Appendix 35: 2021 Tea Testing Event Summary Report

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Technical Memorandum

Date: **April 28, 2021**

To: **Philippe Lapointe, Melissa Bradley, Suzanne Leclair, Michel Groleau, and Jamie Quesnel**

From: **Jared Ellenor, Eric Franz, and Gary Mann**

Contract: **OL-985335**

Our File: **AEM-20-05**

RE: **Rankin Inlet Community Meetings and Tea/Water Tasting Event, March 2021 - Summary and Recommendations – Revision 1**

This technical memorandum was prepared by Azimuth Consulting Group Inc. (Azimuth) to provide Agnico Eagle Permitting and Community Relations (Agnico Eagle) with an overview of outcomes from the community meetings and water/tea tasting event held in Rankin Inlet in March 2021. The purpose of this memo is to:

1. Provide a summary of the questions and concerns raised during community meetings related to water quality and fish health within the Meliadine watershed, as well as the broader Rankin Inlet region;
2. Document drinking water/ice collection locations identified by Rankin Inlet community members, and discuss changes in water collection habits as a result of community-identified changes or concerns related to water quality;
3. Document water/tea tasting event methods and outcomes; and
4. Provide insights/recommendations related to potential community-based monitoring program, based on discussions with community members.

TABLE OF CONTENTS

TABLES

FIGURES

LIST OF APPENDICES

1 INTRODUCTION

As part of Agnico Eagle's ongoing engagement with Elders and members of the community of Rankin Inlet, Jared Ellenor (Azumuth) travelled to Rankin Inlet in March 2021. The purpose of the site visit was to listen to the concerns people have about potential impacts to the traditional uses and health of lakes and rivers near the Meliadine mine (hereafter referred to as the mine) and Rankin Inlet, and to assess interest in initiating a community-based monitoring program for water quality and fish health. Activities in Rankin Inlet included:

- Two public meetings on Thursday March 18, 2021 at 3pm and 7pm. The purpose of these meetings was to discuss previously raised community concerns related to changes in the water quality, identify drinking water/ice collection locations around Rankin Inlet, and to discuss community priorities for water quality and fish health monitoring programs. Ten community members and one translator attended the 3pm meeting, while six community members (mostly HTO board members) and one translator attended the 7pm meeting.
- Collection of ice and water on March 23rd and 24th from locations that were identified during the public meetings.
- Hosting an open community tea/water tasting event on Friday March 26, 2021 from 10 am to 4 pm, where individuals were welcomed to provide comments on the tea/water from the four different sources that were available. The event also provided a valuable opportunity in an informal setting to continue discussions on water quality, fish health, and community-based monitoring. Forty-one community members and one translator attended the tasting event.

This memo summarizes the knowledge and feedback received during the public meetings and tea/water tasting event, as well as recommendations on future activities related to community-based monitoring and the communication of monitoring program results. Brief summaries of individual community meetings including meeting details, objectives, discussion topics, and required follow-up, are provided in Appendix A.

2 WATER QUALITY

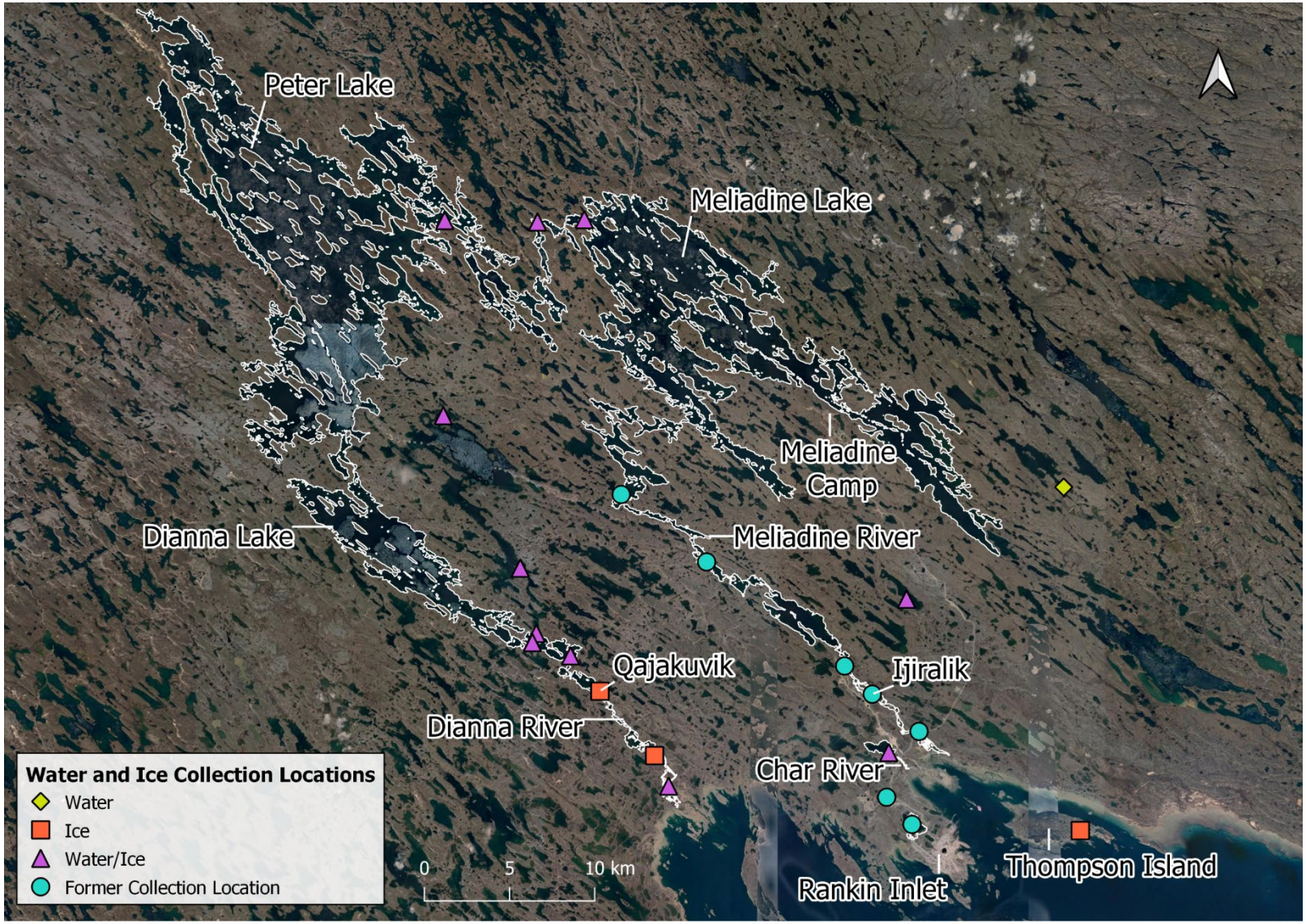
2.1 Drinking Water and Ice Collection Locations

During the two public meetings, a 1:50,000 topographic map of Rankin Inlet and the surrounding area (i.e., Meliadine Lake, Meliadine River, Peter Lake, Dianna River etc.) was placed on the table, and community members were invited to identify locations on the land were they currently or previously have collected water/ice for drinking. Participants identified each location as one for four categories:

- Water collection,
- Ice collection,
- Water and ice collection, and
- Former water/ice collection (i.e., no longer prefer to collect at this location).

Community members identified 22 locations for collecting drinking water and ice (Figure 1). One location is within Meliadine Lake, thirteen collection locations are downstream of Meliadine Lake (i.e., Meliadine River, Peter Lake, and Dianna River), and eight locations are either within headwater lakes (i.e., flow into the Meliadine system) or not connected to the Meliadine system (e.g., Char River, Thompson Island). All locations within the main outflow from Meliadine Lake were identified as former water/ice collection locations, showing that some individuals no longer prefer to collect water/ice from the Meliadine River system. The secondary, weaker outflow from Meliadine Lake via Peter Lake and the Dianna River is still considered a good/safe source of drinking water and ice. Details on water quality and observed changes related to specific collection locations are discussed in Section 2.2.

Figure 1. Drinking water and ice collection locations identified by Rankin Inlet community members during public meetings on Thursday March 18, 2021.



2.2 Water Quality Concerns

In general, community members are concerned about the water quality within the Meliadine system (i.e., Meliadine Lake and Meliadine River). A number of individuals noted that water quality here has changed. The most consistent message related to this change in water quality is that tea now steeps darker than it used to. Reduced water clarity was also noted by numerous participants (e.g., water has turned brown, colour has changed, increase in suspended particles). It is common for community members to directly attribute the changes in water quality to mine-related activities, as many believe that the mine is responsible for 'contaminating' the water. This leads not only to concerns regarding the safety of drinking water, but also concerns regarding the safety of consuming fish, as well as the health of the local aquatic environment and wildlife. Community members identified two mine-related sources that are influencing water quality: effluent discharge into Meliadine Lake and dust. There were many questions related to effluent discharge, as there is a general lack of understanding of what type of water is discharged into the lake, when discharge occurs, pre-discharge processes, and water quality and toxicity testing methods and results. This lack of understanding leads to various assumptions and misconceptions that can exacerbate concerns within the community.

Many individuals were concerned about the amount of dust they have observed on the land, and how this dust is affecting environment, including lakes, plants, and insects. One community member noted that there are fewer mosquitoes and bees than there used to be, and directly attributed these changes to mine-related dust. Another individual noted concern about dust on plants/berries and its effect on caribou. Many community members noted that dust from the mine is visible on the snow in various directions and distances from site, including on the snow/ice on Meliadine Lake. Particulate from the incinerator on site has also been reported on the snow at various distances and directions from the mine, which is concerning to many individuals. These observations are influencing public perception of the safety of the water for drinking. There were numerous questions related to dust and snowpack monitoring.

Although improved communication of mine operations/processes and results of environmental monitoring programs may alleviate concerns related to the safety of the water, it still stands that many individuals have noticed changes in water quality within the Meliadine system. On many occasions it was communicated to meeting attendees that results of the Aquatic Environmental Monitoring Program (AEMP) show that the water remains very safe to drink, yet this often led to frustration rather than comfort; rather than being reassuring, these comments may be perceived as an attempt to invalidate local observations. What did resonate with community members, was the acknowledgment that although the water is still very safe, water quality parameters are not necessarily the same as they were in the past. Following this

acknowledgment, the discussion often led to the overall goals of a community-based monitoring program, and how local knowledge along with lab chemistry data can be used together to help identify and understand local indicators of change in water quality and potential sources of the changes they are observing. This approach has been termed “two-eyed seeing” (Ernest Johnson, Mi’kmaq elder), and has been shown to be effective locally (Hutchinson 2018).

As a result of the observed changes in water quality and perceived influence of the mine, many people noted that the Meliadine system is no longer a suitable (safe) location to collect water/ice for drinking water. A common alternate source of drinking water is now the Dianna River, while other individuals now filter tap water or purchase water from the store. There is a road/ATV trail from Rankin Inlet to the Dianna River; however, some people remarked that this is a long, rough road, and damaging to vehicles that make the journey. One community member noted that they would like to see Agnico Eagle improve access to the Dianna River. Individuals are aware of the secondary outflow from Meliadine Lake into Peter Lake, which eventually flows into the Dianna River. While water from these locations are still currently considered safe, there is concern for the future. One elder, who grew up in the Meliadine Lake area, suggested that Agnico Eagle block the outflow from Meliadine Lake into Peter Lake now, to protect downstream waterbodies from future contamination. This extreme method of intervention is not typically supported by community members, but highlights the level of concern some community members have related to the current and future safety of their drinking water and health of the aquatic environment around the mine.

There were also some questions during community meetings related to the drinking water used in camp. Specifically, individuals asked what the source of the camp water was, if the water was treated prior to consumption, and what camp water tasted like. Some individuals found it discomforting or ironic that potable water in camp underwent treatment (filtration, chlorination, UV light), while it was being communicated that water taken directly from Meliadine Lake was safe. Comparing the need for a camp water treatment system to the need for a hamlet water treatment system improved understanding. Specific questions related to the camp filtration process were related to how dirty the filters were, how often they required changing, and whether the filter replacement frequency had changed over time.

2.3 Tea Tasting Event Outcomes

Based on the water/ice sampling locations that were identified during the two public meetings (Figure 1) and concerns related to the change in water quality within Meliadine Lake, four sources of ice/water were selected for the tea tasting event. Samples were: ice from Ijiralik (within the Meliadine River, Figure 1, Figure 2), ice from Qajakuvik (immediately upstream of the Dianna River, Figure 1, Figure 3), water from Meliadine Lake at the camp drinking water intake,

and water from the Meliadine camp tap (i.e., treated Meliadine Lake water). Hot water (for tea) and drinking water were provided from each location.

Figure 2. A guide from the Kangiqliniq Hunters & Trappers Organization collecting ice from Ijiralik on Tuesday March 23, 2021.

Figure 3. A guide from the Kangiqliniq Hunters & Trappers Organization collecting ice from Qajakuvik on Wednesday March 24, 2021.

Taste preferences varied by individual, in that no one location stood out as everyone's favourite or least favourite, and each location (including Meliadine Lake and camp tap water) was at least one person's favourite. The water from Ijiralik and Qajakuvik was often compared to each other as many noted they could taste the difference. Similar to feedback received during the public meetings held during the previous week, attendees noted that tea colour is a metric for assessing water quality, with good water producing a nice, light orange tea. Many event attendees remarked on the quality of the water from the various sources and provided descriptions of water quality. A summary of water quality descriptors from each site, identified during the tasting event, is presented in Table 1. While attendees may have been asked about their taste preferences, they were not specifically asked to describe or evaluate each source, and these data are not rigorous.

Table 1. Water quality descriptors identified during the tea/water tasting event.

Source	Positive Description*	Negative Description
Ijiralik	Smooth Clear Crystal Crispy	Freezer burnt Tastes like old ice Dark tea
Qajakuvik	Rough Difficult to swallow (dry) Fresh Least flavour	Earthy
Meliadine Lake	Fresh	Dark tea
Camp	Clear	-

* Attendees noted that rough is a positive description, just different. It was also noted that rough can alternatively be described as 'difficult to swallow', a descriptor that is common among elders.

Observations during the tasting event suggest that individual preferences related to water are often based on prior experience or familiarity with a particular location. For example, one attendee noted that they prefer water from Meliadine Lake because that is where they always go and what they are used to drinking. While some individuals still preferred Meliadine Lake or Meliadine River as a water source, others again noted that these sources have changed, and that they are now seeking alternate sites for ice/water. It was difficult for many to articulate specifically how the taste of water from the Meliadine River has changed. Consistent feedback from community members was that this event should be repeated during the open water season, as water quality changes seasonally, and results will be different during the open water season than during the ice-covered season.

Descriptions of water/ice from sources not provided at the tasting event were also discussed. Many attendees noted that ice collected from Thompson Island (Figure 1) is the best, and "can't be beat", with one community member noting that it tastes like filtered water. Char River (Figure 1) was also noted as an excellent source of water during the spring, as the water on top of the ice is very fresh. Another comment, however, was that the Char River is no longer a good/reliable source of water during the summer as the river can become dry in some years. The tap water from Rankin Inlet was identified as a poor drinking water source, with too much chlorine, that makes dark tea and turns tea pots black. This reference of tea pot residue was also heard during public meetings in reference to the change in water quality within the Meliadine system, although this feedback was inconsistent.

Two individuals identified camp water as their favourite of the four options during the tasting event. One individual who preferred the camp water has a cabin within proximity to the mine. They specifically noted that their preference for camp water was because this treated water is a good back-up should the lake water become contaminated. They noted that this was a positive, forward looking viewpoint.

2.4 Interpretation of Community Feedback

Based on the input received during community meetings and the tasting event, there is a general consensus that the water quality within Meliadine Lake and Meliadine River have changed. This change is commonly identified by a change in the colour of tea and sometimes identified by a change in water clarity. Many community members consider this water to now be unsafe, or contaminated, and attribute recent changes to mining activities. The Kivalliq Inuit Association's (KIA) One Voice Study can provide insight into this perception of safety; the one voice field validation document (Hutchinson Environmental Services Ltd [HESL] 2018) notes that whether or not a valued ecosystem component (such as water) has crossed a threshold from continued use to discontinued use is influenced by external information related to the safety or risk of the source, as well as how relevant or current that information is. Although nearby land use (e.g., mine) may not measurably affect the aquatic environment at a location of interest (i.e., water collection site), it may alter one's perception of safety or risk. Perceived changes in the environment may then alter Inuit behaviour on the land. HESL (2018) notes that altered behaviour related to land use, regardless of whether the change is perceived or measurable, should be considered an impact. Concerns related to the changes in water quality and the safety of this water/ice for drinking is influenced by the mine's proximity and has resulted in a behavioural change (i.e., water/ice is collected less frequently from Meliadine River), which is likely exacerbated by a lack of understanding of mine processes, safeguards, and environmental monitoring results. Improving communication and addressing knowledge gaps will provide

valuable external information to community members, allowing them to make more informed decisions and reducing the impact (perceived or real) of mine activities on the community of Rankin Inlet.

3 FISH HEALTH

While discussions generally focused on water quality, the meetings provided an opportunity for community members to raise concerns related to fish health and discuss changes they have observed. The most consistent fish health concern was the observed change in the colour of flesh (typically of Lake Trout), which has become less pink or generally lighter in colour. This change in colour was sometimes associated with a change in taste. It was also noted that fish are smaller, skinnier, and no longer able to gain weight. There were also concerns related to the skin condition of fish, particularly in Meliadine Lake.

4 REGIONAL CHANGES

Another common topic of discussion with community members was regional changes in land use and the environment. Noted regional changes, in addition to the Meliadine mine site, include:

- An increase in infrastructure, including more roads and trails, as well as an increase in the amount of vehicle use,
- An increase in air traffic, and
- Reduced snowpack, lower lake levels, dry lakes/ponds, and dry streams.

It was noted that within Meliadine River, there used to be many minnows (species not identified), but now there are considerably fewer. Observations of reduced numbers of minnows in streams was also noted more broadly across the region. It was postulated that this reduction could be a result of changes in water level, or due to changes in sediment.

5 COMMUNITY BASED MONITORING - NEXT STEPS

There is strong potential for incorporating water quality concerns into a community-based monitoring program, where local knowledge and local indicators of change can be assessed

alongside laboratory water chemistry results. Consistent positive feedback was received regarding this opportunity, as many community members are keen to collect regional water quality data and improve their understanding of water quality in the region.

Discussions about the potential for incorporating fish health into a community-based monitoring program was also very positive, as many community members are interested in collecting data to better understand the health of fish in the region. The community fishing derby, which takes place in May of each year, may provide an opportunity to collect data on fish (length, weight, abnormalities, tissue chemistry, etc.), from numerous lakes near Rankin Inlet. This event would also provide an opportunity to continue informal discussions and build communication and engagement with community members. The Lake Trout derby typically occurs during the long weekend in May, and incudes any lake within a 50-mile radius of town, where the largest fish (total length) wins. The cod derby (marine) typically happens after the Lake Trout derby. Discussions with community members throughout the public meetings and water/tea tasting event suggest that collection of fish health data during the Lake Trout derby would be welcomed.

Recommended next steps include:

- Exploring opportunities for attending the 2021 Rankin Inlet fishing derby. The community fishing derby, which takes place in May of each year, may provide an opportunity to collect data on fish (length, weight, abnormalities, tissue chemistry, etc.), from numerous lakes near Rankin Inlet. While the derby is for the largest Lake Trout, providing additional incentives for submitting Lake Trout of various sizes, or different species (e.g., Arctic Grayling, Whitefish, Burbot) could be useful for obtaining a broader dataset. These data will provide a regional look at fish health. If additional sizes of Lake Trout or species are to be collected, liaising with the derby organizers to advertise the proposed changes should be done by mid-April to ensure widespread knowledge of the changes.
- Sharing water quality results from the March water/ice tasting event. Multiple community members asked if/when these data would be available to them. Working through the water quality results in person is preferred to effectively increase community understanding of water quality parameters. Attending the 2021 fishing derby would be an excellent opportunity to share water quality results, increase engagement, and follow up on the relationships built during the March meetings to help build trust within the community and to reaffirm Agnico Eagle's commitment to developing community-focused monitoring initiatives.

- Consider holding a second water collection and tasting event during the open water season, either in the summer or early fall. A second event was recommended by community members on numerous occasions and for various reasons; water quality was noted to change seasonally with differences between sites being more pronounced during the open water season. Many people expressed interest in attending a second tasting event, and some recommended holding this event out on the land, potentially at Iqalugaarjup Nunanga Territorial Park. An on-the-land event would allow for demonstrations of western science water quality data collection methods, and again increase understanding of the current monitoring being conducted by Agnico Eagle and build capacity for a community-based sampling program.
- Improved communication with the community members, specifically related to effluent discharge processes and environmental monitoring activities, will facilitate an improved understanding of mine-related processes and safeguards. While communication such as plain language summaries or online resources can help with the dissemination of information, the value of in-person meetings should not be overlooked. The in-person meetings/events held during March 2021 provided an opportunity for dialogue, allowed concepts to be explained, questions to be posed, concerns to be listened to, and ambiguous or misleading language or translations to be clarified. This led to an improved understanding of concepts, and garnered trust with community members. An annual event where AEMP results are discussed would likely be well-attended. Many community members commented that they would like to see improved communication with Agnico Eagle, with others also commenting that they have already seen some improvement recently.

A number of community members provided informal recommendations for additional monitoring, some of which could be incorporated into a community-based program. These recommendations included:

- Collecting fish from various locations, drying them (i.e., make piphi or pipsi), comparing samples based on colour and taste, and donating any leftover fish to elders and other community members in need,
- Examining the health of Arctic Grayling and Whitefish in Meliadine Lake as these species are intolerant to changes in salinity (unlike Lake Trout, which can be anadromous),
- Monitoring additional lakes near the mine that may receive inputs of dust,
- Planting seeds in various lakes to compare the growth rates of plants, and

- Collecting water quality samples south of Atulik Lake where seepage occurs in the summer. There is some concern regarding the source and quality of this water.

Gary Mann (Azimuth) attended the Nunavut Water Board Public Hearing on March 30-31, 2021 for Agnico Eagle's application to amend their existing Water Licence for the mine. Observations from this meeting led to the following additional recommendations, which are relevant to continuing community engagement and the public distribution of monitoring information:

- Develop presentation materials that reinforce the fundamentals related to the key monitoring components of the AEMP. This could include an overview of the monitoring and results of basic water quality parameters, toxicity testing, phytoplankton studies, benthic invertebrate studies, and fish studies. While the current document on the *Health of Meliadine Lake* provides a basic synopsis of what is being looked at in the AEMP and the status of the key monitoring components, additional material may improve understanding and reduce misconceptions regarding what is happening in the lake.
- Develop an interactive, web-based tool that allows users to explore monitoring results. Web-based applications, such as the Shiny package in R, allows users to interact with data, graphs, and maps, improving accessibility. Leveraging the *Virtual Meeting Room* (VRM) as a platform to access these applications/data should be considered.
- Explore the potential for getting into schools and providing learning opportunities for kids. Looking at real data that is relevant locally could make science interesting and engaging.

6 REFERENCES

Hutchinson Environmental Services Ltd., 2018. One Voice Field Validation. Prepared for Kivalliq Inuit Association. J170068. December 2018.

APPENDIX A:
SUMMARY OF COMMUNITY MEETINGS

Table A-1 Summary of community meetings.

Event	Date	Time	Location	Objectives	Participants	Key topics of discussion	Questions requiring follow-up
Public Meeting #1	18-Mar-21	3:00 PM	Agnico Eagle Community Lounge (waiting room), Rankin Inlet, NU	• Follow up on community concerns related changes in the water from Meliadine Lake • Discuss ideas on how to monitor water quality through a community-based monitoring program • Identify drinking water/ice collection locations used by the community • Share information related to Agnico's ongoing water quality monitoring programs at Meliadine • Discuss fish health and community monitoring (if time permits)	Rankin Inlet community members (10 participants)	• Changes in water quality observed within the Meliadine system - attributed to the mine • Identification of drinking water and ice collection locations • Mine processes related to contact water, water management on site, aquatic monitoring, camp drinking water sources and treatment • Observed changes in fish health • Potential for and interest in community-based monitoring programs related to water quality and fish health	None

Event	Date	Time	Location	Objectives	Participants	Key topics of discussion	Questions requiring follow-up
Public Meeting #2	18-Mar-21	7:00 PM	Agnico Eagle Community Lounge (waiting room), Rankin Inlet, NU	• Follow up on community concerns related changes in the water from Meliadine Lake • Discuss ideas on how to monitor water quality through a community-based monitoring program • Identify drinking water/ice collection locations used by the community • Share information related to Agnico's ongoing water quality monitoring programs at Meliadine • Discuss fish health and community monitoring (if time permits)	Kangiqliniq HTO members Rankin Inlet community members 6 participants total	• Changes in water quality observed within the Meliadine system - attributed to the mine • Identification of drinking water and ice collection locations • Mine processes related to contact water, water management on site, aquatic monitoring, camp drinking water sources and treatment • Observed changes in fish health • Potential for and interest in community-based monitoring programs related to water quality and fish health, including presence at the community fishing derby	None
Community Tea and Water Tasting Event	26-Mar-21	10:00 AM	Agnico Eagle Community Lounge (waiting room), Rankin Inlet, NU	• Provide an informal setting to continue discussions around water quality within the Meliadine system, and the potential community-based monitoring • Serve tea and water from various collection locations identified during previous meetings to allow attendees to compare water quality among sites and to facilitate discussions around water quality concerns.	Rankin Inlet community members (41 participants)	• Compared water quality and tea taste across locations, identifying and explaining preferences • Identified drinking water and ice collection locations • Changes in water quality and fish health • Regional changes related to infrastructure, vehicle use, air traffic, snowpack, lake and river water levels, and fish populations	Jackie Nakoolak would like answers to questions related to camp water filtration system: • How dirty are the filters? • How often to the filters need to be changed? • Has the filter change frequency changed over time? Ron Brown would like a radio for the road channel. Also inquired about the status of caribou monitoring work. Road near the mine, at the end of the Honda trail has been modified by Agnico and requires fixing. It is dangerous, especially for elders, to be using this part of the road

Table A-2 Community meeting and tasting event participant list.

Public Meeting: Thursday March 18, 2021 at 3pm		
Lisa Oolooyuk	Jack Kabvitok	Andrew Akerolik
Martha Hickes	Harry Towtongie	Eva Kirkwa
Guita Anawabe	Clayton Tartak	Laura Tulugak
Mike Shouldice	Donna Adams (interpreter)	

Public and HTO Meeting: Thursday March 18, 2021 at 7pm		
Thomas Comer	Jackie Nakoolak	Andrew Akerolik (HTO)
Nangmalik Pissuk	Andy Kowtak	Andre Akout (HTO)
Donna Adams (interpreter)		

Water and Tea Tasting: Friday March 26, 2012 10am to 4pm		
Brent Ford	Travis Palvialok	David Kritterdlik
Francis Ford	Annie Kasalvak	Pauline Angoo
Ron Brown	Puvala Tutanuak	Veronica Angnetsiak
Levinia Brown	Rosalie Angoshadluk	George Ipkarnerk
Evan Ittinvar	Thomas Comer	Martha Hickes
Rodney Sabourin	Thomas Angoshadluk	Goretti Roach
Avaqsaaq Sabourin	Kathy Karlik	Andrew Akerolik
Marike Sanguin	Monica Pissuk	Robert Hickes
Kevin Sanguin	Randy Miller	Celestina Kopak
Toota Tatty	Mary Jane Pissuk	Anna Pissuk
Troy Innukshuk	Susie Wiebe	Hayley Kolit
Pauline Pissuk	Catherine Patenaude	Tooma Kilabuk
Ronnie Tutanuak	Jackie Nakoolak	Susie Kritterdlik
Bert Dean	Shirley Aliyak	Mary Rose Angoshadluk (interpreter)

Note: List of attendees was provided by Agnico Eagle's Community Liaison Officer.
It is recommended that this table be removed should the document become public.