasted. It looked like white men lived there. ... The white men really destroyed the land. ... All the time, the whites did as they pleased despite us. ... [Elder] ?aboo lived there a long time, that's why he's sick. My two brothers are now dead³⁶. I went hunting for moose [there] with them. (Paul Wetrade 96/09/16)



Adele Wedawin, Paul Wetrade, and Madelaine Drybone (in back) 1996 (© Allice Legat)

... Those who [worked at Rayrock] are either dead or sick; ... like Harry Koyina was the last one to work there; ever since he's been sick. ... And also big Phillip is the same; he always has sore legs. ... To this day it is still the same! Also Paul Rabesca gets sores all over

³⁵ It is common knowledge that Johnny Chocolate died of cancer.

³⁶ It is common knowledge that Jean Wetrade died of cancer.

his body. ... They are not the same as before [they worked there]. Bruno Apple and his family used to work there [Rayrock], and they all passed away. ... After Rayrock was closed ... [Bruno Apple stayed there from the beginning of] winter to March. So he can go trapping. ... He arrived there with his family. They lived there and from there he would trap. ... Since then he started to get sick; even his wife was sick, and his son started to get sick. They used to live there and now they are all dead. (Nick Black 96/10/03)

Three areas of the mine site continued to report high levels of radioactivity³⁷.

- Mine entrance and vent shafts.
- South and north tailings piles.
- Dump for radioactive waste east of the south tailings pile.



South tailings and swamp near Gamma Lake (PWGSC)

It is logical to assume that mining activated exposed the 151 Tł̓ch̓ employees of Rayrock mine to high levels of radiation during the most active period in 1958³⁸. It is also logical to assume that they continue to

³⁷ PWGSC:B:5

³⁸ PWGSC:A:3

suffer the physical side effects of this exposure, such as cancer. Several elders related their conversations with a specialist in the south.

"In Rayrock, you worked with a powerful medicine [uranium]" said a great physician when I became afflicted with sickness. Three times they had to send me to Edmonton. The last time that I was sent there, my son John P. Rabesca came with me. And my daughter Cecelia came along too. From the United States, a great doctor who was very well learned in the destruction of human skin was there. When he [the doctor] asked me, "In the past when you were a youth, did you do that?" And I said no, I've never known my hands to be like that.

"Because you worked with powerful medicine, and it's a poisonous rock ... if a bit of that had gone into your mouth, then you will surely die. ... So that sickness that afflicts you is not a disease. It's because you worked with powerful medicine that it is doing that [to your body]. I am a doctor knowledgeable in skin disease, is what I am," he said to me. So then, "Write down all the things that you worked at ..." (Paul Rabesca 96/09/24)

A lot of those people used to work at Rayrock. Half are dead and some are still alive. ... When my husband was out in Edmonton he was really sick³⁹. When my husband got a little bit better and the specialist doctor was asking him questions. He was asking questions, "Where did you used to work?" And he [my husband] was talking to the specialist about how long he worked [at the uranium mine]. He was telling the doctor where the white people were working there was something yellow running into the water. And the trees turned yellow. That's what he was talking about to the doctor. That is what is my husband was telling the specialist. (Monique Etlonzo 96/10/03)

The elders hope there is a way to protect other mine sites and other parts of the dè from becoming polluted.

Some of them ... when they leave they leave a lot of stuff after them; and that's not good. Old barrels! Things that were used for blasting rocks; ... they even left gas behind. It's even because of that. There were lots! The little mines and where they used to work with rocks there are lots of places where they used to mine rocks.

³⁹ It is common knowledge that Mrs. Etlonzo's husband died of cancer.

They used to leave some stuff behind. In the past it used to be like that. But today the mines that are built, we don't want that again upon our land, if we work well together. We think this; that's why we say this. (Philip Huskey 97/04/05)



'Hot' area—one reading 30 uS/hr (PWGSC)

The elders suggest the poison should be put back where it came from, to show respect for the dè. Andrew Gon (96/08/21) explained that when you work with a resource, it is important to respect the laws surrounding that resource. Like several elders, he uses caribou as an example—that all parts of the animal must be used and the parts that can't be used should be put on the ground where no one will disturb

them. The law is to return what is not used to its rightful place in the dè. He says that miners should follow the natural laws as well.

*Our dè and that of the animals has mines built on it. Since they work with poison [remove uranium from the ground], they should follow the laws and work with it well. They should put it [what is left] back into the ground; carefully pouring it back into the ground.
(Andrew Gon 96/08/21)*



'Hot' dump area (PWGSC)

To summarize; most people are discouraged that the dè has been treated badly, damaged, and left in a terrible state. The mine management showed great disrespect to the dè. People are afraid to visit the site. They believe the contaminants continue to kill the animals and plants because the 'poison' remains in the water and on the ground. They fear that because it can spread by water and wind, it is damaging larger areas.

They know radiation continues to harm them. People experience an increase of cancer and cancer-related deaths, sore legs, and shaking bodies in those who worked at the mine and live in contaminated areas and homes.

Elders agreed that the site should be cleaned up. They are particularly concerned about stopping the poisonous water from continuing to enter the watershed. There is some talk of pouring cement over contaminated areas. They do not understand how this will stop the underground water flow. In fact, they do not understand how a total cleanup is possible.

Summary and Conclusions

The DRRC took on the Rayrock project to show that people who actively harvest renewable resources in an area should be formally involved in monitoring the environment in that area. The report documents the Tłıchǫ elders' knowledge of the environment before, during, and after the operation of Rayrock uranium mine.

The diamond mines that we have in the barren lands, they are on major routes. ... Every one of them [mines] is on places where Tłıchǫ have dwelled. ... So by talking about the land and sharing information with the mining companies and them with us would be good. ... Since there are mines, it would be good if they [mining companies] worked well with us on this. That would be good. So that is what I think about that. So the land, where there are mines upon the land they should be closely monitored. In case the land gets destroyed because of bad things. ... [Sometimes the wind] will blow from that direction, or if it snows or rains, causing [the poisons to move] the land might spoil. (Philip Huskey 96/10/03)



Philip Huskey (nwtarts.com)

Before the Rayrock mine opened, the Tłıchǫ used the area to secure resources. The elders' personal knowledge of the beauty and the usefulness of the area cannot be challenged.

No one informed the Tłıchq of the dangers and impacts of uranium mining. If the company or the government had informed them, they could have worked with mine management to monitor the dè. Their knowledge could have provided an environmental baseline and measured the changes while the mine was operating and after it closed.

The Tłıchq did pay attention to the indicators, summarized in Table II. Since the mine closed the people have stayed away from the area, fearing the resources are contaminated; that contamination will do further damage. Philip Huskey states this conclusion best.

So Rayrock is truly destroyed. The land is dead and it's thought of in this way. We don't want this upon our land again. That is why we have told you this. It was bad for the Tłıchq people. It is bad for all people, like whites, Métis, or others; it is bad for them. And also, over in Great Bear where there used to be a mine called Port Radium mine; that used to be a great mine. We know that has damaged the dè. ... Every one of the mines has been damaging towards us and animals, like fish. We can no longer eat them. Because it's like that, we don't want damage again. That's why we say this. (Philip Huskey 96/10/03)

Tłıchq who worked at the mine trusted mine management to respect them and the land⁴⁰. The inability of mine management to share information caused everyone who used the area to be affected by the chemicals and radioactive material. As the elders stated, the dè is interconnected. Once one part is contaminated, the contamination spreads and affects larger parts of the dè.

The damages are far-reaching. Mine effluent in the Marian River affects the whole watershed; it finds its way to the North Arm of Great Slave Lake. During the life of the mine the area was damaged—from blasting rock, chemicals used to clean the rocks, and radiation from exposed uranium.

The Tłıchq were well aware of the health of wildlife in the area and themselves; the flow of the streams, underground water, and rivers; the direction the wind might carry pollutants produced by mining

⁴⁰ The Tłıchq, for whom Jimmy Drybone translates, spoke strongly about the fact that the mining company was on Tłıchq territory.

activities. They also understood the characteristics of spring thaw and resulting water flow.

Given the depth of understanding of the landscape and ecosystem, perhaps the mining company could have constructed a more workable holding pond for the tailings. Perhaps they could have enforced measures to keep animals, children, people, and their homes away from the contaminated areas. The concerns expressed by the Tł̓ch̓q about the contamination of their land base, animals, plants, berries, water, fish, and themselves are justified. We may not yet fully understand or assess all the significant damages.



Aerial views Rayrock site (DIAND)

Recommendations from the Elders

During the interviews, the elders made recommendations that the DRRC and communities will discuss.

Recommendations for the abandoned Rayrock mine site

Since they work with poison [remove uranium from the ground] they should follow the laws and work with it well. They should put it [what is left] back into the ground; carefully pouring it back into the ground. (Andrew Gon 96/08/21)



Andrew Gon 1998 (© Alice Legat)

Recommendations for future development

If there is ever another discovery in our area, we Tłıchǫ people need to know first. And we would like to inspect the area every month. If [the] damage is the same as Rayrock, then we'll just have to shut it down. (Jimmy Nitsiza 96/10/23)



Jimmy Nitsiza 2015 (© Alice Legat)

But [even] if they do not ask us, it still remains that we don't want any harm done to the land. (Harry Simpson 96/09/18)

They should follow the laws and work with it [mining] well. They should put it [what is left] back into the ground; carefully pouring it

back into the ground. (Andrew Gon 96/08/21)

The diamond mines that we have in the barrenlands, they are on major routes. ... So the land; where there are mines upon the land they should be closely monitored. In case the land gets destroyed because of bad things; [sometimes the wind] ... will blow from that direction, or if it snows or rains, causing [the poisons to move] the land might spoil. (Philip Huskey 96/10/03)

The elders know how to live in the bush and how to work upon the land ... and when they work at studying how animal feed grows again, they know everything. Even water! How everything works upon the land, we know. Even animals! What happens to it we know. And wherever it has its trail and where we hunt along its trails we know all of that. So then, the mines that are built, they should do a good job of working on it and helping each other real good and looking over the matter together would be real good. (Philip Huskey 96/10/03)

Those of us, who are elders, will work well with our knowledge in a peaceful way and will share with the mining companies. If the mining companies work on this together with us, that will be good; if we tell one another the things that we don't know so that all will be well with us. That is why we talk with one another. So then, when something important comes of it, we work well on it, that will be good. So then, even me, I'm 73 years old. I'm not a young man. The diamond mines that we have in the barrenlands, they are on major routes. ... The other places are where Tł̓chq̓ have dwelled. We know the kinds of animals there are. There are mines on the animal tracks and we know this. So then, by telling each other this information; about where the animals travel and where the mines will be ... so where there are mines the dè can be closely monitored. In case the land gets destroyed because of bad things, if it blows from that direction or it if snows, gets windy, or rains; because of that the land might spoil. The animals feed upon the land and they might get destroyed or the water might get polluted so we must watch it for this. How everything is to be monitored and those who are monitors; those who are of age and the elders working with them, and all the lands where there are mines they should be checked. (Philip Huskey 96/10/03)

Recommendations from the Analysis

These recommendations flow from an analysis of the information collected. They reflect broader concerns that the DRRC and communities should discuss.

Recommendations for the abandoned Rayrock mine site

As the agency responsible to clean up the Rayrock site, we recommend the federal government take the following actions.

- Clean up the area quickly to prevent further damage to the water, animals, fish, birds, plants, and people.
- Do further research to verify or dispel people's fears that those who worked at the mine or camped there have died, or will die, of cancer.
- Do further research to determine why a number of people 'shake' or experience considerable loss of balance. This research should consider Minimata disease as a possibility.

Recommendations for future development

We should inform people about what is going on in their traditional territories. No new mines or other activities should occur without Tłıchǫ consent.

We should document baseline data throughout the Tłıchǫ traditional territories. The documentation process should use elders who live in the area to ensure reliable data. Then Tłıchǫ can more realistically monitor future developments.

We should use people actively engaged in traditional harvesting to monitor the ecosystem during and after any future development.

We should monitor future industrial sites with the commitment that no harm will come to the ecosystem, not because monitoring is legislated.

Monitoring the dè should include the largest possible area. It should include areas where contamination is possible due to spreading by wind, snowmelt, water, and animals.

Tłchq and industrial management need every opportunity to talk and honestly share information and concerns.



(EdgeYK.com November 2015)

Update November 2015

The federal government—Canadian taxpayers—is now responsible to clean up the Rayrock mine site.

The information for this update comes from the *Rayrock Remediation Project Community Engagement Plan*, Aboriginal Affairs and Northern Development Canada (AANDC), June 2015⁴¹.

1996-1997	Completed remediation. Work included sealing all mine openings and ventilation shafts, relocating radioactive material from the dump to the tailings piles, and capping the tailings with a thick layer of silt-clay, followed by re-vegetation.
1998-1999	Completed short-term monitoring program. Developed a long-term monitoring program.
1999-2009	Carried out annual monitoring as part of the long-term monitoring program. This is a regulatory requirement of Canadian Nuclear Safety Commission Licence.
2009-2010	Started performance assessment. Reviewed current site conditions since reclamation activities in 1996. Compared current conditions against reclamation objectives and closure criteria.
2010-2011	Completed additional monitoring. Established the Rayrock (Kwetłjəàa) Elders Committee to discuss community concerns about the site.
2011-2012	Completed performance assessment report. Proposed a new monitoring frequency and scope. Conducted a gap analysis of existing site data (wildlife, fish, vegetation, surface water, groundwater, soil, and sediment) to identify what other information we need to complete a detailed human health and ecological risk assessment. Held a mapping exercise with Tłıchq elders in February 2012 to better understand the historic transportation route.

⁴¹ <http://www.mvlwb.ca/Boards/WLWB/Registry/2015/W2015X0006/W2015X0006%20-%20Rayrock%20-%20Engagement%20Plan%20-%20Version%201.0%20-%20Jun%2026%2015.pdf> (November 2015)

What's next? Activities this year:

- Investigate an area of potentially unknown hydrocarbon contamination.
 - Investigate buried material to help close knowledge gaps.
 - Continue to meet with Rayrock (Kwet̓iḡàa) Elders Committee to discuss findings from investigations and develop options for monitoring and maintenance.
-



Tłıchq elders tour Rayrock mine site September 2014 (AANDC)



Tłıchq elders update September 2014 (AANDC)

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