

Clinton Creek Cultural Research and Oral History Project

prepared for
Tr'ondëk Hwëch'in, Land and Resources Branch

by
Helene Dobrowolsky, Midnight Arts
Alexandra Winton, Crowberry Consulting and Communications



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March 2017

Cover photo: The abandoned Clinton Creek mine site, waste rock area with Lake Hudgeon in distance, July 2, 2013. *Tr'ondëk Hwëch'in collection*

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Clinton Creek Cultural Research and Oral History Project

Acknowledgments

This project has been co-sponsored by Tr'ondëk Hwëch'in (TH); the Yukon Government, Department of Energy, Mines and Resources (EMR); and the federal government, Indigenous and Northern Affairs Canada (INAC). We are indebted to all the Tr'ondëk Hwëch'in citizens, Dawson residents, and current and former residents of Clinton Creek and the Fortymile area who consented to be interviewed, completed the survey, and/or attended public meetings. Appendix 2 lists all the people who agreed to take part in a recorded interview. Others completed a written or online survey.

We received valuable advice and assistance from the Tr'ondëk Hwëch'in Elders Council and Tr'ondëk Hwëch'in Heritage Department. Alex Hallbom assisted with transcription of the interviews. Tim Gerberding shared some personal recollections of the area as well as confirming the nature of the role of Tr'ondëk Hwëch'in has in remediation planning. TH Geospatial Technician, Adam Thom, prepared recent maps of the area. Unless otherwise cited, all images were provided by Tr'ondëk Hwëch'in. Michael Mclsaac, Engineer Recruit at INAC provided aerial photos of the area before and after mining activity as well as information about the gate at the mine site. My partner Rob Ingram put together the cover. Bill Kendrick, Special Projects Coordinator of the TH Land and Resources Branch, was our able project manager.

Many thanks to all.

Helene Dobrowolsky and Alexandra Winton

3 March 2017

Abbreviations

CC	Clinton Creek
DIAND	Dept. of Indian Affairs and Northern Development (Canada)
EMR	Dept. of Energy, Mines and Resources (Yukon Government)
INAC	Indigenous and Northern Affairs Canada
n.d.	no date available
Pam	Pamphlet (one of smaller items in Yukon Archives pamphlet collection)
TH	Tr'ondëk Hwëch'in
WS	Whitehorse Star
YA	Yukon Archives
YC	Yukon College
YG	Yukon Government
YN	Yukon News

1. Background Summary



Figure 1. Early location map of Clinton Creek mine, 1967. Prepared by Sphere Development Corp. Ltd.¹

Dätl'äkay dëk

Dätl'äkay dëk, now known as Clinton Creek, is a tributary of the Fortymile River about five km above its mouth and flowing in from the west side of the river. The drainage of the Fortymile River (*Ch'ëdä Dëk* in Hän) had long been important to First Nations people of the area as a travel and trade corridor, and as a resource-rich area valued for its fish, berries and edible plants and furbearers, especially the caribou harvested during the two annual migrations of the Fortymile Caribou Herd.

The discovery of substantial deposits of placer gold on the Fortymile in 1886 prompted a rush to the area and the almost instant formation of a log cabin town set around a trading post at the river's mouth. Although the Fortymile diggings were largely abandoned after the Klondike Gold Rush of 1898, placer mining has continued on the upper reaches of the river to this day. The settlement dwindled to a few dozen people who earned their living fishing, trapping, cutting fuelwood for the sternwheelers, and market hunting.

Two First Nations men, Arthur Anderson and George Walters, with support from Dawson grocer Fred Caley, discovered asbestos at Clinton Creek in 1957. The claims were acquired by the Cassiar Asbestos Corporation Ltd. Within ten years, the site — located approximately 100 km northwest of Dawson — was occupied by Canada's most northerly open pit mine, a mill and company town. Anderson was hired as Employee No. 1, a status he retained until the mine closure.

¹ Alrae Exploration Ltd., 1967, *Report on Clinton and Cassiar Creek asbestos areas, Yukon Territory*. Vancouver, BC: Sphere Development Corporation Ltd. <http://yma.gov.yk.ca/018932.pdf>

Abandonment and Remediation Activity to Date

During its ten-year operation, 16 million tonnes of serpentine rock, containing 940,000 tonnes of white asbestos, were mined from the three pits at Clinton Creek. Over 60 million tonnes of waste rock was deposited on the south slope above the Clinton Creek valley and 10 million tonnes of tailings were left on the west slope of Wolverine Creek, a feeder of Clinton Creek. In 1974, the waste rock slumped into Clinton Creek, creating Hudgeon Lake (115 hectares large and 25 metres deep) which was named after Don Hudgeon, the mine superintendent at the time. That same year, tailings also slumped into Wolverine Creek restricting water flow and creating two small ponds.²

When the mine closed, Cassiar Asbestos employees did some contouring of the tailings piles and built rock weirs in the creek as well as monitoring movement of the tailings piles and waste dumps. They also scattered seed all over the site by helicopter with little effect.³ In 1991, the Cassiar Asbestos Corporation Ltd. was acquired by Princeton Mining Corporation. Some remediation activities were initiated by both the former and the new mine owners. Studies for a closure plan were undertaken, but an agreement for closure of the mine site between the company and INAC was never reached. Princeton Mining Corporation eventually succeeded in having an environmental bond associated with an earlier water licence returned by INAC before the company ceased to operate in the early 1990s.⁴

As can be seen in Appendix 5 of this report (*Clinton Creek Bibliography: Publications and Reports*), the decades since closure have been marked by numerous studies and reports that address site inspections, assessments and monitoring, as well as various plans for remediation activities.

A major concern has been the possibility of flooding and erosion at the outlet of Hudgeon Lake. From 2002 to 2004, Hän Construction – at that time, the construction arm of Chief Isaac Incorporated – built four gabion weirs in the dry creek bed below Hudgeon Lake to slow water velocity and prevent further erosion of the dam. The gabion structures, stepped to resemble rice paddies, were described as “arrays of rock-filled baskets of wire mesh.”⁵ Since that time, there have been minor and major repairs to the gabion baskets, and monitoring continues to check the effectiveness of these measures.

The year 2003 marked the devolution of most remaining federal powers to the Yukon Government via the Devolution Transfer Agreement. The Clinton Creek Mine is now a designated “Type Two” mine site, managed by the YG Energy Mines and Resources, Assessment and Abandoned Mines Branch, and funded through the INAC Contaminated Sites Program with Treasury Board Contaminated Sites Funding. Over the past few years, the remediation, care and maintenance work has been contracted out by the Yukon Government. According to their mandate, work is contracted to Yukon-based bidders if possible. The monitoring of continuing waste rock and tailings movements is also ongoing. Presently, three government partners in this project — Canada, Yukon and Tr’ondëk Hwëch’in — are working together to address options for a site remediation plan.

² Yukon Gov’t., EMR, Assessment and Abandoned Mines, “Clinton Creek: History of the Mine.” 3-p. pamphlet, n.d.

³ Blair Corley & Judy Corley interview, 2017 Sept. 22, pp. 8-9 of transcript. See also Appendix 1 for fuller description of early remediation activities.

⁴ Werner H. O. Liebau, *Hydrogen Sulfide in Hudgeon Lake, Yukon: evaluation and remediation options*. A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Environment and Management, Royal Roads University. http://emrlibrary.gov.yk.ca/theses/Liebau_2010.pdf

⁵ *Yukon News*, 5 Nov. 2003, Beacom, p. 3.

Tr'ondëk Hwëch'in Involvement

The fate of the Clinton Creek mine site, the nature of future remediation work, and future land use are of great concern to the Tr'ondëk Hwëch'in. Dätl'äkay dëk lies within the First Nation's traditional territory and indigenous people have had an enduring association with the area from ancient times to the present. The area is important to modern-day Tr'ondëk Hwëch'in citizens, as well as other area residents, for hunting, trapping, fishing and gathering activities. Consequently it is important to involve the First Nation in planning for future remediation work. Legally, the federal government has a Duty to Consult the First Nation as recognized by both common law and the Devolution Transfer Agreement.

In the past, Tr'ondëk Hwëch'in's development corporation has been contracted to handle some remediation activity and the First Nation government is involved in current remediation planning. As part of this work, Alexandra (Allie) Winton of Crowberry Consulting was contracted to interview and survey people having associations with the site. She then presented the results of her research to Tr'ondëk Hwëch'in citizens and at a public meeting in Dawson City late last year. At the same time, Bill Kendrick of TH Land and Resources Branch, and Mike Mclsaac of INAC gave an update on remediation efforts to date and the next steps involved in preparing a final remediation plan.

Helene Dobrowolsky of Midnight Arts was also hired to conduct additional archival research, review and summarize the material from the oral history work and surveys, and compile a final report. Bill Kendrick, Special Projects Coordinator at the Tr'ondëk Hwëch'in Land and Resources Branch, was the Project Manager. This report is a summary of their work.



Figure 2. Michael Mclsaac and Bill Kendrick at public meeting, 7 December 2016. *Midnight Arts photo*

2. Oral History and Survey Methodology

Project Start-up

In July 2016, Alexandra Winton (Allie) of Crowberry Consulting and Communications, was hired by Tr'ondëk Hwëch'in to conduct oral history research regarding the Clinton Creek site as well as implement a survey intended to elicit details of past, current and future use of the site. It was decided that Allie would conduct the research and compile relevant information, and Helene Dobrowolsky of Midnight Arts would carry out additional research, review the information compiled by Allie, and assemble it into a final report. Bill Kendrick, Special Projects Coordinator, at the Tr'ondëk Hwëch'in Land and Resources Department, provided advice and direction as required.

After a background briefing, Allie and Bill attended an elders' meeting in August 2016, to explain the project and obtain guidance from TH elders. There, elders explained that they were "15 years too late" to conduct a traditional use study, as most people who would have used the area prior to the mine development have passed on. A brief survey of the existing oral histories in the Tr'ondëk Hwëch'in archives revealed little information directly related to the Clinton Creek area. As Allie was wary of becoming lost in the multitudes of information regarding the Forty Mile area, she did not delve further.

Allie and Bill determined that a more useful approach would be to speak with people who have used the area in recent decades, many of whom once worked at the mine, or work and live in the area now. This approach enabled an understanding of how and why people would like to access the area in the future and will help to guide the process of remediation at the Clinton Creek mine site. Allie redirected her work to learn more about recent and current uses of the Clinton Creek area, and document people's thoughts and concerns for the future.

Clinton Creek Oral History Project

After determining the direction and scope of the project, Allie and Bill developed a list of potential interviewees consisting of people familiar with the Clinton Creek area. This included former employees of the Clinton Creek mine, both those living in Dawson and some who now live in Whitehorse; local Dawsonites and TH citizens who have a history with the area; the inhabitants of the Clinton Creek town site, and nearby trappers who have lived in the area for some time. See Appendix 2 for a listing of interviewees and brief biographies.

Bill advertised the project with input from Allie. Allie contacted interviewees and conducted formal interviews. As oral history interviewing is a lengthy and in-depth process, it was neither appropriate nor necessary to interview everyone who has worked at the mine, or used the Clinton Creek region. Interviewees were chosen carefully, in order to show the diversity of people who have a history with the area, those who use the area now, and those who have been or will be affected by the remediation efforts. It is hoped that the interviews also help to portray a timeline of the region.

Interviews ranged from 25 to 70 minutes long and were recorded using a digital recorder and written notes. One interview was conducted via emailed questions and one was conducted over the telephone. An explanation of the project was always provided at the onset of the interview and the standard TH consent form was used, to ensure all interviewees were aware of their rights during an interview, and how the information they shared would be used. The interviews were conversational in nature, but all covered the same topics and questions. Questions began with personal background and history with the Clinton Creek mine area, and progressed to discuss topics such as the regional climate, landscape, and environmental changes; important wildlife and vegetation in the area; current use of the region, impacts

of recent safety measures, and opinions on the future of the mine site and broader Clinton Creek area. In total, Allie interviewed 14 people.

Interviews were transcribed using standard TH guidelines. A draft version of the transcript was then shared with the interviewee(s) for their review. Upon acceptance of the draft, a final version of the transcript was created, with any edits or restrictions, and a release form was signed by the interviewee, allowing the interview to be used for this project and held within the TH archives. Alex Hallbom lightened the transcription load by transcribing three interviews.

Clinton Creek Use and Remediation Survey

In order to cast a wider net and collect information from those who were either unwilling or unable to sit down for an interview, a simple survey was developed in both paper and online formats. The online survey was created using Survey Monkey. The survey was advertised and shared throughout the community of Dawson via local notice boards, the TH website, and Facebook; it was also emailed to relevant people outside of Dawson City. The survey consisted of 17 questions, covering past and current use of the Clinton Creek site, preferred access to the area, wildlife, vegetation and climate, and preferred future use of the area.

Allie collected a total of 40 surveys (31 online and 9 paper). Copies of the survey form and interview guide are attached in Appendices 2 and 3. Results of the survey were documented manually for the paper version, and using Survey Monkey analysis tools for the online version.

Archival Research & Public Presentations

Allie conducted background research in the Tr'ondëk Hwëch'in archives and via the internet. Unfortunately, the TH archival material related to Clinton Creek revealed little, but what was found was shared.⁶

Allie delivered a summary of her work using a PowerPoint presentation at two Dawson City meetings: one with Tr'ondëk Hwëch'in citizens on November 30, the second at a public meeting on December 7. At the first meeting, Bill Kendrick of TH provided a summary of site remediation issues and options for future work. Michael McIsaac of INAC joined him in delivering this presentation at the public meeting a week later.

Helene attended the second meeting. Upon returning to Whitehorse, she took advantage of her access to Yukon Archives and other facilities in Whitehorse, as well as her personal library, to provide more context for Tr'ondëk Hwëch'in association with the Fortymile River drainage and Clinton Creek area; as well as provide a summary overview of the Cassiar Asbestos mining operation and subsequent remediation work. For more details of this work, see *Appendix 1: Clinton Creek Chronological Notes*, and *Appendix 5: Clinton Creek Bibliography*. She then reviewed the interview transcripts, surveys and other materials provided by Allie Winton and Bill Kendrick to compile results of the surveys and interviews. The summary of these results can be seen in Section 4 of this report.

⁶ Details of the methodology are drawn from: Alexandra Winton, *Clinton Creek Oral History Project: Memo Report*, submitted to Tr'ondëk Hwëch'in, December 2016.

3. Themes and Stories

The following outline of themes and stories associated with this area provides both a broad picture of First Nations long-term use of this area as well as stories of its more recent history.

First Nations Homeland

The Clinton Creek valley, part of the Fortymile River drainage, is located within the traditional territory of the Tr'ondëk Hwëch'in. The following story topics briefly outline some details of their continuing association with this area.



Figure 3. Clinton Creek valley before slope failure of waste rock pile at left.

Description of fishing methods during the spring grayling fishery:

I remember Art Anderson saying that all he used, because we were using lures, and all he used was a barbless hook with a little piece of white cloth on it, and that was his fishing lure. And when he did it right, he would throw it in, and I guess the migration, there were so many and they were striking at it, that all he had to do was just pull on it. And if he put some slack in the line, the fish would come off of the hook, in the air so he could have his line back in the water, and the fish would be up in the snow.

– Bruce Duffee, 25 October 2016

Pre-contact use of Fortymile drainage

- This was an important travel and trade corridor by Hän, Tanana and other groups in area.
- The area is rich in food resources. Subsistence activities include spring grayling fishery, a salmon fishery, waterfowl, other hunting, trapping for fur bearing mammals, berry picking, etc.
- An important source of food and clothing was the two annual migrations of the Fortymile Caribou Herd. According to the late elder Mary McLeod, in autumn Hän people and others travelled inland to the mountains near Chicken to maintain and operate a large caribou fence.
- Archaeological excavations at the mouth of Clinton Creek near the bridge uncovered two typical Late Prehistoric hearths and associated artifacts.

Newcomers

- In 1886, a major discovery of placer gold on the Fortymile River led to a stampede to this area by other prospectors working in the Yukon River basin.
- Clinton Fecht prospected this creek in late 1886 or early 1887. No payable gold was found but, from this time, Dätl'äkay dök became known as Clinton Creek.
- The log cabin town of Forty Mile was established at the mouth of the Fortymile. Within the next few years, Anglican missionaries and the North-West Mounted Police established facilities within the Tr'ondëk Hwëch'in Traditional Territory.
- Isaac, later Chief of the Tr'ondëk Hwëch'in, spent part of his youth in the Fortymile area.
- The arrival of the newcomers brought new opportunities for the Hän, hunters sold meat and fish to the newcomers and packed supplies to the mines, while women found an eager market for fur and hide clothing.
- First Nations people also experienced problems with introduced diseases for which they had no immunity, alcohol and other social issues.
- Most of the gold miners moved on after new discoveries in Circle City and the Klondike but placer mining continues in the area to the present day.
- Several First Nation families remained in the area after Forty Mile was largely abandoned. They included Pete and Mary Anderson, Mary and Simon McLeod, and Percy and Jessie DeWolfe and their children. They earned their living by cutting fuelwood for the sternwheelers, trapping, salmon fishing and gardening. For a time, the Andersons ran the Clinton Creek store and Percy DeWolfe delivered the winter mail between Dawson and Eagle, Alaska.
- Many First Nations people travelled to Forty Mile every spring to fish for grayling through the river ice.
- Arthur Anderson later recalled that he and his father Pete raised potatoes in the Clinton Creek valley in the early 1930s.

New Opportunities

- In the mid-1950s, at the urging of Dawson merchant Fred Caley, local people began looking for asbestos deposits. Willie and Water DeWolfe located asbestos ore on Cassiar Creek. The asbestos deposit proved to be too shallow to mine however.
- In 1957, Caley and his son Bob grubstaked Art Anderson and George Walters to locate asbestos in the Clinton Creek area. The property was staked in the names of Art and George and the two Caley's. The claims were sold to Conwest Exploration, which in turn sold them to the Cassiar Asbestos Corporation.
- Anderson was hired as "Employee #1", he worked for Cassiar Asbestos doing exploration work and townsite maintenance. He stayed with the company until the mine closed in 1978.
- While the mine was being developed, Percy Henry helped transport supplies up the Fortymile while working on the freight boat *Brainstorm* which used to travel between Minto and Old Crow.

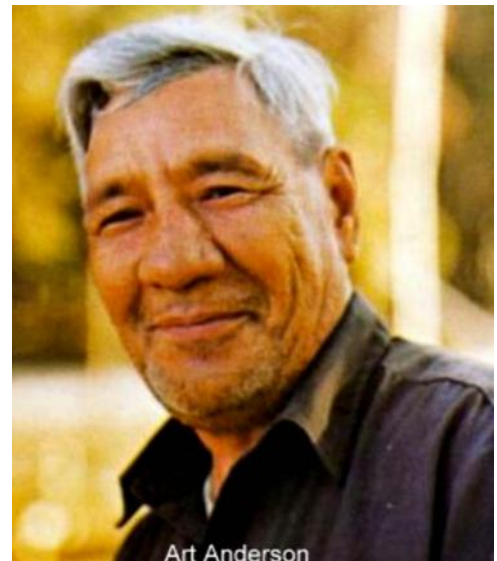


Figure 4. Art Anderson.

- A number of First Nations people obtained jobs as a result of the new mine: building the bridge across the Fortymile River, working on ferry that transported the trucks freighting the ore, and some worked at the mine for a time.

Company Town

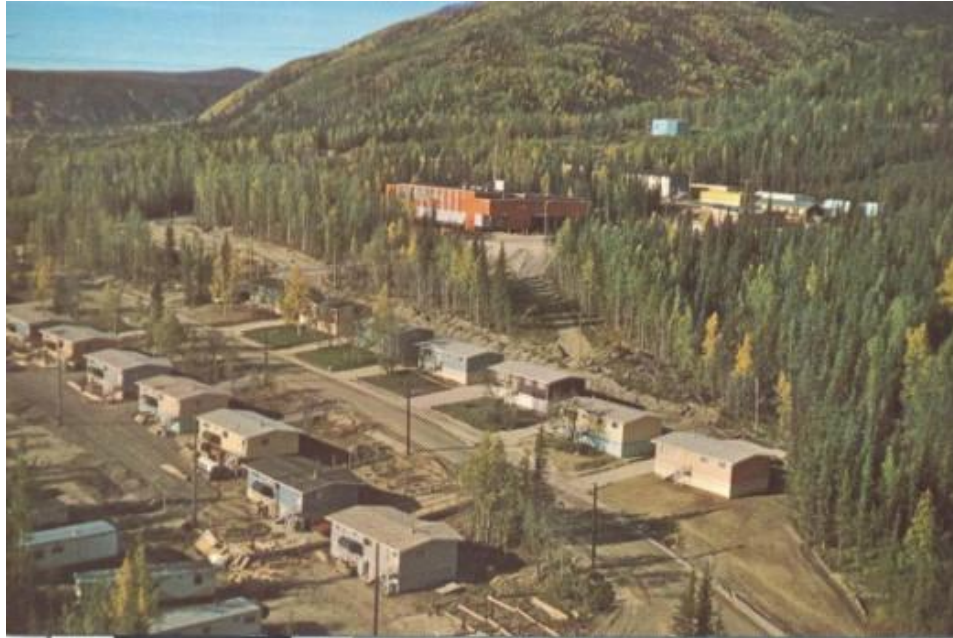


Figure 5. Clinton Creek townsite, n.d.

In some ways it was a good thing it shut down, 'cause life was so easy. I mean, you were making so much money, somebody washed your sheets and dried your clean sheets every week, somebody cooked all your food, and you really just had to work and party.

– Noreen McGowan, 22 September 2016

I remember one weekend just for a change I came into Dawson and it was so boring compared to Clinton Creek.

– Helen Winton, 9 September 2016

I know when I was there, there was more mixing between what was called the white hats and the regular crew-type people. The white hats were the foremen and supervisors and such, and there was evidently a lot more mixing between ... everybody, when I was there.

– Cathy Wylie, 9 December 2016

- CC was an example of a self-contained corporate / industrial mining operation and a northern company town at a time when the Yukon mining scene was very active with four major mines and two other company towns. Many Yukon residents also worked at Cantung just over the NWT border and Cassiar in northern B.C.
- New infrastructure was built to support ore transport: a bridge over the Fortymile River, improvements to what is now known as the “Top of the World” highway, purchase of a larger and stouter ferry to cross the Yukon River at Dawson, and an aerial tramway over the river for use during break-up and freeze-up.

- Clinton Creek had an airstrip, described as the Yukon’s longest airstrip, with scheduled flights to the mine.
- This was a totally self-contained community with a school, nursing station, community club and curling rink, a newspaper “Rock Fluff”, and numerous clubs and activities including Girl Guides and Boy Scouts, skiing, soccer, badminton, an arts and craft guild, and a historical society. An important gathering place was the Malamute Saloon.
- Community spirit. Most recreational activities were set up and operated by volunteers. Many have cited the generosity of management in supporting students who had to travel Outside for education and in providing recreational facilities. Generally there were good relations between management and the union.
- Dawson City and the mine: benefits and impacts.
 - Some local people were hired on at the mine and many worked on supporting infrastructure such as the ferry, highways and the spring and fall aerial “skyline”.
 - Most supplies, including groceries, were shipped in from Outside via Whitehorse, bypassing local merchants.
 - While Dawson and Clinton Creek were largely self-contained communities, there was some intermingling, most notably at the annual CC curling bonspiel.
 - Off duty miners contributed to the social life of Dawson benefitting hotels and bars.
 - When the mine closed, the town of Dawson put on a dance for Clinton Creek employees as a thank you for their contribution to the town’s economy and social life.⁷

The Mine Legacy

Social:

- After the mine closure, the workers dispersed. Some moved on to other mines, others moved away from the Yukon, while a few remained in the area — settling in Whitehorse, Dawson City or even the Fortymile valley.
- Many former employees have fond memories of their time in Clinton Creek and get together for regular reunions.
- Although the townsite is gone and there are few remnants of the mine structures, some former residents visit the mine area for camping and picnicking.
- Very few feel the Clinton Creek era needs to be memorialized except in people’s memories.

Environmental:

- The landscape has been permanently marked by excavation pits, piles of waste rock and tailings and the unintentional creation of a sizeable new body of water, Hudgeon Lake.
- The corporate bodies once responsible for the site have dissolved. Fiduciary responsibility for site monitoring and remediation now rests with the Federal and Territorial governments with input from Tr’ondëk Hwëch’in.
- As with other Yukon abandoned mine sites, substantial funds have been spent on engineering studies, site monitoring, and some remediation work such as installation of the gabion baskets.
- In the area of the former mine, there are concerns regarding the health of the fishery, of the animal and plant life, the dangers of potential flooding, and the possible hazards of airborne asbestos tailings.

⁷ H. Dobrowolsky, personal recollection.

Human Health issues:

- A number of former workers believe that asbestos-related health issues were minimal. No statistics were readily available regarding any long-term health problems of former employees.
- Others disagree, citing casual the safety practices at the time.
- There are also human safety concerns regarding water-filled open pits, potential failure of Hudgeon Lake, old concrete and steel foundations, and the waste rock and tailings.
- Current remediation efforts are focussed on:
 - Reducing or eliminating risks to worker health and safety.
 - Preventing, minimizing or mitigating any adverse effects on the health and safety of people accessing the site.
 - Ensuring that animals, plants and berries around the mine site are safe for humans to harvest.

Economic:

- The loss of income for local businesses including transport companies and local hotels.
- The loss of work on transport infrastructure (aerial tramline, road maintenance, bus service to Clinton Creek).
- The loss of a number of jobs including medical and education employees (nurses and teachers).
- Many buildings from the townsite were auctioned off and moved to Dawson and environs.
- Some local residents assisted with moving structures and salvaging materials from the mine site

... I got that building from Clinton Creek. Clinton Creek get to know me pretty good now because ferry operator and I used to deliver stuff to – for the fall for them. But when that general manager, tell him I want to talk to him, “Oh,” he say, “Come right down.” I did that. He didn’t ask me why, he just said, “Come.”
So I got down there, and lot of big shot there with black suit, and he said, “Well Chief is here, you got to go. Excuse us for a while ...”
And then I tell him I really – again I say, “I can’t get help, can’t get building, can’t get nothing. I have no office.”
So he said, “Well take our one.” He say, “I can fix it for you,” but he say, “I’ll pay for the land for the next five years, till we get that, that paper title.”
So he took care of land, everything. And then, once that settled, I bought it for a dollar. So that’s the way we went through. – Percy Henry recorded by Chris Evans, 2005 April 14

- Company officials seemed to have had good relations with the local First Nation.
 - At Christmas, they regularly donated turkeys for the community dinner hosted by the Dawson Indian Band (later renamed Tr’ondëk Hwëch’in).
 - At the request of Chief Percy Henry, the general manager of Clinton Creek mine provided the Dawson Indian Band with its first band office, using one of the buildings moved from Clinton Creek.
- In later years, there was some seasonal work monitoring the site. From 2002-2004, Hän Construction was contracted to build gabion baskets at the outflow of Hudgeon Lake. Hän Construction also administered work with the mine waste, and demolition of the crusher facility and some other metal structures.⁸

⁸ John Mitchell interview transcript, recorded 19 September 2016 by Allie Winton.

Clinton Creek Today

... we [Canadian Rangers] reported on the existence of this strip that everybody had missed and got permission to go in and do a reconnaissance and taking measurements and get data like that. Which was kind of interesting 'cause a week later when the guys were out moose hunting, a bunch of American F-16s flew over and were doing mock bombing raids on the air strip. So, the Americans are definitely accessing our intel [intelligence].
– John Mitchell interview, 19 September 2016

- Current area residents include two trapping families and some seasonal gold miners. In the past, the Fortymile River valley was inhabited by people who lived there year-round, fished and took seasonal jobs.
- A number of Dawson residents travel to the area for recreation, fishing, berry picking and hunting.
- The Yukon Government installed a gate blocking access to the mine site for safety and liability reasons. This has proven to be controversial with many local residents. Hän Construction also built a “moose ditch” around the site, preventing large vehicles from getting right up to the site.
- Abandoned mine tourism: While some enjoy visiting the site of former mines there is little to see at Clinton Creek in terms of abandoned mining structures.
- Concerns have been raised regarding sovereignty and border security. This area is regularly patrolled by the Rangers who have identified the airstrip, located a few km from the US border, as an asset of interest.
- Locally, there is keen interest in the progress of remediation planning and future work; although people have a wide range of opinions regarding the extent of necessary work, or even if any remediation is needed.

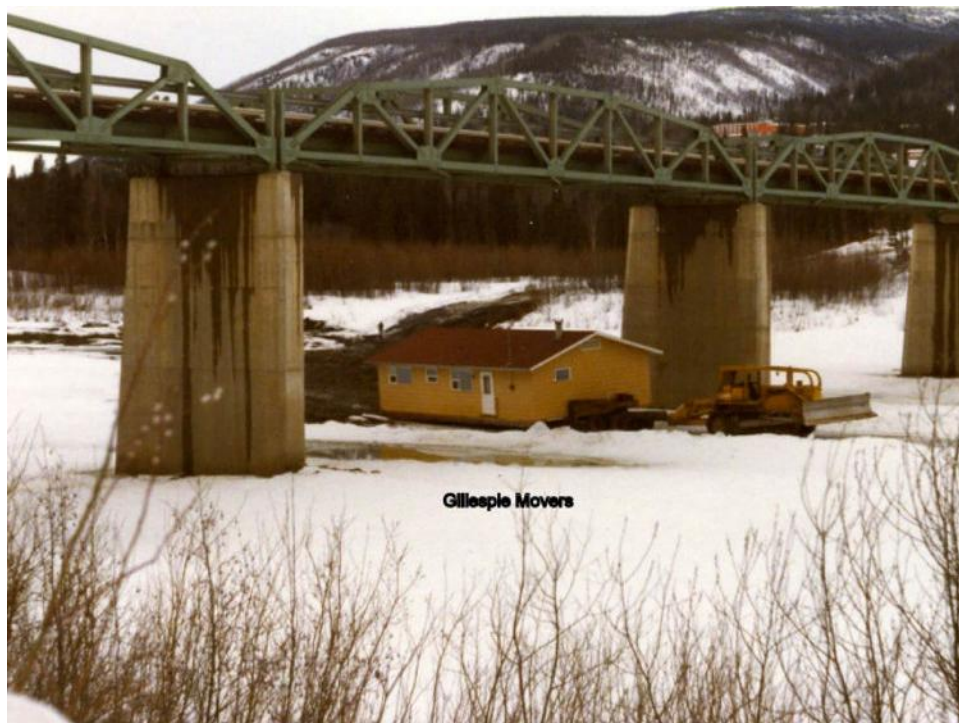


Figure 6. Moving a building across the Fortymile River ice ca. late 1970s. The structures were too large to fit on the bridge.

4. Summarizing the Oral History Interviews and Surveys

Introduction

During her oral history work, Allie Winton interviewed a fascinating array of people having some connection with the Clinton Creek mine site. Their stories encompass a wide time period from pouring concrete for the Fortymile Bridge in frigid January temperatures; to working and playing at the mine site in its heyday; to the aftermath of the mine closure when the town was being dismantled, and the subsequent phases of monitoring the mine site and carrying out remediation work. Other interviewees have more recent experiences with the site: currently living, mining and trapping in the area. Appendix 2 lists the people interviewed by Allie Winton and briefly describes their association with Clinton Creek.

As also described in Section 2 of this report, Allie also conducted an electronic and paper survey. Using the tools provided by Survey Monkey, she compiled a series of charts summarizing the range of responses to the survey questions. In this section, Helene added to this work by extracting relevant information from the oral history interviews, thereby providing additional data for these survey topics. Depending on when and why people spent time at the site, some topics were less relevant than others; not all the interviewees had answers for all the questions.

A few oral history interviewees did not fit neatly into the questionnaire format. As an example, for Earl Rolf and Sandy Vaisvil, who purchased the former Clinton Creek townsite in 2004 and live there year-round, questions about visits to the area are not relevant. They do, however, carry out a range of activities in the area so I did include their responses in the section about what people do and how they travel when they are in the area.

The interviews also provide a wealth of information about the Clinton Creek area and its resources, as well as personal stories. The interviewees also shared their thoughts on topics such as changes to the area over time, access to the site, the extent of future remediation work, and whether there should be any commemoration of the Clinton Creek era. Consequently, a generous sampling of interview excerpts has been included to share the stories and perspectives of people involved in a unique period of Yukon history.

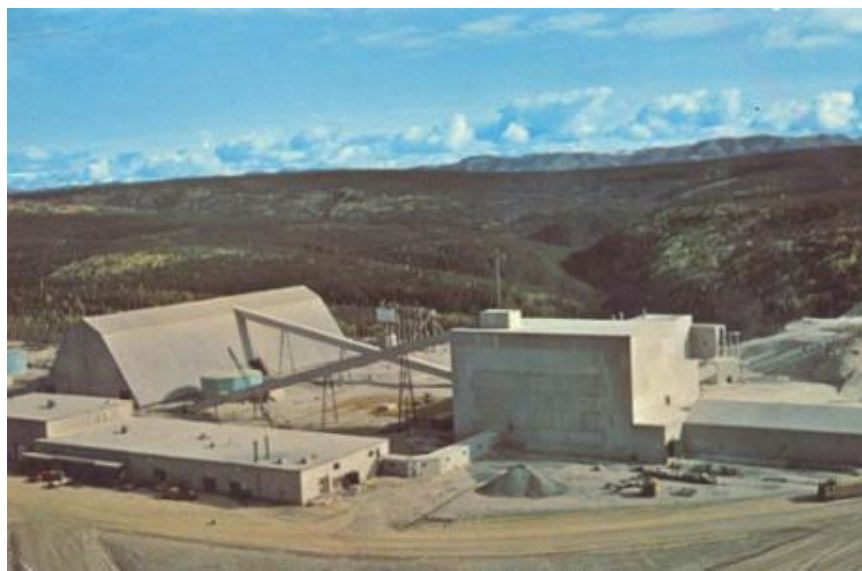


Figure 7. Clinton Creek mill site, n.d.

Charting the survey and interview responses

1. When did you visit, work or live at the Clinton Creek area?

Survey participants included a range of ages and differing associations with the area. Below is a list of those who included their names and the time periods they were there. Some haven't been back to the Clinton Creek area in decades, others visited for the first time fairly recently.

Note: Two people put their names on a form but did not otherwise complete the survey so their names have been omitted.

For the oral history interviewees, see Appendix 2 for brief biographies and descriptions of their links to the site.

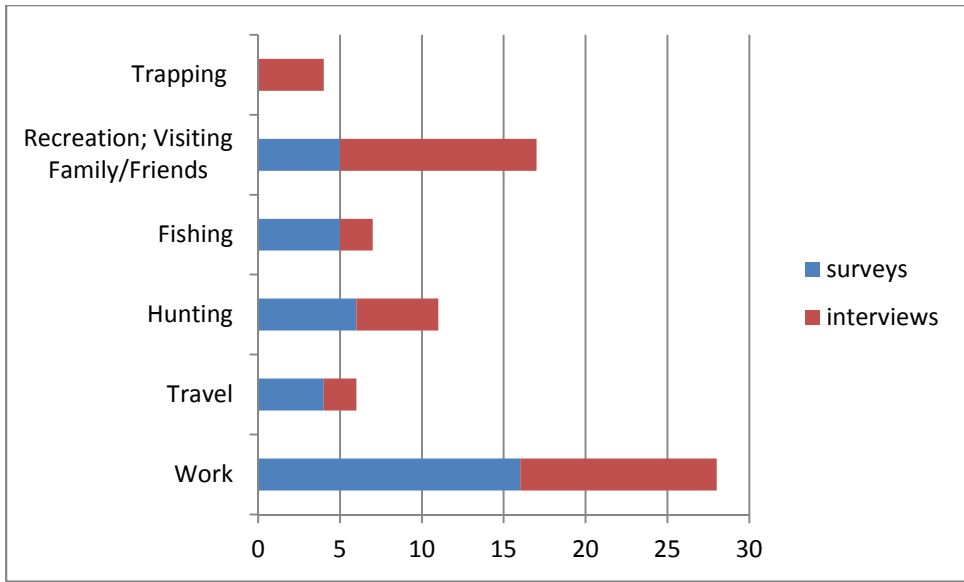
Name	Dates
Gord Bradshaw	- February to August of 1969, then November 1970 to October 1974
Alex Brook	- Mostly work, some visiting, some personal travelling.
Lynn Brown	- 1969.
James Philip Cahill	- March 1973 until October 1978 (Closure).
David Cotton	- April 1973-April 1974; April 1975-September 1978.
Neil Cross	- I worked at the mine from start to finish.
Murray Fraser	- 1974-1979.
Doris and Howard Gates	- 1978.
Paul Isaac	- October 8, 2016.
Shauna Kormendy	- My family camps and fishes there.
Ted B. Lambert	- 1973 to 1976.
Rian Lougheed-Smith	- I've visited about 8 times since 2010.
Daniel Morberg-Green	- Worked there 2005.
Xander Mann	- 2009-present.
Richard Nagano	- June, August.
Alex Sarabin	- Worked at Clinton Creek from 1969 to 1978; last visited Clinton Creek and Dawson City in summer of 2004.
Grace Snider	- During the late 1960s and the 1970s.
Gloria Starkell	- 1972 to 1975.
Shannon Van Bibber	- Two years ago.
Pat Wiens	- 1975-76.
Peter John Wylie	- I grew up in the Clinton Creek area my whole life until the age of 17, whereas me and my family moved to Dawson City.

2. Why were you there? (Please select all that apply.)

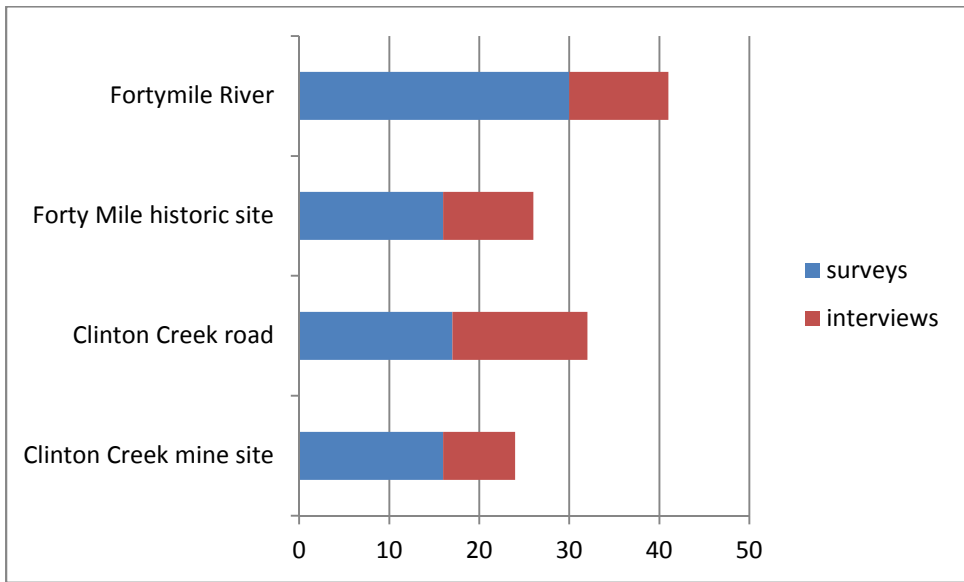
My father was the Anglican minister and our family commuted to Clinton Creek two Sundays per month for Anglican Church services. – Grace Snider, 2016

My mother was a nurse. – Lynn Brown, 2016

Clinton Creek was a fantastic place to be a kid. Although there wasn't a lot of families, it was very family-oriented. It was a company town, so everything was ... paid for by Cassiar Asbestos. And they kinda went all out to accommodate the married workers and their families. – Louise Blanchard, 4 October 2016



3. Which spots did you frequent? (Please select all that apply.)



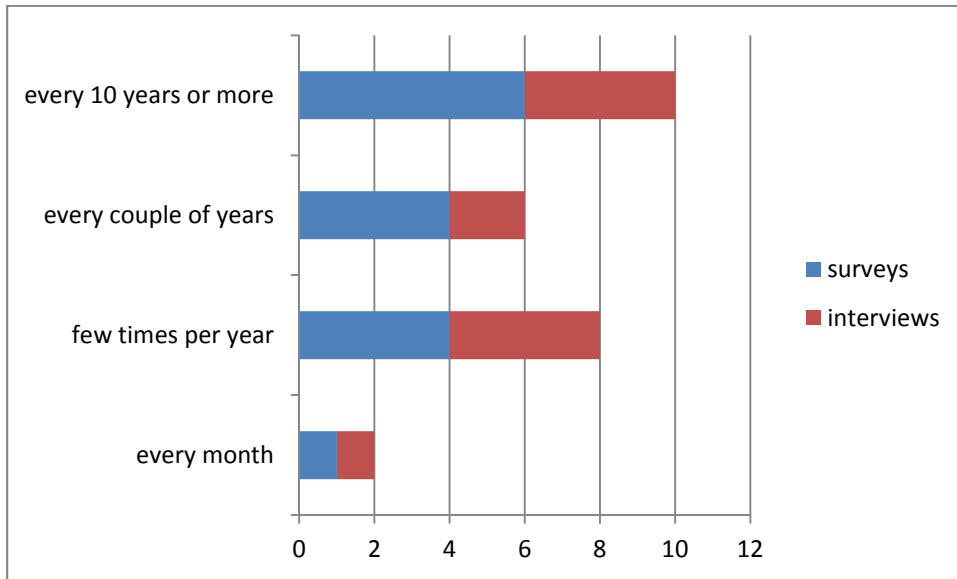
4. How often do you visit the Clinton Creek area?

After it closed I didn't go. I think I did one time, to see how it was, see that big pit, eerie, pathetic. ... Drove up with my truck. I think it ... might have been '88, I went up there.

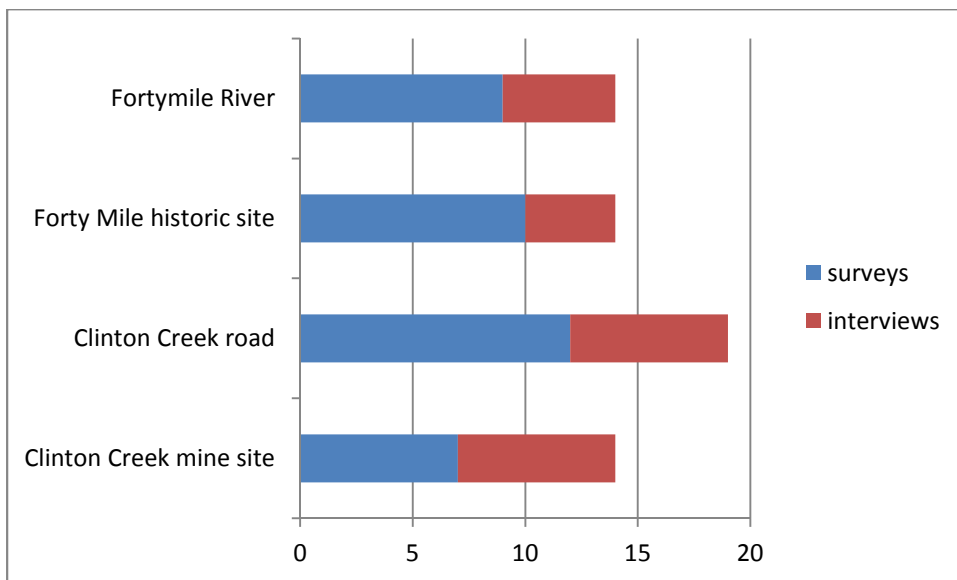
— Roy Johnson, 25 August 2016

Peter, Margie, and their four kids have used the area for fishing, camping, quading, exploring, hunting and harvesting. Margie says, "We know every inch of ground up there." Peter knows where all the moose licks are and is very familiar with the area.

– From telephone conversation between Margie Kormendy and Allie Winton, 21 November 2016

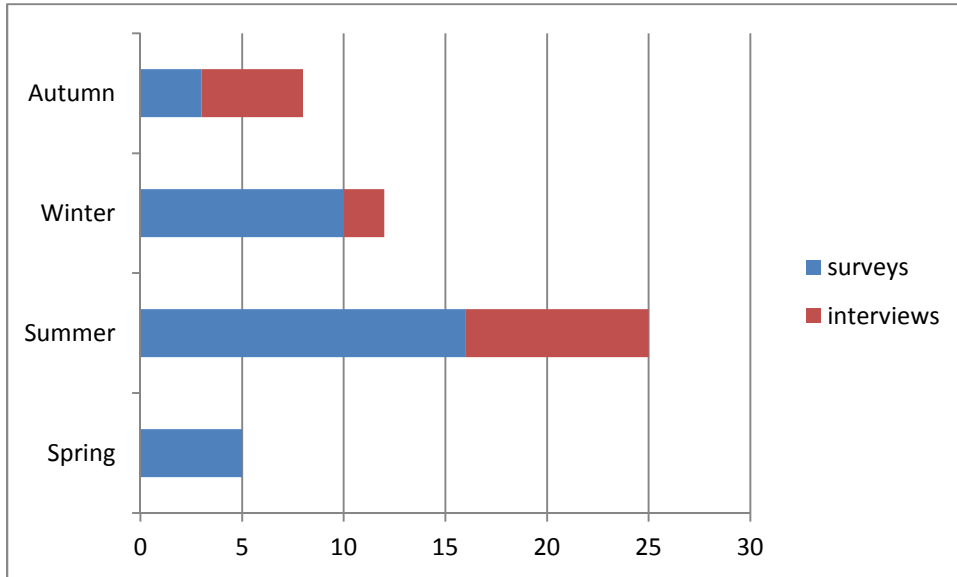


5. Which spots do you visit? (Please select all that apply.)



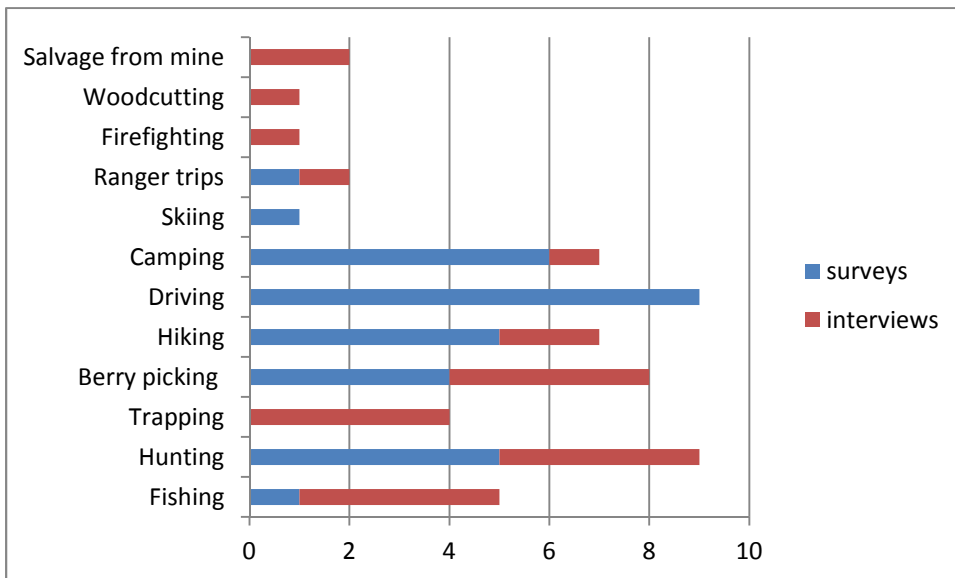
6. What time of year do you visit? (Please select all that apply.)

Most of my time is spent here in the winter. I do spend time in the fall and summer for maintaining trapping trails, hunting and recreation. – Mel Besharah, October 2016



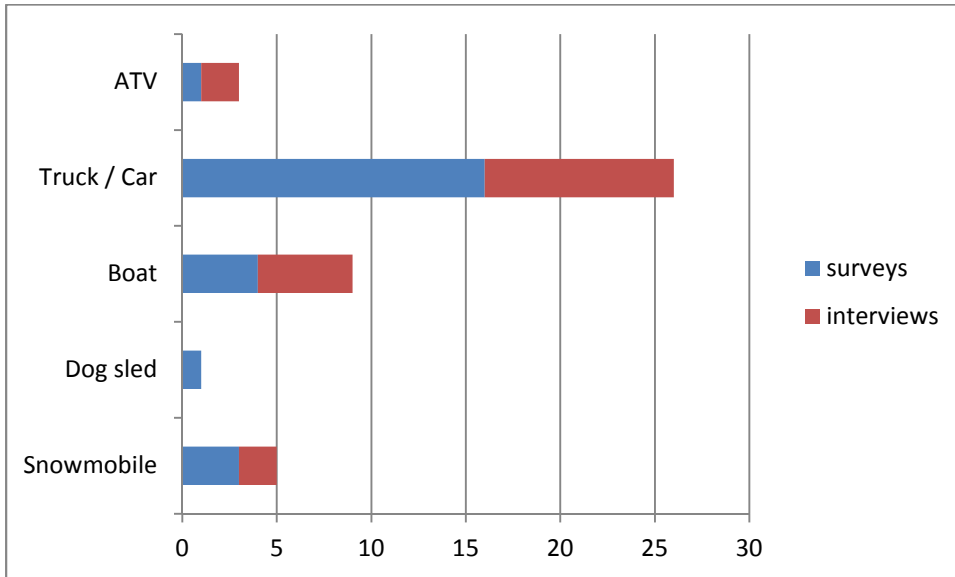
Note: Not all the oral history interviewees specified the time of year when they spent time in the area. Based on activities they described, in most cases I presumed – and listed – summer, but some of those trips could also have been in autumn. HD

7. Why do/did you visit the Clinton Creek area. (Please select all that apply.)



Note: Some oral history interviewees mentioned a few activities that were not included in the survey and I added them to the list. This is why none of the first three activities have been identified by the (blue) survey participants.

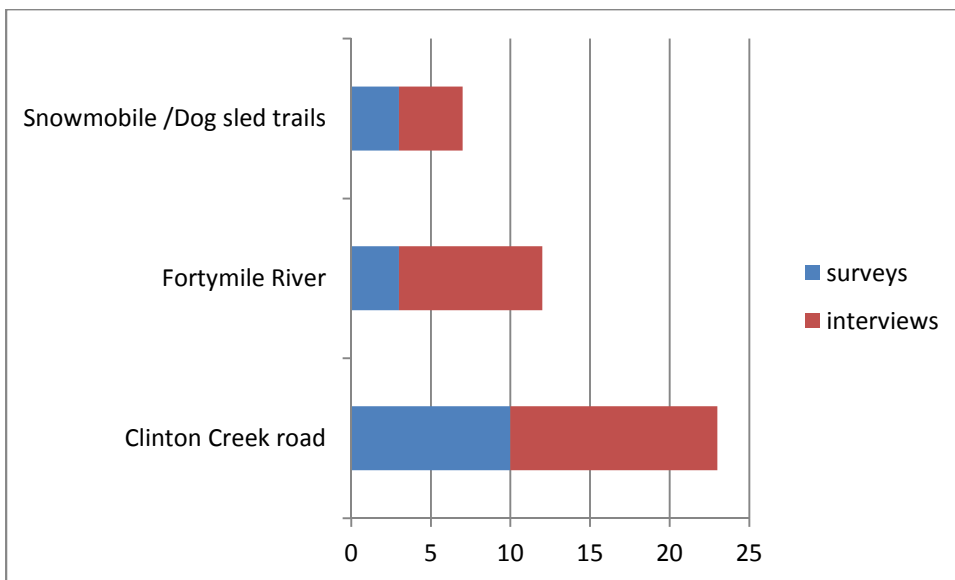
8. How do you access the area? (Please select all that apply.)



9. Which routes do you use to access the area? (Please select all that apply.)

I need to use the road to the mine site and to have access through to the airport beyond the old mill site year round. ... So long as the roads and creek crossings are maintained for year-round use.
 – Mel Besharah, October 2016

I would say the biggest thing that I noticed is the bridge looked pretty bad. Just the deck, I'm more worried about my tires – I think the bridge itself is perfectly stable.
 – Bruce Duffee, 25 October 2016



10. What wildlife have you seen in the Clinton Creek area? (from survey forms):

- Moose, bear.
- Moose, bear (black & grizzly), caribou, fox, wolf, migrating water fowl at mouth of Fortymile, marten, porcupine, hare, squirrels, owls, eagles, ptarmigan, graylings, and inconnu.
- Caribou, Moose, Grouse, Bear.
- Moose, grizzly bears (Mom and cub), song birds, waterfowl, grouse, hares.
- Moose, bear, rabbits, grouse, lynx, fox, ducks, swans, mosquitos, flies and many others.
- Moose, bears and grouse.
- Moose, rabbits, foxes.
- Mostly bears.
- Coyotes.
- Moose, black & grizzly bears, wolves.
- Moose, sheep, bear, porcupine, marten, caribou.
- Moose, bear.
- Moose, fox, all kinds of birds.
- I have seen moose, rabbit, bear, and various kinds of birds, like grouse, ravens, hawks, falcons and ptarmigan.

(from interview transcripts)

- I've probably seen all wildlife that is indigenous to the area.
- grayling fishing, caribou at Top of World Highway, salt lick past airport, salmon, black bears & moose around town area.
- Only ever saw caribou in winter (a few stragglers). Moose were hunted up at airstrip. The odd bear (mostly blacks), occasional grizzly. Dump a real attraction. Sometimes saw foxes and martens when skidoing in high country. Sheep downriver at Dozen Islands.
- Never saw animals around townsite except bears and "a bunch of crows". Remembers people going fishing at Fortymile.
- Blair Corley spotted a cougar crossing the road to the mine one morning; another employee also saw a cougar a couple of weeks later.
- Moose licks on airstrip and CC road. A few years ago, went up to hunt moose around the airstrip. Wildlife in area: bear and moose tracks, squirrels.
- In summer, fished for grayling as a hobby.
- Saw moose and bears, both grizzlies and black.
- They call it the Porcupine Pit ... this whole area has more bloody porcupines than I have even seen in my entire ... life... There's a slab of rock in there that are natural dens and they are all over the ... place.
- When we were working, the guys used to eat a lot of fish because the fish would migrate right up to the bottom of the gabions there, and it was really good fishing. We did find also, when they did some tests, some Chinooks in the area. And I still swear the fisheries and I are arguing about it, that there are fish in the lake. They say there aren't, but in the evening you could go out there and, you know, on a still evening you would see fish rising all over.
- Fortymile River itself is still pretty popular, mainly in the fall for people going up and fishing whitefish. Because of the shallow depths of the Fortymile at that time of year, it's sort of from the bridge down where the main fishing is done.
- "Used to be a large [beaver] dam but they ate themselves out and went away". Wolves, bear, moose, lynx, lots of birds, caribou - not many fox lately. Grouse, ptarmigan on CC road.
- Described grayling trying to get up gabions and getting stranded in gabion pools.

- Regularly saw bears and a lone wolf that wandered through town every year.
- Used to be lots of moose up by airport. Salt lick across where Paul and Cathy Wylie lived.

11. What important plants have you seen in the Clinton Creek area? (from survey forms):

- Not important to me.
- Wild rose, high bush cranberry.
- High bush cranberry, wild rose.
- Caribou moss.
- Not much of a plant person, I'm afraid.
- Usual trees, shrubs, berries.
- Huge birch trees.
- Fireweed.
- Blueberries, raspberries, Saskatoons, thimbleberries, red currants and willow bushes and other kinds of trees such as spruce, birch, poplar and also kinnikinnick berries as well.

(from interview transcripts)

- Low bush cranberries, blueberries.
- The usual edible berries.
- People picked berries up by Cassiar Dome.
- Lots of blueberries around CC road. Elders go pick blueberries around nearby CN tower.
- Harvest currants, cranberries, raspberries, mushrooms, early fireweed and fiddleheads.
- Picked blueberries, raspberries, black currants.



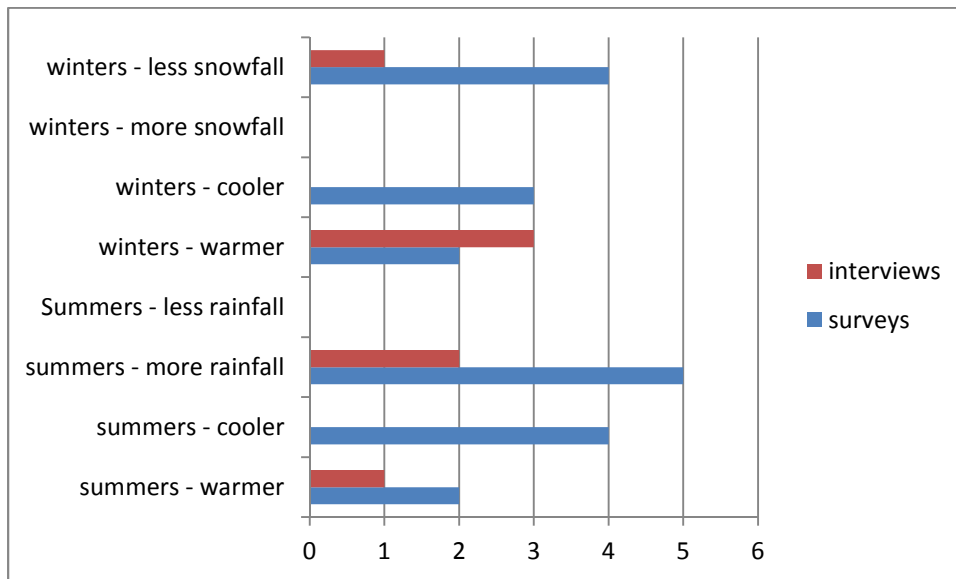
Figure 8. Open pit at Clinton Creek, n.d.

12. Have you noticed any changes in the weather and climate in the Clinton Creek area? (Please select all that apply):

“Climate: summers are wetter, winters warmer; melting permafrost making ground less stable; ... substantial changes in Wolverine creek over the years. [This is] mainly due to the tailings pile sloughing into the creek valley.” – Mel Besharah, October 2016

“it was cold, ... and the deeper you went in the pit, the colder it was. ... [Similar to] Dawson City winters, plus a few more, a few less degrees for the height and the depth of the mine.

– Noreen McGowan, 22 October 2016



There were not many responses to the question about weather and climate from the surveys and interviews, likely because few of the respondents have long-term experience with the site. Also it is possible that some were basing their answers on their experiences living in Dawson.

Other comments relating to weather and climate noted later dates for rivers freezing, melting permafrost, increased slumping of river banks, and the changing nature of winter overflow on rivers.

13. Are there any other changes you would like to share? (from survey forms):

- Seems to be more slumps and mud slides on the slopes along Clinton Creek and Yukon River.
- The Fortymile Caribou Herd coming back to their old stomping grounds!
- 1. The willows have grown in along the roads much faster than I had expected. 2. The townsite road/parking area that used to be flat between the location of the bunkhouses and the cafeteria complex is now uneven by as much as five feet. It doesn't look as though this was all caused by earth-moving machinery.
- Both mine and townsite have recuperated well. There will always be signs of previous uses but other than the pit and Hudgeon Lake, it's growing back well.
- I have not been there for a number of years so I cannot comment on changes.
- More different animal species and plant life.

(from interview transcripts)

- What totally amazed me though, was how fast the vegetation grew up in the town site.
- Townsite overgrown, increase of berry patches, roads reverting to trails.
- Noticed in their time there (since 2004), summers getting wetter, winters getting warmer. There are slides and sloughing, melting permafrost. More gold mining in area, attributable to Klondike gold reality shows. Miners tend to put in more roads and trails making it easier to access trapline. "Miners are the trapper's best friend." Lots of people coming to collect firewood. Four traplines come together in this area.

14. How would you like to use the Clinton Creek site in the future? (from survey forms)

- Recreation, historical/cultural interpretation. Use of natural resources (hunting, fishing, foraging).
- The same as I am doing now just visit the area and enjoy the scenery it holds.
- Camping/Hunting
- I'd like to be able to continue to visit. I don't have any ideas for development.
- N/A
- Not planning on it.
- Would like to walk around & see where we all lived.
- Stabilize Hudgeon Lake and let the rest grow back.
- Not sure.
- Same.
- Tourism, wilderness trips.
- Move back [in] the future
- Would like to keep working at the [Forty Mile] Heritage Site and maybe overwinter some time.

15. How would you like to access the Clinton Creek site in the future? (from survey forms)

- Would like to clear out the Percy de Wolfe trails and put in a system of warming huts between Dawson and 40 Mile Road.
- Continued maintenance of roads and bridges.
- I hope to continue visiting and camping in Forty Mile.
- I enjoy the canoe trip, and the drive, and would like to try and visit by snowmobile and or skiing at some point in the future.
- Same as now, just a casual Sunday drive.
- Road / river.
- By road.
- Road.
- Not applicable - if I did it would be by road.
- Via road.
- It's important to keep Clinton Creek road open as well as the Fortymile Bridge.
- Road.
- By road.
- Road and Fortymile River.
- By road and land and rivers.

Other Topics discussed in the Interview Transcripts

What follows are a few topics and issues that were not included in the surveys but were discussed at some length in several Oral History interviews. Below is a selection of relevant quotations from the transcripts as well as brief summaries of items discussed.

Site Access & Safety Issues

As previously mentioned, there are numerous potential hazards at the mine site: open water-filled pits, piles of waste rock and tailings, remnants of mining structures and machinery, and the potential failure of the dam at the outlet of Hudgeon Lake. In the early 2010s, the Yukon Government placed a gate across the road in addition to cautionary signage.⁹

The people who felt they needed to access the area on the other side of the gate (such as local trappers and Canadian Rangers) seem to be able to find alternate routes to the area. The Kormendy family's association with the area spans generations and they deeply resent being cut off from their traditional camping site located just on the opposite side of the gate. Some feel that the gate is a service to local wildlife by preventing irresponsible hunters from gaining access to the moose licks at the airstrip.

I think they should put a gate across the road long time ago. That dam ever break up there, you wouldn't know what hit you. ... I think the wildlife eating all that leaves, and it got all that fiberglass on it. Never know where they end up. Moose could be eating there, and then they go way over here. – Victor Henry, 2 September 2016

It's not acceptable that a portion of Tr'ondëk Hwëch'in Traditional Territory, or Crown Land for that matter, is rendered inaccessible due to mining. – Tim Gerberding, 7 December 2016

My personal opinion, I don't mind the gate being in there, because in the twelve years that we been here, on the road, between here and the Top o' the World Highway, there's two, three salt licks, mineral licks for moose. Over the years, people have shot moose right in those licks, bloodied 'em up, left the gut pile there and now you don't see tracks. During breeding season in September here, when we first come here there'd be tracks all over there, now there's no tracks. ... So I'd rather just, my personal opinion, just leave the gate up, leave that as a breeding area so that when they do come down here on the Fortymile area, that people could still get them. – Earl Rolf, 14 October 2016

Remediation

This topic was discussed in some detail many of in the oral history interviews. Opinions spanned the gamut from little or no activity necessary to advocating for a complete reclamation of the site. There certainly was no consensus. The following excerpts from the oral history interviews provide some interesting perspectives and some good information.

At a meeting for Tr'ondëk Hwëch'in citizens on November 30, 2016, Elder Peggy Kormendy expressed a number of concerns regarding the remediation process and how it was being communicated to Tr'ondëk

⁹ The earliest date I could confirm for the presence of the gate was May 2013 although it might have been installed the previous autumn. Michael McIsaac, email communication, 27 February 2017.

Hwëch'in citizens. She spoke to the vast funds expended on the site to date ("Where is all that money going?"), the lack of clear communication about the project, and the use of unfamiliar terminology. She wanted to see more Tr'ondëk Hwëch'in involvement in the remediation work. She also mentioned that when the mine shut down, many of the structures were "plowed underground."

John "Mitch" Mitchell spoke of the instability of the gabion baskets. Since the rock was collected locally, thereby avoiding the expense and necessity of licenses to quarry more substantial rock from a distance, the rock is softer and tends to erode more quickly, requiring more frequent repairs to the structures.

Earl Rolf and Sandy Vaisvil, whose home is located on the former townsite, have expressed interest in any opportunities for housing and catering for any remediation workers.

We had to put in rock weirs and stuff at the bottom of the tailings piles and contour the tailings piles and so I was lookin' after that. ... I went out on the November the 11th, 1978, that was when I left the property. And so uh, yeah, so I was doing monitoring of the tailings, movement of the tailings piles, and the waste dumps and stuff like that.

– Blair Corley, 22 September 2016

... you talk about reclamation, they should put it back the way it was, you know original site. Think there's an artificial dam there too, that's gonna break anytime too.

– Ronald Johnson, 13 October 2016

If they're really committed, you know, they should take all the waste and bury this pit [pointing to Porcupine Pit on the map]. ... That's commitment. It'll be a major project, but it's doable. It would mean lots of jobs.

– Roy Johnson, 25 August 2016

"... before anybody think about camping around there, or anything like that, work on this tailing, you gotta work on this tailing [pointing at map]. And these open pit mine, running conveyor, fill 'em up, cover 'em back up. This one right there, where the mill's at, you just make a big open pit mine and put whatever you can in there."

– Victor Henry, 2 September 2016

We can't put it back to the way it was. I mean that's just, it's just not feasible and it's probably financially impossible. ... we need to decide a level of stabilization more than anything. ... and then just work on that. Your dangers are the topography and the minute amount of airborne stuff. And if it's crusting up like that, like I said, then you're probably liable to get more asbestos in year-round Dawson than you are up there.

– John Mitchell, 19 September 2016

You're never gonna get it back to the way it was, ... Because of all the issues with the asbestos, and safety concerns with it, I think it would probably be better to just flag it and keep people away from it. There's no need for anyone to be there, or access it.

– Louise Blanchard, 4 October 2016

Commemoration / Nostalgia

As we were old timers in Clinton Creek we would like to see it used for whatever. We do not visit anymore but our heart has always been there. It was a fabulous place to live and work. Our two boys were born in Dawson and Clinton.

— Doris and Howard Gates, note on survey form, 2016

As mining towns go, it's probably the best, a really good example of a nice mining town ... We knew for a long time before the actual shutdown date, that the viable ore body was running out, so I don't think it was a huge surprise. And the company did do a good job of keeping people informed ... I think they did a good job of shutting it down and letting people be happy to say goodbye.

— Noreen McGowan, 22 October 2016

Mining is temporary, ... , even though the mining in Clinton Creek was done open pit and it was on a larger scale, I think at some point we're gonna be able to reclaim a lot of that back and then it'll just be stories of the old town site of Clinton Creek. I don't think it needs to be preserved as an artifact for things, just an acknowledgment of "This was here and now, look where we've moved from there."

— Louise Blanchard, 4 October 2016

Remembering the Clinton Creek mine operation and the heyday of the Clinton Creek town site evoked a number of emotions and themes in the interview and survey respondents. Many recall this as a time in their young adulthood when they made lifelong friends. This was a good home for families, recreational activities were abundant, and – apart from the mine site itself – they were located in a beautiful natural setting with opportunities for numerous outdoor activities. Some appreciated being near an important historic site and the main mandate of the Clinton Creek Historical Society appeared to be preserving and documenting the history of the Forty Mile townsite. Several cited the international nature of Clinton Creek with workers from all over the world including the mine's best soccer players and coaches.

The long association of the site with First Nations people was often cited, particularly the more recent role of Arthur or "Art" Anderson. Elders and others are very aware that the mine is within Tr'ondëk Hwëch'in traditional territory and should continue to be available for hunting, fishing, trapping and berry picking. Various TH citizens expressed concern about part of their lands remaining despoiled.

There have been a number of Clinton Creek reunions bringing together former employees. Over the years, there have been two large events as well as more informal annual get-togethers at homes of former Clinton Creek residents residing in the Yukon.

During the interviews, Allie suggested a number of possible options for formally commemorating the Clinton Creek mine and townsite such as interpretive signage at the site, possibly an exhibit at the Dawson City Museum, or a book of recollections.

No one was interested in having any type of commemoration right at the mine site, such as interpretive signage. Visits to the area appear to be focussed on recreational activities and visits to the Forty Mile Historic Site rather than the former mining area. Fortymile River area residents, although hospitable and helpful to visitors, are more intent on making their livelihood in the area.

Noreen McGowan would be interested in seeing an exhibit or book. She cited a few useful resources: there is a complete set of the Clinton Creek newspapers, the *Rock Fluff*, at Yukon Archives; McGowan also has a database of former employees. The bibliography in Appendix 5 lists many other relevant archival materials. A few other interviewees also mentioned that maybe a book or exhibit would be a good thing. No one expressed interested in taking the lead or contributing to this type of project. In many ways, the legacy of Clinton Creek resides in the memories of former residents.

Clinton Creek exemplified a particular era of corporate mining in the Yukon. Remote mines were accompanied by a company town for workers and their families. The mine management provided all needs from a school, to a curling rink and other recreation facilities, to even instruments for local musicians, thereby ensuring that residents had everything they needed on the spot. Now most mines use fly-in camps; workers are flown in for a stint of long shifts before being flown out to their real homes elsewhere.

This was also a period where mines operated with few provisions for clean-up and reclamation. When the mine closed, often the responsible corporation dissolved, leaving Yukoners and governments to cope with the messy aftermath.



Figure 9. Looking downstream at Fortymile River and bridge, July 2, 2013.
Site of former Clinton Creek townsite at bottom left, now the home of Earl Rolf and Sandy Vaisvil.

5. Next Steps

Note: The following material is from a presentation that Bill Kendrick and Michael McIsaac delivered at a community meeting in Dawson, December 7, 2016.

Remediation Project Objectives

Tr 'ondëk Hwëch'in, Government of Yukon, and Government of Canada all agreed to a set of five objectives in which closure options will be evaluated:

1. Protect human health and safety
2. Protect the environment, including land, air, water, fish, and wildlife
3. Return and/or retain the site to a state that supports community and traditional land uses
4. Maximize local, First Nation, and Yukon socio-economic benefits from the Clinton Creek Project
5. Minimize project related liability, risk, and costs

Note: It is understood that the “measure” as to whether the environment is restored, is not necessarily to pre-mining conditions, but rather will be to a stable, improved or self-sustaining state.

Remediation (definition): The action of remedying something, in particular of reversing or stopping environmental damage [Oxford English Dictionary].

The five objectives are further explained as follows:

1. Protect human health and safety
 - Reduce or eliminate risks to worker health and safety.
 - Prevent, minimize or mitigate any adverse effects on the health and safety of people accessing the site.
 - Animals, plants and berries around the mine site are safe for humans to harvest.
2. Protect the environment, including land, air, water, fish, and wildlife
 - Prevent, minimize or mitigate adverse effects on the aquatic environment, including fish and fish habitat.
 - Prevent, minimize or mitigate adverse effects on the terrestrial environment.
 - Protect, and to the extent possible, restore aquatic and terrestrial habitats using methods conducive to natural regeneration.
3. Return and/or retain the site to a state that supports community and traditional land uses
 - Maximize access for public use.
 - Reclaim disturbed areas to support community and traditional use.
 - Water flowing from the mine site will be safe for recreational use.
4. Maximize local, First Nation, and Yukon socio-economic benefits from the Clinton Creek Project
 - Maximize project-related benefits through training, employment and business opportunities for Tr'ondëk Hwëch'in citizens.
 - Maximize project-related benefits through training, employment and business opportunities for local residents and Yukoners, in a manner that is consistent with the Devolution Transfer Agreement.
 - Maximize opportunities for capacity-building for locals, Tr 'ondëk Hwëch'in and Yukoners.

5. Minimize project related liability, risk, and costs
 - Minimize implementation and post-closure risks associated with the project.
 - Minimize post-closure residual liabilities.
 - Minimize project implementation costs.
 - Minimize post-closure operations and maintenance costs.

Summary of Last Presentation

Life cycle cost analysis (LCCA) options were presented; 17 options total were costed.

Results of Geotechnical Reports

- With minimal changes to closure channel design, fish passage is likely possible to Hudgeon Lake post closure.
- Waste Rock and Tailings Piles meet the criteria to be classified as dams in accordance with the Canadian Dam Association.
- Stabilization methods proposed and costed in the LCCA will not provide enough improvement to meet present Canadian Dam Association Guidelines.
- A geotechnical investigation is required to provide data which will improve the stabilization methods currently proposed.

Status of Remediation Planning

- Based on TTEBA recommendations further development of the stabilization methods are required to satisfy the Canadian Dam Association Guidelines.
- During 2015, Tr'ondëk Hwëch'in, Yukon, and Canada made a short-list of closure options and came to consensus on an options evaluation process.
- The governments also summarized the options short list to 3 concepts for Clinton Creek and 3 concepts for Wolverine Creek.



Figure 10. Sign at the Fortymile Bridge.

Summary of Remediation Concepts: Clinton Creek Drainage

• Options have been developed and organized based on the following areas:

1. Clinton Creek Area
2. Wolverine Creek Area

Concept 1: ◦ Water Passage and Catastrophic Failure Mitigation

Concept 2: ◦ Water Passage and Catastrophic Failure Mitigation and Lowering of the Lake

Concept 3: ◦ Water Passage with Reduction of the Lake Level, Eliminating the Dam, and Mitigating Catastrophic Failure

	Design Concept	Option Summary
1.	<ul style="list-style-type: none"> • Prevent failure of waste rock pile • Construct channel for flow between Hudgeon Lake and Clinton Creek 	<ul style="list-style-type: none"> • Line existing channel or construct new channel • Stabilize waste rock • No change to Hudgeon Lake
2.	<ul style="list-style-type: none"> • Prevent failure of waste rock pile • Construct channel for flow between Hudgeon Lake and Clinton Creek • Lower Hudgeon Lake 	<ul style="list-style-type: none"> • Realign upper portion of Clinton Creek • Lower elevation of upper portion of Clinton Creek • Line existing channel • Lower Hudgeon Lake level
3.	<ul style="list-style-type: none"> • Prevent failure of waste rock pile • Restore Clinton Creek channel • Drain Hudgeon Lake 	<ul style="list-style-type: none"> • Restore Clinton Creek channel to valley bottom • Remove 9.5 million m³ of waste rock • Fully drain (or close to fully drain) Hudgeon Lake

Summary of Remediation Concepts: Wolverine Creek Drainage

● Options have been developed and organized based on the following areas:

1. Clinton Creek Area

2. **Wolverine Creek Area**

Concept 1: ◦ Sediment Control

Concept 2: ◦ Water Passage and Stability Improvement

Concept 3: ◦ Isolate the Asbestos

	Design Concept	Option Summary
1.	<ul style="list-style-type: none"> Minimize downstream sediment transport resulting from tailings erosion 	<ul style="list-style-type: none"> Construct sediment control structure No work on tailings pile or Wolverine Creek channel
2.	<ul style="list-style-type: none"> Minimize tailings movement Provide semi-stable surface to construct water conveyance channel 	<ul style="list-style-type: none"> No changes to tailings pile or waste rock cover on toe of tailings pile Potentially backfill Wolverine Creek upstream of tailings pile Excavate tailings to construct rock drain through toe of tailings lobes and/or construct lined channel on top of tailings base
3.	<ul style="list-style-type: none"> Reduce slope failure of tailings Cover slope of tailings Rebuild channel in the valley 	<ul style="list-style-type: none"> Potentially excavate tailings to construct rock drain through toe of tailings lobes Re-slope tailings Place tailings in Wolverine Creek and install waste rock cover Potentially backfill Wolverine Creek upstream of tailings and install waste rock cover Construct lined channel on top of tailings base

Summary of Remediation Concepts: Common Elements

A series of common elements will also be considered and addressed by the Design Team in the 10% Design. They include:

- Waste rock piles
- Porcupine and Snowshoe Pits
- Hudgeon Lake outlet abutments & log booms
- Former mill site and air strip
- Misc. borrow areas, waste and infrastructure
- Two pieces of equipment
- Ore piles
- Clinton Creek access, site roads, and other roads
- Clinton Creek crossings
- Contaminated soils



Figure 11. Waste metal at Clinton Creek.

Status of Remediation Planning

- During 2016, a Design Team was procured (AMEC FosterWheeler).
- The Design Team is currently working on completing a 10% Design for the concepts contained in each of the short-listed options.
- The 10% Design of the options will inform the parties in evaluating and selecting a closure option.

Environmental Monitoring Program

- A field program was implemented for 2016/17 in order to collect environmental baseline information.
- This baseline information will inform the options evaluation process and will be submitted as part of the *Yukon Environmental and Socio-economic Assessment Act (YESAA)* Project Proposal.
- Tr'ondëk Hwëch'in participated in the field program by sending staff including Land and Resources and Fish and Wildlife Officers to site to observe and assist in data collection.

2016/17 Environmental Field Activities

Monitoring Activity	Data Collected	Status
Surface Water Quality and Hydrology Investigations	Water quality, hydrology (flow data), snow depth, meteorology, Hudgeon Lake profile	Monthly monitoring events are ongoing throughout 2016/17
Aquatics Investigations	Fish presence, abundance, health; fish and aquatic habitat mapping; benthic invertebrate collection; periphyton sampling; stream sediment sampling	Field activities complete; dataset available early 2017
Terrestrial Investigations	Breeding bird survey, waterfowl surveys, winter track survey, wildlife camera study, rare plant survey, vegetation metals study	Summer field activities complete; reporting to follow

Clinton Creek Remediation Project: Next Steps

- 10% Design Work during winter 2017.¹⁰
- Community Meeting late winter to provide update.
- Finalize 10% Design of short-listed closure options (April/May).
- Begin closure options evaluation process. (Summer 2017).¹¹
- Undertake process to retain an engineering firm for the design, environmental assessment, and licensing for site remediation.
- Develop Remediation Plan (following evaluation process).
- Ongoing community meetings to update progress.
- Submit completed proposal to YESAB, then continue with implementation.

¹⁰ Parties and Design Firm meet to discuss short-listed options; some options may be dropped and others may be added.

¹¹ Please note that these dates are subject to change (as of early March 2017).



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Figure 12. Aerial view of Clinton Creek valley (creek running diagonally from upper R to bottom L, draining into Fortymile River, bottom L), 1951.



Figure 13. Aerial view of Clinton Creek valley, 2000, showing open pits and Hudgeon Lake.



Figure 14. Asbestos ore tailings at Clinton Creek mine site, October 4, 2007.