

# **api migizik pii pa giiot • when eagles call**

## **TRADITIONAL KNOWLEDGE & LAND USE STUDY**

For the WR-1 Nuclear Reactor In Situ Decommissioning Project



**Final Report, November 5, 2019**

Black River First Nation, Brokenhead Ojibway  
Nation, & Hollow Water First Nation



### **api migizik pii pa giiot • when eagles call**

It's our belief that when we pray, the Eagle takes messages to the Creator, and brings messages from the Creator. The Eagle is taking this report for the two-legged, the four-legged, those in the water, those that crawl on the grass, the trees, and the plants. The Eagle is bringing the message to the Creator on behalf of all that's on Mother Earth.

- Brokenhead Ojibway Nation, Naming Ceremony

*"And this song that we're going to be singing - it's the Grandmother Moon song. When we ask that Grandmother Moon, we say we'll offer you this water for that help – to help Mother Earth hold her water, the natural water, and the natural water within ourselves as human beings.*

*"That's the understanding that I have about water teachings. There's many different teachings that people have about water, but that's the one that I've come to understand through years of doing ceremonies.*

*"So we all have a piece of a puzzle. We all have a piece of something that we can offer to make things better for us as Anishinaabe people, but also for the non-Anishinaabe people, the non-Aboriginal People . . .*

*"We're asking for help and understanding and guidance to go forward in a good way - and to guide us and direct the people. Not just us, but the ones who are going to be making decisions to govern.*

*"With that, I'd like to say meegwetch and share these songs with you..."*

*- Elder Glenda Smith, Brokenhead Ojibway Nation*

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Photo: On the banks of the Winnipeg  
River on the WR-1 Nuclear Reactor site.



## About The Traditional Knowledge Study

## 1.1 PROJECT BACKGROUND

We come from Black River First Nation (BRFN), Brokenhead Ojibway Nation (BON) and Hollow Water First Nation (HWFN): related Anishinaabe communities with overlapping territories and histories. Our oral history records our people coming to the region hundreds of years ago - long before the arrival of European settlers, or the creation of Canada.

In the 1960s, the Canadian government established a Nuclear research facility adjacent to the Winnipeg River - a key waterway in our traditional areas. The site included the WR-1 Whiteshell Reactor, which was built to test lubricants and coolants in an operating nuclear reactor. Our Nations were not asked for permission or input on the development of this facility. Some of our members were hired to clear land for the site, without being told what would be built there. It has now been on our ancestral lands, uninvited, for over 60 years. The WR-1 reactor operated from 1965 to 1985, before 'decommissioning' (or closure)

of the site began in 2003. The site is owned by Atomic Energy of Canada Limited, but decommissioning is being planned and carried out by Canadian Nuclear Laboratories (CNL). The Canadian Nuclear Safety Commission (CNSC) is responsible to review and approve plans for the work.

In 2002, CNL was given a license to decommission the WR-1 reactor. At that time, the plan involved removing all parts of the reactor and building, and shipping any radioactive materials for long term storage outside of the province.

CNL is now applying for a new license with a revised plan: to remove all above-ground portions of the WR-1 reactor building; fill the 5-storey underground area containing the reactor with concrete grouts; cover the area in a concrete cap; and leave it permanently in place. Environmental monitoring is planned for 300 years, while the radioactive materials will break

down over hundreds of thousands of years and eventually enter the Winnipeg River.

We see this as a dramatically different project than decommissioning a research facility that has been in place for over six decades. CNL is requesting to build a permanent storage facility for nuclear waste within the ancestral lands of our people.

As part of its review of the project, the CNSC has funded our communities to conduct this land use and traditional knowledge study. This work is meant to bring traditional knowledge to the project review process and provide community input on the possible impacts of CNL's current proposal. This project presents an opportunity to share our perspectives on the project, the site, and its impacts.

As Anishinaabe peoples, the thought of accepting permanent nuclear waste storage along our waterways is troubling, and we have many concerns about what might occur in the coming centuries.

However, we are aware of the risks associated with taking this material out of the ground and transporting it to another location without a permanent storage facility available. We also recognize that any material removed from our ancestral lands will be taken to the lands of other Indigenous communities.

There is a great moral dilemma in responding to this project. It is one that we have taken very seriously. We are hopeful that our document will be considered with the gravity that it has been prepared.

## 1.2 STUDY TEAM

This project was carried out by a study team involving Community Leads and Coordinators from each of Black River First Nation, Hollow Water First Nation, and Brokenhead Ojibway Nation. The team worked closely with HTFC Planning & Design, who provided project management, facilitation, and documentation support throughout the project. More than 40 community members took part in the project, contributing their time, experience, and thoughtful feedback.

Meegwetch to all who have been a part of this work.

### Black River First Nation

- Community Lead: Oral Johnston
- Community Coordinator: Destiney Peebles
- Project Administration

### Brokenhead Ojibway Nation

- Community Lead: Bev Smith
- Community Coordinator: Carl Smith

### Hollow Water First Nation

- Community Lead: Furlon Barker
- Community Coordinator: Daphne Choken

### HTFC Planning & Design

- Project Management: Elly Bonny
- Workshop Facilitation, Report Writing & Technical Support:  
Adam Kroeker, Rachelle Kirouac, Matt Carreau
- GIS Mapping: Alex Yuzwa



Photo: Carl Smith & Daphne Choken at the final multi-community meeting in Black River First Nation

## 1.3 OVERVIEW OF ACTIVITIES

Major project activities are described below. Each activity focused on discussing and documenting community knowledge and perspectives relevant to the proposed decommissioning project. These include how our communities use the land and water in the region; how we understand and value the local environment; and our members' perspectives, concerns, and recommendations with respect to the proposed in-situ decommissioning project.



Photo: Multi-community workshop in Black River

### Major activities involved:

#### 1. Background Research & Literature Review

- Background research to gather past research and traditional knowledge in BRFN, BON, and HWFN relevant to the current project; and
- Literature Review to better understand the proposed WR-1 In Situ Nuclear Decommissioning project.

#### 2. Community Elders Meetings

- Meetings with elders and resource users in each of the three participating communities to document past and current land uses in the project area.

#### 3. Site Tour and Multi-Community Workshop

- Tour of the WR-1 site near Pinawa;
- Multi-community workshop in Brokenhead including water ceremony & teachings, break-out working group sessions to identify comments and concerns and presentations from CNL and CNSC.

#### 4. Final Multi-Community Workshop

- Final multi-community workshop held in Black River.
- All knowledge holders involved in the project were invited to review draft report and discuss final messages and recommendations.



Photo: Multi-community workshop in Brokenhead

Photo: Hand drum (Black River First Nation)



Our Worldview

## 2.1 CULTURAL UNDERSTANDINGS

*"Our knowledge we speak from our hearts and our lives and the lives before us. We've heard this from the elders and we're carrying it on to make it better for the next generation."*  
- Black River First Nation, Final Multi-Community Workshop

*"Basically, it's how we live, how we were raised by our parents and grandparents. They respected everything that we had: water, trees, land and the animals too. Everything that they killed, wildlife, nothing was wasted. Everything was shared and used."*  
- Black River First Nation, Final Multi-Community Workshop

The traditional knowledge of Anishinaabe elders, resource users, and historians is grounded in our cultural understandings. These are understandings of the universe (creation); of how we came to live in our traditional territories; and the connections between the land, animals, fish, humans, and spiritual beings that surround us. Our cultural teachings tell us how we are to conduct ourselves in relation to the other beings on the earth, and how we are to move forward in a positive way. Together, these understandings form our worldview.

To appreciate and consider input from traditional knowledge holders - to truly give equal weight to traditional knowledge - it needs to be understood in the context of a traditional worldview. A traditional perspective is inherently holistic, intergenerational, and spiritual in nature. It cannot be easily evaluated from a western or scientific understanding, because it is based on different - but equally valid - truths. We share some of these understandings below, as context to our perspectives on the Whiteshell Reactor.



Photo: Wisdom (from wall in Black River First Nation Hall)

We take a long-term perspective in understanding and managing our lands:

*"As Anishinaabeg, we think seven generations ahead when we make decisions. Seven generations back, someone was praying for us. We have a responsibility for seven generations from now. Everything is interconnected. The water and Lake Winnipeg."*

*- Bev Smith, Brokenhead Ojibway Nation*

We recognize that technical science sees links between physical environment, water, plants, animals and humans and the environmental assessment tries to account for impacts on these parts of the environment. We as Anishinaabeg also see other parts of the environment: relationships with spirits and beings that are not considered in western science, like water spirits, thunderbirds, little people, and spirits in rocks:

*"There is a twin side to this world, to me, to all of us. The spirit world."*  
- Ernest Desjarlais, Brokenhead Ojibway Nation

In our culture we talk of four people: there's the little people, there's us, there's the sasquatch, and there's what we call sky people. Those are what we consider the four people.

Although spiritual beings cannot be captured, they are actors in the environment, as 'real' as the plants, animals, and fish that are studied through western science. Even tangible objects on Mother Earth are not just physical, they are inherently spiritual. For example, the Anishinaabemowin word for rock, Asin, is an animate noun because rocks have the potential to carry spirits and to be animate.

In addition to hearing about the scientific predictions about projects that may change the land, many of our traditional people also turn to seek spiritual advice about these projects. One of the ways we seek this advice is through ceremonies that acknowledge changes that are coming to the land and invite guidance on an appropriate way forward.

## 2.2 SPIRITUALITY



Photo: Black River First Nation

We have heard prophecies that tell us we must make wise choices in order to avoid great destruction. One of these prophecies is called the Seven Fires Prophecy. It has been shared by Anishinaabe elders across this land. From this teaching, we understand that right now we are in the seventh fire. We must make changes and act responsibly to avoid great destruction on the land, making it unfit for life.

*"I believe everything has a spirit, even plants have a spirit. If they move from one place to a completely different area, then they don't survive."*

*- Black River First Nation, Final Multi-Community Workshop*

## The Seven Fire Prophecy (Excerpts)

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*"The Seventh Prophet was younger than the others who had come and there was a glowing light from his eyes. He said that there would come a time when the waters had been so poisoned that the animals and plants that lived there would fall sick and begin to die. Much of the forests and prairies would be gone so the air would begin to lose the power of life. The way of the mind brought to the red, black, and yellow nation by the white nation would bring danger to the whole earth" (The Prophecy of the Seven Fires of the Anishinaabeg, Seven Fires Foundation)*

*"It is this time that the light skinned race will be given a choice between two roads. One road will be green and lush, and very inviting. The other road will be black and charred, and walking it will cut their feet . . . If they choose the right road, then the Seventh Fire will light the Eighth and final Fire, an eternal fire of peace, love, brotherhood and sisterhood. If the light skinned race makes the wrong choice of the roads, then the destruction which they brought with them in coming to this country will come back at them and cause much suffering and death to all the Earth's people."*

*(The Mishomis Book: The voice of the Ojibway, Edward Benton-Banai, 1979)*

## 2.3 WATER IS LIFE



Photo: Rapids (Black River First Nation)

The WR-1 reactor is located less than 500 metres from the Winnipeg River. If something does not go as planned with the decommissioning of the reactor, we worry that the groundwater, the Winnipeg River and Lake Winnipeg might become further contaminated and bring about the destruction foretold in the prophecies.

To explain why we are so concerned about the contamination of the Winnipeg River and Lake Winnipeg, we need to tell you more about the importance of water to our people:

*"Water is life. Water is our DNA." - Linda Hagedorn, Black River First Nation*

*"Water is everything. Cooking, washing, bathing – everything we do. That's what we need it for." - Hollow Water Elders Meeting*

*"And that water is life. Without water there is no life. And that's the way we look at it."  
- Bill Ballantyne, Brokenhead Ojibway Nation*



Photo: Loading the canoe (Black River First Nation)

The Anishinaabeg have been given sacred teachings of water. Animals need water. Plants need water. Water is used for medicine, for ceremonies, and for cleansing. Water is more than just a physical thing to us and describes more about who we are as Ojibway people.

Water is the responsibility of women and it is women who perform water ceremonies. We believe water helps to cleanse mother earth. To us, water has greater meaning than what it is used for. In a spiritual sense, it is everything to us.

For ceremonial purposes, it is important that the water is natural and pure; although treated water is good for drinking, it is not suitable for our spiritual needs:

*"I get my water from Beaconia. A natural spring. That's the water we use for my family and use for ceremony. It doesn't have chemicals. I mix up my medicine with it. I had cancer for 2 years. I drank that medicine from the bush to keep me clean. I worked in the water treatment plant and they put five different chemicals in there. I couldn't use that water."*  
- Ernest Desjarlais, Brokenhead Ojibway Nation

The earth's supply of clean natural water is dwindling. Our Elders foretold this in our prophecies. One prophecy that was passed down from past generations says that "There's going to come a time on our lands when people will be fighting – will be killing each other – for water. Because we are not going to have water." We believe it is our responsibility to take care of the water to ensure it is there for all the generations to come.



Photo: Artwork (on wall in Black River First Nation Hall)



Photo: Boat on the shore (Black River First Nation)



## Our Traditional Land Use

### 3.1 OUR ANCESTRAL TERRITORY

*"[The word] 'Anishinaabe' means, 'People being lowered down to earth.'"*  
- Bill Ballantyne, Brokenhead Ojibway Nation

We believe the Creator placed us, the Anishinaabe people, down onto Mother Earth. Anishinaabe (or Ojibway) people are found all across this land. Our direct ancestors used and occupied large parts of what is now Treaty One, Treaty Three and Treaty Five land. We consider this broader area part of our traditional territory, acknowledging that this area overlaps with interests of different groups of Indigenous people.



Photo: Bush Camp, April 1957 (Brokenhead Ojibway Nation)

Our ancestors have lived in this place for thousands of years. We have stories telling how we first came to this land, which is linked to the larger story of Anishinaabe / Ojibway migration westward across Turtle Island:

*"There was a lot of people from all over. Mostly Ojibway people. Lake Winnipeg up north down to the States – was all traditional land. I went to Seven Clans once in the states – the drums were exactly the same as the drums here. So this was all Ojibway on the east shore of Lake Winnipeg."* - Edgar Bird, Hollow Water First Nation

As part of our history tells of the Migration of the Anishinaabe (Ojibway) people from the East Coast – from around the area of the St. Lawrence River and the Atlantic Ocean. Many of the Anishinaabe people left the area to move West because of the forewarning predictions of the Seven Fires.

One such story tells of two brothers and their families who came from the east coast and made their way to Sault Ste. Marie, Ontario where they stayed for a number of years before continuing their journey to Manitoba. The Anishinaabe used two routes from Sault Ste. Marie – either through the north shore of Lake Superior to Lake of the Woods and on through

to the Winnipeg River. Others went on the southern shores of Lake Superior down to through Wisconsin and Minnesota and north on Red River. The Anishinaabe settled a wide span of area from around the Great Lakes to Manitoba and further west.

Our ancestors eventually made it to the Lac Du Bonnet area around the 1500 – 1600's. The families settled in this area, which is which is near the site of where the future site of the Whiteshell Reactor would be. Our ancestors stayed in this area for long time before travelling down the Winnipeg River to Lake Winnipeg. The families settled at the mouth of the Brokenhead River where we remain today. We no longer know where our ceremonial grounds or settlement is located in the Las Du Bonnet area, but stories that have been past-down say the location is now underwater due to flooding. We still consider this area as part of our home, our history, and care about what happens to it.

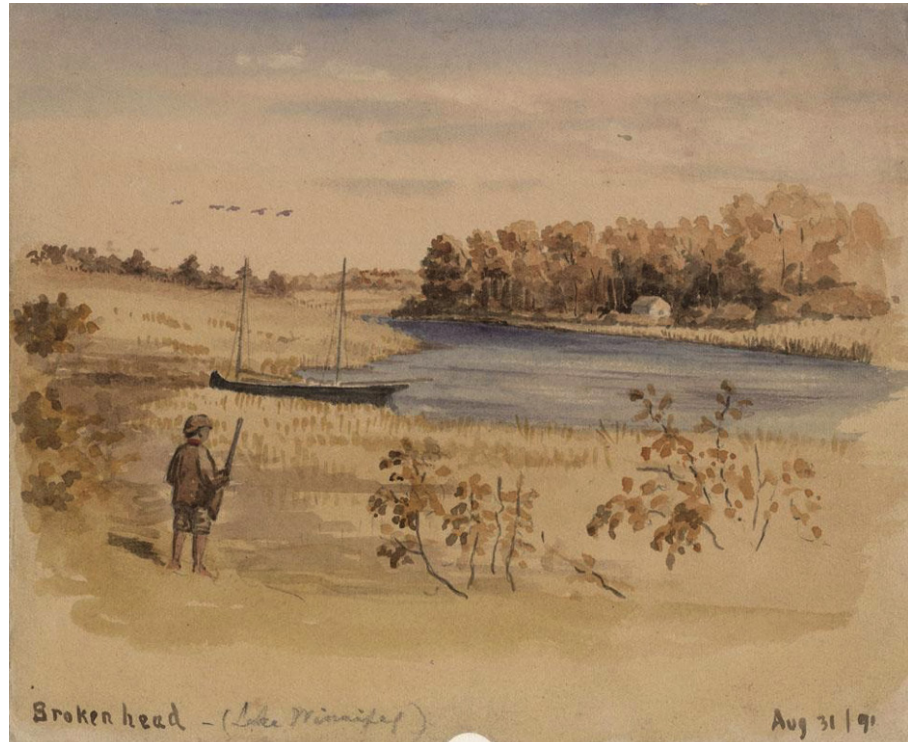


Photo: An Autumn view of a part of the Brokenhead Ojibway Indian Reserve near the lower end of Lake Winnipeg - Edward Francis Wilson, c. 1885 - 1893 (Brokenhead Ojibway Nation)

## 3.2 TRAVELLING ALONG THE RIVER

Rivers were particularly important to our communities; we took these waterways up from the south when we first arrived in this land. The rivers were our highways. The important sites where we camped, harvested, gave birth, held ceremonies, and buried our loved ones, were all located along the waterways.

*"Wherever there's water - that's how they travelled. Long ago that was their highway; the waterways all the way from Lake Winnipeg down to the States. That was sacred land. That's where they had these ceremonies. There are still signs of them."*

*- Annie Dunbar, Hollow Water First Nation*

*"The whole river was used. This was the highway. They would go along it."*

*- Myrtle Abraham, Black River First Nation*

*"That's how we travelled – the river systems. Even going south, the Red River right to Texas, the Mississippi up to Bemidji [on the] waters there . . . Our routes were all river. So we look at why this is so important to us: this is our lifestyle."*

*- Carl Smith, Brokenhead Ojibway Nation*

All of our communities are located on water bodies that are part of the Lake Winnipeg watershed. The continued health of Lake Winnipeg and the connecting waterways are important to all of us:

*"When you look at Lake Winnipeg as a watershed - all Treaty 1 to Treaty 7 [are a part of the same watershed]. All those areas come to Winnipeg – the Red River area."*

*- Carl Smith, Brokenhead Ojibway Nation*

We have found artifacts all through the along the shores of rivers that show how our ancestors used the waterways for travel routes:

*"In the 1700s we were situated around Lee River. Then they came up the Assiniboine River to where we are today. So along here you can find sensitive sites, carvings, arrowheads from 200 years ago" - Carl Smith, Brokenhead Ojibway Nation*

*"You know those old farmers up along the Brokenhead River, there was one farmer who used to come see me all the time and bring me antique tomahawks, arrowheads, and things all from his garden along the river. He gave me an old pipe. All along the Brokenhead River we camped." - Brokenhead Ojibway Nation, Final Multi-Community Workshop*



"My grandfather [Edward Harry] is in the picture. He made the boat too. He brought me up. He's the one that taught me everything. That's when the water was pure!"

- Myrtle Abraham, Black River First Nation

### 3.3 FISHING



Photo: Unloading the fish (Black River First Nation)

As we travelled down the rivers, we'd stop to fish. We caught all kinds of fish in our nets:

*"Pickerel and sturgeon, sunfish, catfish" - Black River Elders' Meeting*

We'd eat what we needed and would sell the rest. The women in the community would sell the fish while the men were out fishing:

*"... When there was sturgeon fishing, the ladies would go across to the other side to the farmers and barter for eggs and stuff like that [in exchange for] the fish."*

*- Myrtle Abraham, Black River First Nation*

We'd go everywhere to fish. "It used to be very very open" (Myrtle Abraham, Black River First Nation). In addition to fishing around our communities, there are a number of important fishing spots we'd visit. Lake Winnipeg was always an important fishing area for our communities. Later, some of our community members worked as commercial fishers on the lake. We remember the huge sturgeon that were once caught here:

*"We had sturgeon growing up – a few in Lake Winnipeg. Would get some as heavy as 400 pounds. We used to eat lots of the 7 to 8 pound fish."*

*- Oliver Sinclair, Hollow Water First Nation*

Several lakes in the Whiteshell were also key fishing areas including Lone Island Lake, Betula Lake, and Jessica Lake.

We'd also go fishing along the Winnipeg River, near where the Whiteshell Laboratories site is located.

*"We'd go by McArthur Falls up to Lac du Bonnet catching sturgeon."*

*- Black River Elders' Meeting*

Photo: Straightening the fishing net (Black River First Nation)



### 3.4 HARVESTING WILD RICE, BERRIES, AND OTHER PLANTS



Photo: Labrador Tea

Our ancestors lived off the gifts provided by the land. Berries and wild rice were important foods to us. The harvest marked the end of the season. Then our ancestors would return home to their communities after travelling long distances during the year:

*"That was their living. Everything was done seasonally. Rice picking, blueberry picking, fishing. Rice picking was the last [in the season]. Then they came home to the community."*  
- Myrtle Abraham, Black River First Nation

Some of our community members still go out to harvest wild rice, blueberries, raspberries, and chokecherries. Some key areas where we harvest are shown on the maps for each of our communities.

We harvest wild rice in different places from year to year, depending on water levels. We will often go to the Whiteshell for wild rice, but it can also be found in various small lakes and along the shorelines of rivers throughout our traditional territory:

*"Wild rice and Weekay is harvested from the shores of Lake Winnipeg, Hollow Water, and the Brokenhead River, among other places."*

*- Bill Ballantyne, Brokenhead Ojibway Nation*

After we harvest the wild rice, we work together to prepare it:

*"They put it on a big pan and shake it over a fire until it all cracks. Then you put it in a bowl with canvas and [go like this] and it cracks the shells. Then after that you take it out and you wait for the wind and dump it on the canvas and the shafts fly from the wind and you just get the rice, all cleaned. They you bag it. You can do rice on a frying pan without water and it pops like popcorn and with some sugar it tastes like popcorn – popcorn rice."*

*- Hilda Bjork, Hollow Water First Nation*

### 3.5 HARVESTING MEDICINES



Photo: Eastern White Cedar in Brokenhead Ojibway Nation

*"Everything is a medicine – even the air we breathe, what I'm speaking - it's medicine. A lot of our people are disconnected from this. Even those that walk with us and have their spirit name, they get their name and turn their backs on the Grandmother."*

*- Ernest Desjarlais, Brokenhead Ojibway Nation*

*"Long ago, there were no roads. We travelled by boat to get to the hospital to see the doctor. So our people from long ago used traditional medicine to cure the sickness. Now, you can't find anything very much to use for that. Nowadays you run to the hospital and you don't really know what they give you. But with traditional [medicine], they knew what they were giving us. They had all different kinds. If I had an earache, they had something for that; toothache, something for that. All the different sicknesses. But then in those days too there was no cancer. Because people lived off the land."*

*- Black River First Nation, Final Multi-Community Workshop*

*"The medicines would help the people in the community when they needed the medicine for the purpose of healing from sickness."*

*- Black River First Nation, Final Multi-Community Workshop*

Medicines are a sacred part of our culture. We believe Mother Earth provides us with medicines that grow to help heal our bodies. To this day, we pick medicines in the Whiteshell; along the Winnipeg River, the Brokenhead Boardwalk - all over. But because the medicines are sacred to us, we are told not to talk too much about them (Brokenhead Ojibway Nation Elders' Meeting).

We will share only a few stories of the medicines that we have used in our communities. Sometimes we will make tea for our health with the medicines we harvest, such as Muskeg Tea. Another medicine we used was willow branches. We would take willow branches and split them in half. The inside would be eaten as an antibiotic, but we would also eat them as food when we were children:

*"Remember those willows we used to eat when we were hungry? You would split them in half and there was something green in there and it would keep you going. We wouldn't want to go home for supper or lunch when we were on the island [Black Island] – busy playing in the bush. So we would have a little axe and we would chop it and eat it and then we weren't hungry anymore." - Hilda Bjork, Hollow Water First Nation*

*"We would use Seneca root and make a tea with cedar - this would break a fever "*  
*- Brokenhead Ojibway Nation, Final Multi-Community Workshop*

Poplar trees could also be used as medicine. We'd put the white phloem of poplar trees on cuts; that would take the sting away. We put potato peelings on a forehead to bring down a fever. We used labrador tea by putting it in the oven, crushing it, making a powder, and making a wrap for healing; this is still done. We made a salve from rose hips, which could also be found in the winter. We would take frozen rose hips, heat them up, crush them, and mix them with lard:

*"Rose hips grew everywhere locally. They grow in the winter too. You can make a salve out of it. My mom put it on me before – it was in the winter and I had a scab here and it got infected and wouldn't leave. Everyday I would peel it off and it wouldn't heal. My dad went in the morning to take all the snow off and looked and there they were. The leaves were still green. I guess they froze like that. He brought them home and my mother put them in the oven and took it out and he used the lard and he crushed them and put them into the lard and put it on here. It didn't even take a week and it was healed. And that's why everyone is taught that." - Myrtle Williams, Hollow Water First Nation*

### 3.6 HUNTING, TRAPPING, AND OTHER HARVESTING

Harvesting from the land is central to our culture as Anishinaabeg. Harvesting keeps us connected to the land, provides food and medicines to nourish our bodies, helps to fulfill traditional family roles, and is protected among our Aboriginal and Treaty rights.

Historically, hunting and trapping were essential ways for our community members to get the food and furs needed to survive. We hunted moose, deer, rabbits, geese and other animals. We trapped otter, marten, fisher, muskrat, lynx, fox, and beaver.

Sometimes, families would travel together to hunt and trap. Other times, the men would go alone, leaving the community for many weeks to hunt and trap:



Photo: Beaver (Hollow Water First Nation)

*"My father used to be gone for months at a time trapping and hunting moose"*  
- Myrtle Williams, Hollow Water First Nation

*"Lynx, bobcat, porcupine, fox, coyote, chipmunks, deer, moose, geese, duck, muskrat"*  
- Louis Olson, Brokenhead Ojibway Nation

*"There was plenty of wild life: rabbits, muskrat, deer, buffalo."*  
- Freda Bear, Brokenhead Ojibway Nation

*"From there [the community] they would go anywhere to hunt. And trapping season is the winter season. Trapping, hunting moose and stuff. They went far in one season . . . We'd go hunting all the way to the Ontario border . . . I went lots when I was a kid because I was the only child with my grandparents so they had to take me way out in the river to go fish, hunt and whatever. When they killed a moose, they dried their meat right where they killed it. Then they'd come home with the dry meat." - Myrtle Abraham, Black River First Nation*



Photo: Antlers (Black River First Nation)

As people who lived near Lake Winnipeg, one other type of harvesting we did that was important to our communities was gathering seagull eggs.

*"You never hear one thing mentioned. We used to go seagull egg hunting with my mom and dad. Used to gather seagull eggs. Out in the lake there's a little island. It's not far from Black River at the mouth of the river." - Lawrence Bird, Black River First Nation*



Photo: Hunting (Hollow Water First Nation)

*"That was one of the livelihoods people did long ago. Nowadays the younger ones don't want to do this stuff. We'd boil them, just like an egg. The same thing you can do with the chickens, you can do with a seagull egg."*

*- Myrtle Abraham, Black River First Nation*

*"Did you ever go frog picking? We used to pick frogs. I would pick snakes too. Anything to make money. You had to have your frogs alive - snakes too. They were everywhere."*

*- Brokenhead Ojibway Nation, Final Multi-Community Workshop*

Many of our community members still go out hunting and trapping. The maps show the important places where each of our communities continue to do these activities.



Photo: Working with the hide (Black River First Nation)

### 3.7 SACRED SITES AND CULTURAL GATHERING AREAS

In the time before ceremonies were banned, our ancestors held ceremonies across the land. People would come from other communities for these ceremonies. There are even stories of times when non-Indigenous people would come to the ceremonies to ask for guidance:

*"There [were] ceremonies all over [along] Lake Winnipeg. There is one I seen one time, in Little Grand up north – there was a creek and I looked in the bush near where our fire was. There was a nice rock where you could sit. When we were done, we were sitting around there and we saw a big tortoise – [they] must have had a ceremony there long ago in the middle of nowhere." - Edgar Bird, Hollow Water First Nation*

In 1876, the Government of Canada passed the Indian Act. Sections of the Act outlawed many of our gatherings and ceremonies. In 1885, new amendments to the Indian Act specifically prohibited Sundance ceremonies and dancing. Ceremonies had to be performed in secret; if caught, people involved in a ceremony could be imprisoned or fined. As a result, we no longer know many of our traditions and spiritual sites.

However, we believe that there is still a spirit in places that were used for ceremonies by our ancestors. At times, we can still hear the sounds of singing or drumming through the woods, even though nobody is there. This is how we know our ancestors had ceremonies in these places:

*"Near Lake Winnipeg here just north of Black River, I could hear a drum. I went home and brought my wife back up to where I was camping. When it was dark again, I said, 'I can hear them singing.' So there were ceremonies up there." - Edgar Bird, Hollow Water First Nation*

*"Marsha said she heard drums and jingles in the night. She said she got up and came onto the patio and she listened. She said it sounded like they were having a pow wow back there. But there's nobody back there. "*  
*- Wanda Kipling, Brokenhead Ojibway Nation*

In 1951, the federal government finally removed the laws against ceremonies. Since that time, our communities have been working to reestablish our traditions and dances. Some of the places where we gather to do these things are shown on the maps.

In Hollow Water, we have a festival called Black Island Days every July. This is held on the same spot where our ancestors would go for thousands of years. We spend one week camping, berry picking, and have dances at night. No alcohol or drugs are allowed.

Another sacred area for all of our communities is the Whiteshell. Ojibway artifacts have been found in the Whiteshell, showing that our ancestors lived in the area more than 8,000 years ago. We continue to go here to visit the same sacred sites, such as the petroforms (rock mosaics), that were used by our ancestors. There are several well-known sites like the Bannock Point petroforms, as well as many others throughout the Whiteshell:

*"Our people still go and fast there [the Whiteshell] if they want a strong vision. They can go there. Because we have to go fasting once in a while."*

*- Ernest Desjarlais, Brokenhead Ojibway Nation*



Photo: Bannock Point Petroforms (Joseph Prymak, Creative Commons)

*"The Whiteshell is very sacred. It's where the petroforms, the legends, and the teachings of Midewin are. It's very very powerful. I was there and I started putting tobacco on those things [the petroforms] – the rocks started moving. You could feel the vibrations on those granite rocks. Someone was moving them. The Spirit Keeper."*  
- Brokenhead Ojibway Nation Elder's Meeting

MAPS HAVE BEEN REMOVED TO PROTECT  
CONFIDENTIAL INFORMATION

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WR-1 Management Area



Our Traditional Way of  
Life is Being Lost

## 4.1 THE WATER AND FISH ARE SICK

Cumulative effects of development, pollution, and invasive species have brought disastrous consequences for water quality and fish populations in our traditional territory.

Our waterways and Lake Winnipeg are particularly at risk. Fish are caught that have bumps on their bodies, scabs and boils on their gills, and tumors. Their meat is the wrong colour and doesn't taste right. Invasive species are coming in that don't belong, such as Zebra mussels; they impact the health of our lake.

*"And now, after those many years, I see a big change in our reservoir – Lake Winnipeg. The last 10 years it makes a person think how dirty our lake is . . . This really struck me a couple of years ago. We were fishing in the fall, and the stuff that was there in our nets – it was unreal. Nobody could tell me this was algae – it had to be something else..."*

*...This stuff was so bad, it was thick – right from bottom to top on our nets. I pulled out my nets and I laid my tarp on the ground and I shook that stuff out . . . I was sweeping it off with my broom and there was an 18" long, 4" diameter piece I put aside. I went back and looked at what I took out of my net a few days later and it had turned green and like concrete. That stuff was just hard when I got a hold of it, like cement, and that came out of the lake. "It makes you think, "What's there?" It's unreal. Something is coming from somewhere and it's contaminating our water." - Charles Smith, Hollow Water First Nation*

*"Years ago the water was clean . . . My husband said he remembered the river clear or blue and you could dip your dipper in and see it. He used to go out paddling with his grandmother to get medicine. And she would dip her dipper in and drink it."*  
- Glenda Smith, Brokenhead Ojibway Nation

*"Something is happening in our water reservoir of Lake Winnipeg. Our lake is bad now and getting worse. Fishermen are having a hard time catching our limits. We were out 3 weeks and caught only 200 kilograms of pickerel. Now the dirty water in the lake is contaminated. Need to go further to do more testing on the lake to clean it up like they did in the North Basin. Not only fishing – we drank from there, too. We're hearing stories about deformed fish with growths on their scales. Winnipeg River has something to do with it too."*  
- Multi-community workshop

*"A few years ago we were catching these smelts – like little snakes 10 to 12 inches long. Maybe they came from the Great Lakes. They were eating all of the minnows. They seem to be gone now but the damage is done." - Charles Smith, Hollow Water First Nation*



Photo: A fish caught with a boil on its head (Black River First Nation)

*"There is no more trapping at Folster Lake either - the lake is oily"*  
- Brokenhead Ojibway Nation, Final Multi-Community Workshop

*"Zebra mussels are moving in. It don't take long. They talk about them and they are here already. That has a big role on our lake as well. They fall in your boat and you step on them – they're sharp."* - Hilda Bjork, Hollow Water First Nation

We are now catching fish with deformities, as well as scabs, boils or brown spots on their gills. We've also found fish where the meat is red and doesn't taste right.

*"My brother-in-law and sister-in-law are catching fish with deformities. They look at it and won't eat. That's pollution coming down the river. I'm concerned about the fish. That's how they make their living in Hollow Water." - Annie Dunbar, Hollow Water First Nation*

*"It's not just about our drinking water. It's also got to do with our fisherman that fish in the lake. The fish have growths on them. Where does that come from? I can't rule out this Pinawa site as part of the problem" - Hollow Water First Nation, Final Multi-Community Workshop*

Over time, government restrictions have changed the way we fish. We are no longer able to catch sturgeon - that fish that was so important to our ancestors:

*"One time we got caught catching sturgeon at Sturgeon Point. We weren't allowed to catch that; I don't know why. Yet the First Nation people have a right to fish for their own use. But we got stopped catching sturgeon. Even when we go as far as the Whiteshell. We're not allowed to catch sturgeon there also. You get a big fine. This was just recently. It's still in effect." - Black River First Nation Elders' Meeting*



Photo: Sturgeon (Black River First Nation)

We fear these restrictions and changes to the water will have a devastating effect on the lives of our children and our children's children. It is already hard to make a living fishing and we only expect this will get worse:

*"I was a fisherman, a trapper. I worked for Natural Resources and worked at a saw mill. There used to be available work – now it's all gone. They are trying to stop fishing now too." - Edgar Bird, Hollow Water First Nation*

With new developments, we have seen our land changed and our water bodies disappearing. We fear that this will continue to happen:

*"It used to be called Mile 12 before it was 304. That used to be all bog, like a lake there. They drained it for sod farms. That's where our Brokenhead trap lines were." - Brokenhead Ojibway Nation, Final Multi-Community Workshop*

*"They drained most of that whole area [by the boardwalk]."*  
- Carl Smith, Brokenhead Ojibway Nation



Photo: Bush Camp (Brokenhead Ojibway Nation)

*"Remember they used to have about 7 lakes. There was 3 on reserve: there was Sandy Lake, Cedar Lake, and another on reserve by the casino. And there was 4 off reserve towards Patricia Beach. They called them lakes, but they were really just ponds. There were 7, now there's only 3. The rest are all dried up. Cedar Lake is declining - turning into bog now. The one by the casino used to be quite big - we would go in there. It mostly marsh now." - Brokenhead Ojibway Nation, Final Multi-Community Workshop*

*"You know Chabot - the gravel pit there near Gull Lake. Right now they're digging there 45' below Gull Lake....right below the lake. They're going to drain all of Gull Lake. We are fighting it right now. That's going to flood everything. It was all covered by pine forest, now it's all marsh." - Brokenhead Ojibway Nation, Final Multi-Community Workshop*

## 4.2 THERE ARE FEWER PLANTS TO HARVEST

The increasing use of chemicals, regulation of water levels, and changes to water quality also have major impacts on wild rice, berries and other plants we harvested:

*"Wild rice is dying out because of contamination. It used to be a good crop. I used to go to the Whiteshell every fall to pick wild rice." - Felix Abraham Sr., Black River First Nation*

*"Wild rice was good years ago, now there isn't much wild rice"*  
- Reg Straight, Brokenhead Ojibway Nation

*"The level of Lake Winnipeg has risen. Muskrat along the shoreline have moved inland and wild rice is no longer harvested there." - Lance Guilbeault, Black River First Nation*

*"They spray something [a chemical] on the highway. We used to have all sorts of wild berries and hazelnuts. I can't find these anymore."*  
- Annie Dunbar, Hollow Water First Nation

*"The leaves [on plum trees] just fall off. They've got a sickness. A rot on them."*  
- Brokenhead Ojibway Nation, Final Multi-Community Workshop

*"Wild plums were plenty, now they're hard to find"*  
- Madeline Prince-Chief, Brokenhead Ojibway Nation

*"Chokecherry bush has black spores on it. It's sick."*  
- Edith Langlais, Brokenhead Ojibway Nation

We have seen pesticides and chemicals sprayed along the roads. The rivers are affected by sewage releases, runoff from fertilized crops and hog farms, and chemicals from the mill and other industries. Water regulation has eroded shorelines and changed the areas where many of our medicines grow. Today, our medicines are more difficult to find, and many are too contaminated to be suitable for traditional uses.

Our healers are responsible for knowing the medicines they pick are clean and healthy. It would be very bad if contaminated medicine was used to heal someone. Instead of getting better, the person would get sicker. We need to look further into the bush for our medicines now (Multi-Community Workshop).

## 4.3 CHANGES TO HUNTING AND TRAPPING

However, hunting and trapping are getting harder for us to do for a number of reasons. Many of our traditional areas have been converted to other land uses over time. We've seen people coming up from the south to come and harvest moose and other game. Increasing regulations, such as the need for a firearm possession and acquisition license, and the need to carry a treaty card also create barriers that discourage land use and sharing with youth (Black River First Nation Elders). Other government restrictions make certain kinds of harvesting illegal or prohibit us from hunting in certain areas of our traditional lands:

*"I was a trapper for 54 years. [The government is now] taking away hunting rights and [industries are] destroying hunting grounds . . . You need to go 300 metres off the road to hunt now." - Eugene Bear, Hollow Water First Nation*

*"This time of year in June we used to have lots of gull eggs. Now it is illegal."  
- Oliver Sinclair, Hollow Water First Nation*

We've also started to see changes to the health of the animals we harvest. We believe this is a result of contamination and disease:

*"Rabbits are found with pus under their fur, foxes without fur on their tail, and deer are acting crazy because of contamination and disease."  
- Orton Ramsay, Black River First Nation*

*"There are clear signs of sickness in animals throughout our Traditional Territory. Moose have brain worms and rot in their meat, so they cannot be eaten. Disease is spread from deer and also because they are eating polluted roots from the river."  
- Felix Abraham Sr., Black River First Nation*

*"There used to be muskrats, beaver, ducks - all types on wildlife in the river. Now you don't see it because the river is contaminated." - Bill Ballantyne, Brokenhead Ojibway Nation*

These changes to hunting and trapping are more ways in which the cumulative effects of development have slowly taken away our traditional way of life.

*"We used to have lots of moose a long time ago. Deer. Rabbits. Now we just have a lot of bannock!"*

*- Oliver Sinclair, Hollow Water First Nation*

The beaches around us used to have many animals for us to trap. However, dams have fluctuated water levels so much that beaches are ruined and we no longer trap in some of our traditional areas:

*"There's Patricia Beach... pretty much all of the beaches surrounding the whole lake. Hydro controls the water and with the water going up and down it washed everything right away and ruined the beaches. It ruined trapping. There were really good muskrats there."*

*- Brokenhead Ojibway Nation,  
Final Multi-Community Workshop*



Photo: Animal hide (Black River First Nation)

## 4.4 WHAT WE ARE TALKING ABOUT IS CUMMULATIVE EFFECTS

*"In 1957 the community was changing with the highway going through the reserve"*  
- Edith Langlais, Brokenhead Ojibway Nation

*"In my way of thinking, there are a lot of things almost depleted from the area: berries, fish, animals. It seems like it's irreversible. I don't know if it comes from the land or the nuclear plant."* - Black River First Nation, Final Multi-Community Workshop

*"The water used to be good and the air was clear."*  
- Norbert Hardesty, Hollow Water First Nation

*"We survived back then with nothing like this [nuclear power]. We were healthier then. Then they had to come along."* - Black River First Nation, Final Multi-Community Workshop

*"We used to see lots of big bullfrogs. Big green bullfrogs. We used to play with them when I was a girl. We liked them because they were big. We used to stay in a little shack. We ate lots of deer meat. In spring when the geese go north the sky was black with them."*  
- Annie Dunbar, Hollow Water First Nation

Our ancestors lived in a world where the water was good and the air was clear. Animals and fish were abundant and healthy. Now, we have seen the world around us change. Nothing can be looked at in isolation. We are seeing more and more signs of contamination in our land and water each year:

*"The blackbirds are gone now – we used to hear them sing in the morning. Farmers are spraying chemicals, Hydro is clearing the right-of-way with chemicals, and the City [of Winnipeg] is spraying to stop a few mosquito bites. The paper mill in Sagkeeng [also] made a lot of pollution. It's all adding up."* - Annie Dunbar, Hollow Water First Nation

*"We need to get united as Treaty people so we can be stronger. The animals are gone. That's what we're talking about with cumulative effects. Fish, rice picking – the rice patties are disappearing. The contamination goes everywhere. Somebody has to do something."*  
- Charles Smith, Hollow Water First Nation

On the Winnipeg River, we have seen the cumulative effects of hydroelectric dams, the Pine Falls Paper Mill, hog farms, and the Whiteshell Laboratories nuclear site:

*"How many years did the mill operate? Over 80 years? Bark sunk to the bottom of the river. Turbulence and the current of water, it brings up all that debris from the bottom to the surface. The current will bring it to the lake [Lake Winnipeg]. Lots of wood sank there too. You can imagine what is in the river right now. About 5 years ago they pulled a lot of wood out of there." - Hollow Water First Nation Elders' Meeting*

*"The paper mill in Pine Falls – that's a hotspot for cancer. All those people down the river, those people drank that water." - Brokenhead Ojibway Nation Elders' Meeting*

*"I always think of the water run-off that flows into Lake Winnipeg. The reactor has been there for 60+ years. We don't know how Lake Winnipeg has been affected."  
- Hollow Water First Nation, Final Multi-Community Workshop*

*"Hydro development impacts hunting, trapping, and harvesting. The mouth of the river was liveable area before hydro dams" - Reg Straight, Brokenhead Ojibway Nation*

Our decisions about the long-term future of the nuclear site need to be made in the context of all of the changes that we are seeing to our lands. This includes our changing climate.

*"Climate Change affects everything" - Madeline Prince-Chief, Brokenhead Ojibway Nation*

*"A lot has changed due to Climate Change. Weather Patterns have changed."  
- Ashley Straight, Brokenhead Ojibway Nation*

*"There is no communication between Government and Industry"  
- Brokenhead Ojibway Nation Interview*

We believe that proponents and regulators have an obligation to consider cumulative impacts, and assess this project in the context of all that is being experienced here. The Anishinaabe perspective does this naturally, through the lived experience of members on the lands and waters. The regulatory system needs to give equal concern for the cumulative net impacts of projects like the WR-1 Decommissioning.

WR-1 Nuclear Laboratory



## Concerns about In-Situ Decommissioning

*"... We're asking for guidance and understanding--knowledge--today about this plant, this nuclear waste, and what it's actually going to be doing to Mother Earth. We've seen it in different parts of the world; things have happened because of nuclear waste . . . A lot of people are blinded by greed, money – they always want something more – and sometimes Mother Earth might just give up and say, one day, 'No. You are abusing me. You aren't doing the right things. You aren't offering me anything for what it is you're taking'. So that's something that people should have that understanding about . . .*

*"They don't realize the effects of nuclear waste that will happen. Maybe not in a year. Some of us may not even be here to see what's going to happen -- but then it's the future of our children."*

*Glenda Smith, Brokenhead Ojibway Nation*

## 5.1 WE SHOULD BE HEARD AND RESPECTED

As Anishinaabe Traditional Knowledge holders, we have concerns about the decommissioning of this nuclear reactor that cannot be addressed through science. We want to acknowledge that CNL has given careful scientific consideration to our questions and that CNSC is providing a second scientific opinion on the project. However, experience shows that even good science has been wrong in the past. When we are predicting hundreds or thousands of years in the future, it is difficult to be confident in any scientific predictions.

*"There was a spill [of coolant at the Whiteshell Laboratories site] in the past. It is difficult to trust science." - Charles Smith, Hollow Water First Nation*

We are people of the land, not nuclear scientists, and it is important that we share the concerns we see through our worldview. We would like to talk about how potential contamination would spread through animals, air, water, and the land. It is important that our traditional knowledge perspective is heard and respected.

## 5.2 SPIRITUAL IMPACTS



Photo: Whiteshell Nuclear Reactor 1 (cns-snc.ca)

Places also have spirits, which can be influenced by human actions. Many of us believe that when you change an ecosystem, you don't just physically change the land - you also change the spirit. Some of the spiritual places we had may no longer exist because the land has been changed.

*"Everything has a spirit energy. When they created that plant, they created a spirit there. It will still be there after the reclamation." - Ernest Desjarlais, Brokenhead Ojibway Nation*

## 5.3 CONSULTATION AND BROKEN TRUST

*"Even if we disagree with this, it's still going to go through regardless of what we say. They're just trying to make themselves look good by consulting us. The same thing is happening in Hollow Water with that [silica sand] mine. All the people disagreed with it and they still went ahead with it. I feel used."*

*- Black River First Nation, Final Multi-Community Workshop*

We have concerns about the decision-making process for this in-situ decommissioning proposal. Our community members are skeptical about how meaningful our involvement is at this point, given that preferred options are already identified, costed, and the license application has been made:

*"You are coming and telling the people what you are going to do. You've already decided what you want to do." - Multi-Community Workshop*

*"Consultation is meaningless. They will do what they want to do anyways. [This is] a breach of trust and is exhausting." - Brokenhead Ojibway Nation Elders' Meeting*

Our communities have experienced a history of industries coming into our territory. In our experience, they have either failed to seek our input or we have been asked for our perspectives and recommendations, which have not been heard. In all cases, we have felt ignored:

*"There's a history of promises that haven't been kept."*

*- Ronnie McKenzie, Hollow Water First Nation*

Our people were not consulted when the Whiteshell Laboratories was built originally. Some of our members even worked to brush out the area without knowing what it would be used for:

*"[I] always ask, 'How come they didn't present what's going to happen with that reactor being put there. Why didn't they consult then? . . . Why didn't they ask us long ago if it's safe to put it in, which they never did!'" - Myrtle Abraham, Black River First Nation*

*"In 1965 when this was built, did they consult the Aboriginal people?"*

*- Brokenhead Ojibway Nation Elders' Meeting*

*"They tell us, 'Don't worry, don't be scared.' That's what they're saying."*

*- Black River First Nation, Final Multi-Community Workshop*

CNL is now proposing to permanently store nuclear waste in our traditional territory. We see this as a new land use that is much more than just the continued decommissioning of an existing facility. The initial plan to decommission the site and remove all materials is now being changed to a plan for permanent storage of nuclear waste adjacent to a critical waterway in the traditional lands of our Anishinaabe communities.

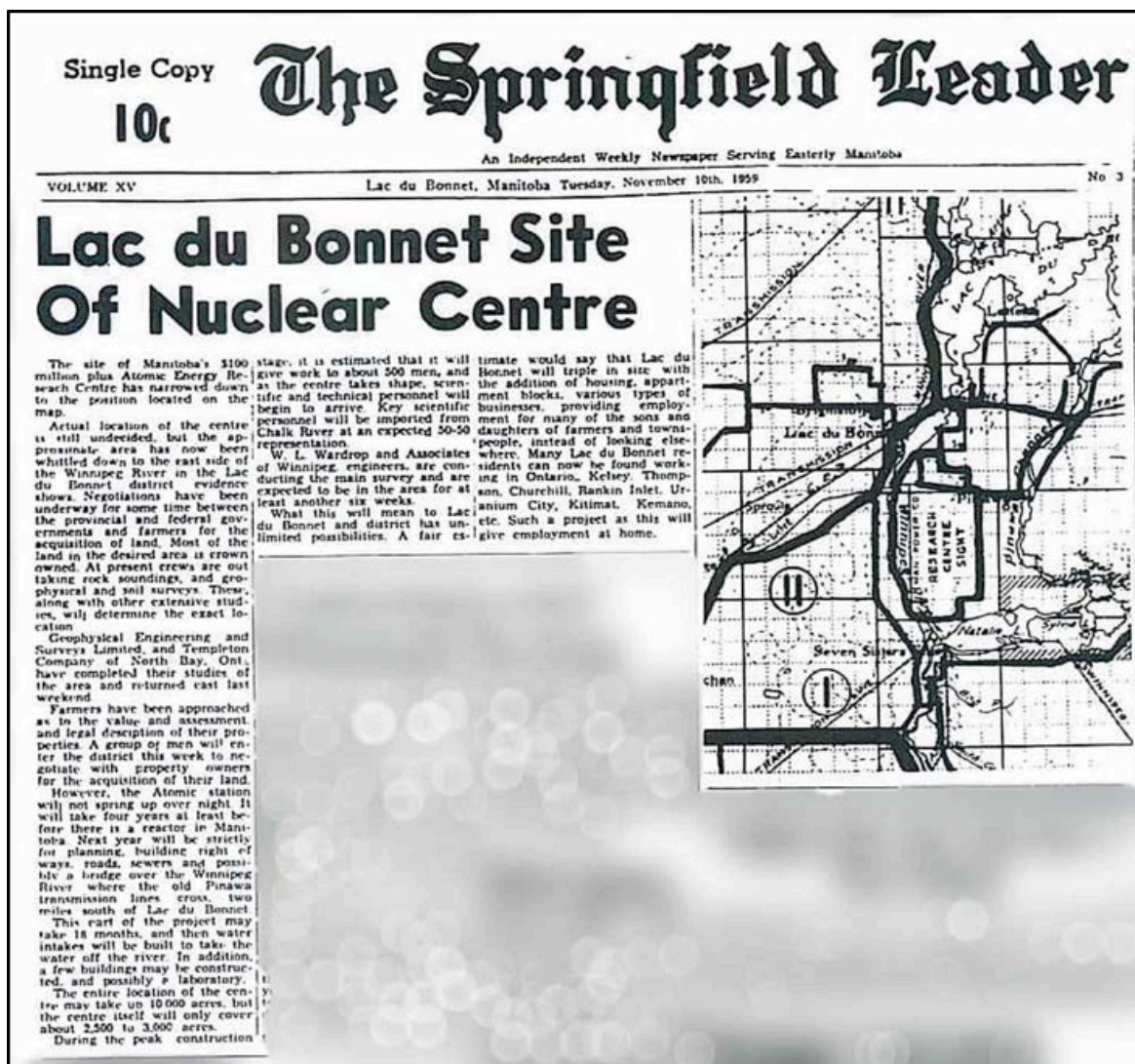


Photo: "Lac du Bonnet Site of Nuclear Centre," Springfield Leader, Lac du Bonnet, November 10, 1959.

The government has said they are now doing things differently; that they are now consulting Aboriginal people before decisions will be made. But it remains to be seen if the decisions in the future will be truly different than the ones made in the past.

## 5.4 THE RISKS



Photo: WR-1 Nuclear Labs (drone image, CNL website)

Our communities recognize the risks associated with taking this material out of the ground and transporting it to another location without a permanent nuclear waste storage facility. We respectfully acknowledge that any material removed from our traditional lands will be taken to the traditional lands of other Indigenous communities.

However, when the land and climate is constantly changing, we believe that there can be no true guarantee of safety with in-situ decommissioning. The nearby river is eroding, earthquakes are happening, and there is always a possibility of vandalism or disaster. We also know that the grout will break down eventually. When radioactivity can take hundreds of thousands of years before it is safe, an agreement to keep the reactor in place could put our future generations at risk.

*"I think it's time that the government and everybody understand our concerns. We have concerns . . . We are shown graphs that describe where the level of danger might be. There isn't a "might", there is . . . You people are very good with science, and all of these technologies, but remember, it's also destroying life."*

*- Bill Ballantyne, Brokenhead Ojibway Nation*

*"The part that troubles me... there's things underground in Bisset that are bigger than the reactor and deeper. What's the danger of trying to take the reactor out? Even with a crane they could take it out. If the engineers put it there, they know how to take it out."*

*- Multi-community Workshop*

*"A lot of people have the wrong idea that nuclear energy is going to destroy the world. I don't think that." - Brokenhead Ojibway Nation, Multi-Community Workshop*

*"Are we committing suicide? If it [the grout around the reactor] busts, we know where we're going to end up. It's a test of how we can survive the contaminated site. We are an experiment." - Myrtle Abraham, Black River First Nation*

*"I used to work there [WR-1 laboratory], and when I came in and out I was scanned and scrubbed down. If it was that dangerous then, it's going to be more dangerous when no-one is there" - Brokenhead Ojibway Nation, Final Multi-Community Workshop*

We believe that water will eventually permeate through the concrete cap and the encased reactor. This water will flow through the contaminated material and eventually carry contamination to the river.

*"Water is strong. When it rains, it leaves a lot of water on the ground. Lots of it sinks. It is still going to get into the ground no matter what they put on top. Eventually it will go into the river." - Eugene Bear, Hollow Water First Nation*

We are concerned that if something goes wrong, such as a contamination breach, it will already be too late by the time it is noticed on the testing reports - the soil and water will already be contaminated. With a large concrete structure, it will be difficult to know pro-actively if the structure is failing, and we don't trust that it can be fixed if something goes wrong.

## 5.5 RESPONSIBILITY AND STEWARDSHIP

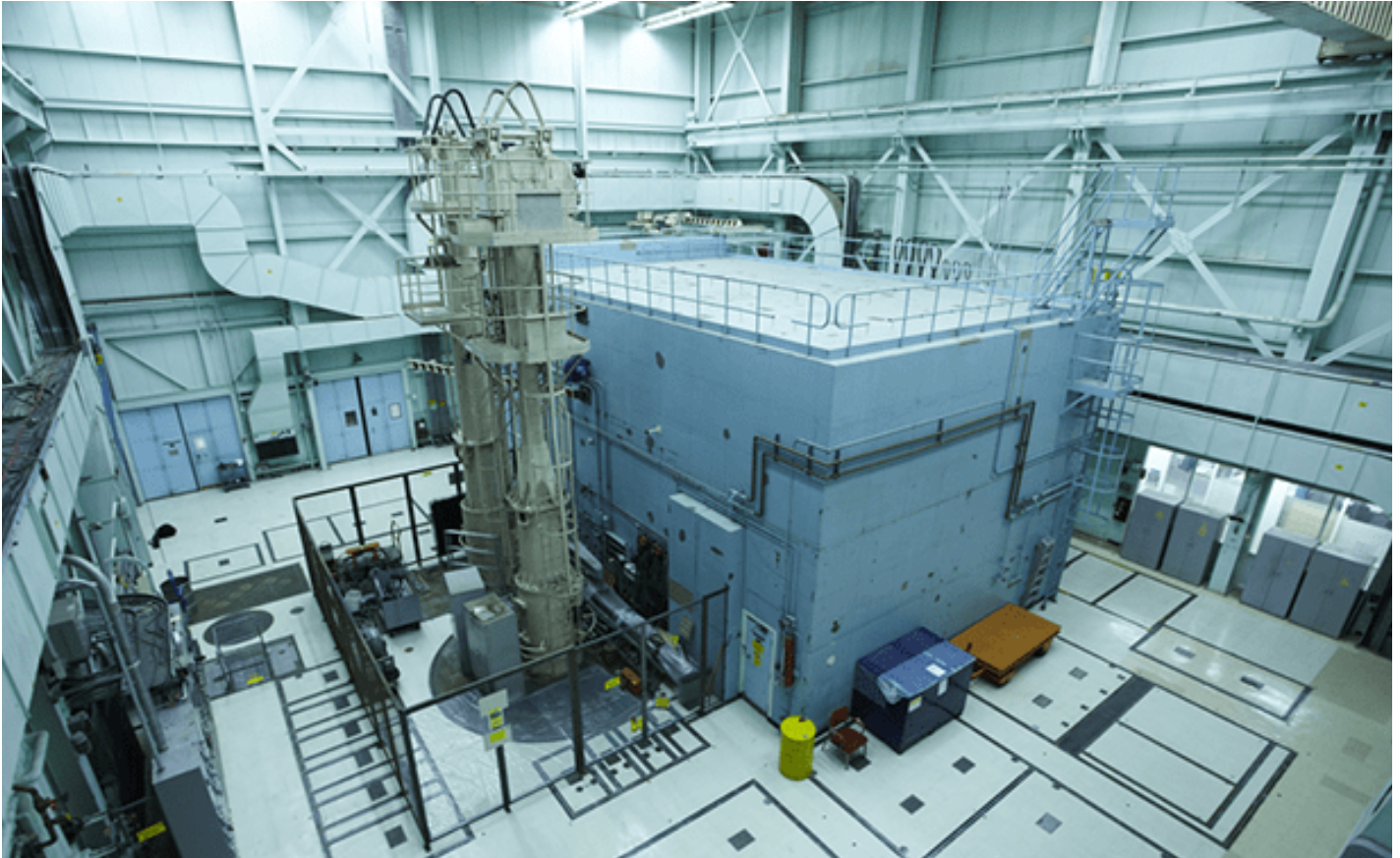


Photo: WR-1 Nuclear Labs (nuclearsafety.gc.ca)

*"Respect. There is a lot of that missing. Large companies don't respect the water. Fish get sick. The pickerel in Lake Winnipeg are dying." - Lawrence Bird, Black River First Nation*

With our climate changing we feel it is even more crucial now that industries take on more responsibility and become stewards of the environment. The in-situ decommissioning of the nuclear reactor is unsettling to many of us. Leaving radioactive material on site forever will continue to have impacts (psychological, spiritual, and physical) on us, the land, the water, and everything around it.

Therefore, we are asking that the CNSC deeply and meaningfully considers the broad potential impacts of this project, taking into account our traditional knowledge and worldview. We believe respect for the water and the land should be primary concerns in the CNSC's decision. We need to call our industries to a higher standard.

WR-1 Nuclear Laboratory



## Our Recommendations

## 6.1 WHAT SHOULD BE DONE

The CNSC's decision about the WR-1 in situ decommissioning will be based on the consideration of many voices and studies.

However, as an agent of the Crown, the CNSC has a "legal duty to consult, and where appropriate accommodate Aboriginal peoples when its decisions may have an adverse impact of potential or established Aboriginal and/or treaty rights" (CNSC, REGDOC-3.2.2, S.1). In considering the project at hand, our members have been clear that they expect the project to affect not only our Aboriginal and Treaty Rights, but also the physical and spiritual integrity of our cultural landscape.

There is resignation among our members that the Project will be approved regardless of their perspectives. Despite this, our knowledge holders have generously shared their perspectives on how they believe the government and communities should move forward.

*"[I'm] not sure they listen to us, but we can't give up."  
- Annie Dunbar, Hollow Water First Nation*

### Do we accept In-Situ Decommissioning?

As we have explained, there is a moral dilemma in responding to this project. There is risk involved in this project regardless of whether the reactor stays or goes. As First Nations we have a duty as guardians of our ancestral lands, and must protect them from harm. We are troubled that there has been a nuclear site on this land for more than 50 years, so close to the water, and now a proposal to leave it there indefinitely.

Our members have pointed out the negligence of the federal government developing the site without a plan in place for long-term disposal of the waste that it has created. A responsible plan to eliminate this waste should have been considered a long time ago. Certainly the responsibilities to dismantle the site and address the risks that have been created now fall back to AECL and its consultant CNL.

We recognize that though the reactor can be removed from our land, it will need to be moved to the lands of other communities; and so we are torn.

*"I think they should take it. I've been talking to my brother in law and other people (not elders). No one can live there. I know its going to be beautiful and all, but I don't think that anyone would live there. It's so close to the river. Eventually something is going to happen. That's me. That's my opinion." - Hollow Water First Nation, Final Multi-Community Meeting*

*"It's not right, just to move it elsewhere" - Felix Abraham, Black River First Nation*

*"Maybe it's good to leave the reactor core there"  
- Madeline Prince-Chief, Brokenhead Ojibway Nation*

*"I know that this is a hard decision to make in our physical sense. If you believe in your culture, and your understanding of your culture, we should ask for direction from our ancestors of our territories. We will do a ceremony and ask for that help that we need. We have to look at this very closely before we all decide 'take it out' or what to do with it. We have to ask our ancestors and put offerings out. That's the way I understand this. I don't want to say just pull it out of there or keep it in there. It's not up to me, it's not up to us here. It's up to the Grandmothers of these territories."  
- Brokenhead Ojibway Nation, Final Multi-Community Workshop*

We face now the decision to accept leaving the reactor core here permanently, or to possibly accept further risk - to us and others - by having it removed.

To ask for guidance on how to move forward, a Ceremony was requested and performed by Brokenhead Ojibway Nation Elders. Though many would like the reactor core removed, in this Ceremony we came to understand:

*The reactor will stay encased. There is concern that if the reactor is removed it will go and contaminate another place. The reactor has a Spirit, as does anything that comes out of it. We've asked the Star Beings to come and deal with the Spirit of the reactor and take it far far away because they control the universe and beyond the universe. The reactor is safer now that the Spirit has been removed.*

*- Explanation of Ceremony led by Elder Glenda Smith, Brokenhead Ojibway Nation*

## 6.2 MOVING FORWARD

The majority of our knowledge holders prefer to have the facility removed entirely from our territory. They feel that the federal government is ultimately responsible for placing this facility in our territories and should be responsible for removing it.

At this stage in our review, Hollow Water First Nation, Brokenhead Ojibway Nation and Black River First Nation offer the following recommendations, which we believe are relevant whether the reactor is ultimately removed from or left on Anishinaabe ancestral lands.

Hollow Water First Nation, Brokenhead Ojibway Nation and Black River First Nation offer the following recommendations, which we believe are relevant whether the reactor is ultimately removed from or left on Anishinaabe ancestral lands.

### SHARING OUR PERSPECTIVES

It is important that the voices of our communities be heard within the regulatory process.

**Recommendation 1:** Place this report on the public record, openly accessible to everyone – with the exception of the land use maps, which should be kept confidential to CNSL and CNL.

### ENVIRONMENTAL LEGACY MONITORING

There is a need for robust long-term legacy monitoring of the site, with results shared and understood by members of the First Nations. Communities will only trust monitoring if they understand it, and are confident that it is being carried out independently of the CNSC or CNL.

**Recommendation 2:** Fund the First Nations to contract independent monitoring of the site, with results presented to CNSC and community representatives in a clear, understandable way. This may include traditional knowledge monitoring in addition to conventional technical monitoring.

**Recommendation 3:** If the reactor is left in place, monitoring must go beyond the proposed 300 years. Extend the monitoring commitment to a minimum of 1,000 years.

## ONGOING ENGAGEMENT & COLLABORATION

There is a need for an on-going process of engagement with respect to the WR1 reactor and the larger Whiteshell Laboratories Site:

- Community members would like more face-to-face discussions with CNL & CNSC to understand monitoring plans and commitments, and eventual outcomes.
- The communities require better dissemination of materials to knowledge holders and community members.
- The communities require a continuous channel of communication with CNL and CNSC, rather than a dialogue that starts and stops with each 'opportunity for engagement' and 'participant funding' process.
- Resources are needed to support ongoing collaboration amongst the three First Nations involved in this study.

**Recommendation 4:** Create a funded position for a member of one of the First Nations to act as Community Engagement Coordinator, supporting on-going information sharing and dialogue between CNL, CNSC, AECL, and the three First Nations, and managing future participant funding and involvement processes. The Coordinator will:

- Coordinate community meetings and information sessions with CNL and CNSC.
- Disseminate information from CNL and CNSC within the three First Nation communities.
- Support on-going communication amongst the parties, including collaboration among the three Nations.
- Coordinate future participant funding and engagement opportunities associated with site assessment and licensing.
- Explore the potential for HWFN, BRFN and BON to meet with representatives of First Nations associated with the Chalk River site, and other in-situ decommissioning projects.

## FUTURE USE OF THE SITE

Engagement to date has been strictly with CNSC and CNL. AECL has yet to communicate with the First Nations about a site that was acquired in Anishinaabe ancestral lands without appropriate consent and dialogue with local communities.

**Recommendation 5:** AECL engage in early and thorough discussions with Hollow Water First Nation, Black River First Nation and Brokenhead Ojibway Nation about potential future uses of the Whiteshell Laboratories site.

*"That's just some of the teachings that I want to share with you about  
what we're asking here . . .*

*"With that, I say meegwetch. Meegwetch for being here. For being  
part of our circle here. For being part of the workshop that's going  
to be going on. Chi-meegwetch for listening to me. I hope you get a  
little piece of understanding of what I've shared with you today. Chi-  
Meegwetch."*

*- Elder Glenda Smith, Brokenhead Ojibway Nation*

## Appendix A: Local Knowledge Holders

### **Black River First Nation Elders' Workshop**

**May 21, 2019**

- Jonas Peebles
- William Abraham
- Ronald Peebles
- Orton Ramsay
- Lawrence Bird
- Felix Abraham
- Linda Hagedorn
- Annie Peebles
- Melvin Bird
- Olga Wood
- Myrtle Abraham
- Laverne Henderson
- Lance Guilbeault (Adult Ed Instructor)
- Tyrell Abraham (Adult Ed Student)
- Suzi Courchene (Adult Ed Student)
- Sheldon Kent (Chief)

### **Hollow Water First Nation Elders' Workshop**

**May 22, 2019**

- Oliver Sinclair
- Christopher (Chris) Bear
- Ron (Ronnie) McKenzie
- Eugene Bear
- Shirley Smith
- Hilda Bjork
- Charles Smith
- Myrtle Williams
- Norbert Hardesty
- Edgar Bird
- Wesley Monias (Observer)

### **Brokenhead Ojibway Nation Elders' Workshop**

**May 27, 2019**

- Glenda Smith
- Bill Ballantyne
- Wanda Kipling
- Ernest Desjarlais
- Larry Starr

### **Site Tour / Multi-Community Workshop**

**June 3 to 4**

- Ashley Straight (BON)
- Ernest Desjarlais (BON)
- Micheal Laramée (BON)
- Orton Desjarlais (BON)
- Madeline Prince-Chief (BON)
- Freda Starr (BON)
- Reg (Clarence) Straight (BON)
- Kim Straight (BON)
- Larry Starr (BON)
- Mina Smith (BON)
- Laverne Henderson (BRFN)
- Myrtle Abraham (BRFN)
- Orton Ramsay (BRFN)
- Melvin Bird (BRFN)
- Annie Peebles (BRFN)
- Ronald Peebles (BRFN)
- Felix Abraham Sr. (BRFN)
- William Abraham (BRFN)
- Tanessa Bird (BRFN)
- Edgar Bird (HWFN)
- Charles Smith (HWFN)
- Ronnie McKenzie (HWFN - Aghaming)
- Oliver Sinclair (HWFN)
- Garf Bushie (HWFN)
- Hilda Bjork (HWFN)

- Alex Bjork (HWFN)
- Myrtle Williams (HWFN)
- Christopher Bear (HWFN)
- Eugene Bear (HWFN)
- Annie Dunbar (HWFN)

### **Multi-Community Workshop**

**July 30**

- Orton Desjarlais (BON)
- Ken Flett (BON)
- Ashley Straight (BON)
- Ernest Desjarlais (BON)
- Edith Langlais (BON)
- Wanda Kipling (BON)
- Mary Chief (BON)
- Reg (Clarence) Straight (BON)
- Linda Hagedorn (BRFN)
- Myrtle Abraham (BRFN)
- Felix Abraham (BRFN)
- Joyce Ramsey (BRFN)
- Melvin Bird (BRFN)
- Orton Ramsay (BRFN)
- Olga Wood (BRFN)
- Ronald Peebles (BRFN)
- Jonas Peebles (BRFN)
- Raymond Ramsey (BRFN)
- Sheldon Kent (BRFN - Chief)
- Annie Dunbar (HWFN)
- Oliver Sinclair (HWFN)
- Myrtle Williams (HWFN)
- Christopher (Chris) Bear (HWFN)
- Eugene Bear (HWFN)
- Laverne Henderson (HWFN)
- Edgar Bird (HWFN)
- Ronnie McKenzie (HWFN - Aghaming)
- Charles Smith (HWFN)

### **Brokenhead Ojibway Nation**

#### **Additional Elders Interviews**

- Ken Flett
- Ashley Straight
- Orton Desjarlais
- Edith Langlais
- Wanda Kipling
- Mary Chief
- Reg (Clarence) Straight
- Louis Olson
- Madeline Prince-Chief
- Walter Greyeyes
- Jon Spence
- Freda Bear

## Appendix B: Questions Asked

The following questions were discussed during the community workshops and presented to CNL for response.

## **General Questions:**

### **Who else has been consulted? Nearby communities?**

Canadian Nuclear Laboratories (CNL) has been providing information to, and engaging with, many communities near the Whiteshell Laboratories. CNL has engaged with Black River First Nation, Hollow Water First Nation, Brokenhead Ojibway Nation, Sagkeeng First Nation, Wabaseemoong First Nation, Grand Council of Treaty 3, the Manitoba Metis Federation, and the towns of Pinawa, Lac du Bonnet, Whitemouth, Powerview/Pine Falls, and Beausejour. CNL has also engaged municipal, provincial, and federal government departments. Most of the Whiteshell Laboratories is located in Treaty 3 territory. There is a small portion of site located on the west side of the Winnipeg River in Treaty 1 territory.

### **What is the purpose of the WR-1 reactor?**

Whiteshell Reactor 1 (WR-1) was designed and built in the early 1960s with the purpose of testing a nuclear reactor that used an organic liquid as the coolant. Organic coolant is analogous to using oil in a car as the radiator coolant. By using an organic liquid, the reactor could operate at lower pressure, a desirable feature. At the time, Canada was developing the use of nuclear power to produce electricity. WR-1 was a prototype reactor that contributed to the design of the CANDU reactors that are used around the world to produce electricity.

### **Why weren't we asked or informed before the Reactor was located in our Traditional Territory? Why are we being consulted now when much of the damage has already been done?**

The Federal Government selected the location for the Whiteshell Laboratories in the late 1950s. At that time, consultation with First Nations was much different than it is today. It is unclear to CNL if any First Nations in the region were consulted regarding the siting of the laboratory. Today, the process for First Nations engagement is greatly improved. CNL has both an obligation and a desire to engage with interested First Nations on the environmental assessment of the proposed decommissioning of WR-1.

**How is contamination spread? Can animals get in and carry contamination elsewhere? What when rain hits contaminated concrete waste units and flows down to the river?**

The contamination that currently exists in the Whiteshell Reactor 1 (WR-1) building is safely contained in the facility. Most of the radioactivity is in the metal walls of the pipes and tanks that make up the core of the reactor. This can only escape through very slow corrosion or by cutting the materials as would be necessary for removal. Animals can't get in the facility and spread any radioactive materials to the environment. The reactor components are located inside a building and below-grade. Rain water can't reach the materials and therefore can't spread it to the river.

**What is the decay process / timeline of the reactor? How long will it take before the land, water, and entombed reactor is considered "safe"?**

WR-1 was shut down in 1985 and placed into storage with surveillance in 1995. The activity in the reactor has been monitored for the past 34 years. The specific nuclides (radioactive materials) in the reactor components decay away at a known rate; this is a naturally occurring process. In fact, over 95.5% of the activity in the reactor has decayed away since 1985.

The land, water, and reactor are currently safe and will continue to be safe throughout the lifetime of the project. CNL monitors the air, groundwater, and river water surrounding the Whiteshell Laboratories site ensuring the safety of the environment, the public, as well as the animals, insects, and other organisms. If the project is approved, monitoring will continue during the decommissioning of the reactor and afterwards until the Canadian Nuclear Safety Commission (CNSC), the Canadian nuclear regulatory body, decides monitoring is no longer required. This will not occur for at least 100 years after closure of the facility.

**Is there an option to "de-hazardize" the material, make it safe, and take it apart?**

In short, no, there is not an option to "de-hazardize" the material, make it safe, and take it apart. Some of the radioactivity present within the reactor building (B100) is from surface contamination which could be removed, but this is a limited amount of the total radioactivity and the removal of this contamination would expose workers to radiation for longer periods of time without any measureable benefit. Most of the radioactivity within B100 is fixed in place within the materials of the reactor systems and will only decrease with time.

Dismantling of the reactor can be safely performed, but the waste remains radioactive and must be properly stored and managed for a long time. CNL has analyzed this and other options and documented the results (called an Alternatives Analysis) in the Environmental Impact Statement.

### **Why did they put the facility along the river and near our communities?**

The Whiteshell Laboratories (WL) site was put along the river as nuclear reactors need a large quantity of good quality water to cool them. The decision to create the site in Manitoba was the result of a cabinet member of parliament from Manitoba convincing his colleagues that Manitoba was the logical place for the site. The specific site location was selected due to the good quality and quantity of cooling water and the area being appropriately isolated from populated areas.

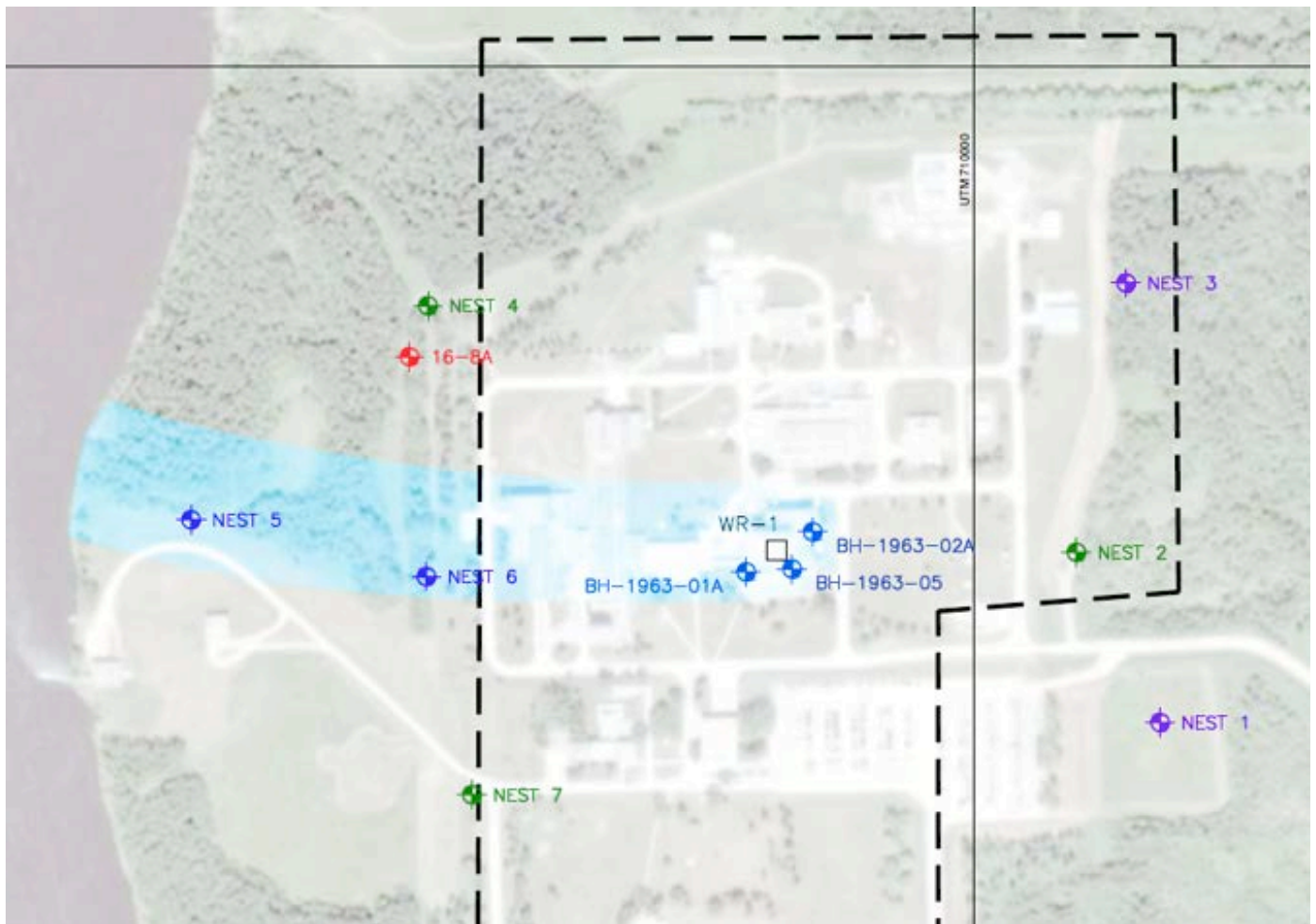
In the late 1950s, Atomic Energy Canada Limited (AECL) was planning an expansion of their experimental reactor designs. Among a number of proposals were versions of the heavy water reactor concept using alternate cooling arrangements including oil and boiling water. Their existing research site at the Chalk River Laboratories outside Ottawa appeared to be “at saturation” and too small to host all the planned experiments.

Considering their options, it was noted that only three provinces did not already host some sort of major federal laboratory: Newfoundland, Alberta, and Manitoba. Newfoundland was eliminated and Alberta already had an oil and gas industry and did not need more energy experiments. The decision was made to build in Manitoba. A preliminary site survey was carried out by Shawinigan Engineering. This was followed by meetings between AECL president J.L. Gray and Manitoba premier Dufferin Roblin.

In November 1959, Dr. Gray reported to the AECL board that a site on the Winnipeg River near the Seven Sisters Generating Station appeared to be suitable. The federal government’s housing agency also reported that a new town site could be developed nearby. As the town was on the border of the Whiteshell Provincial Park, they named the laboratory Whiteshell. Manitoba was responsible for building a new bridge over the Winnipeg River and maintaining roads and other services. The town of Pinawa was developed about 13 km to the southeast of the laboratory site. A deal was signed on 21 July 1960, creating the Whiteshell Nuclear Research Establishment.

### How many test holes are there and how deep?

There are currently 35 groundwater monitoring wells on the Whiteshell Laboratories' main campus ranging in depth from 2.23 m to 42.60 m. These were installed specifically to characterize the area around the reactor and provide groundwater monitoring capability. The figure below shows the location of Whiteshell Reactor 1 (WR-1), the predicted groundwater path from WR-1 to the Winnipeg River based on modelling work, and the location of the groundwater monitoring wells where a 'Nest' is a grouping of several wells. Additional groundwater monitoring wells may be installed around the Whiteshell Reactor 1 Disposal Facility (WRDF) once the project is complete.



The blue highlighting in the above figure shows the predicted path of groundwater coming from the WRDF and going to the Winnipeg River. As can be seen, there are multiple groundwater monitoring wells already located along the path.

### What are the next steps if we do not support in-situ decommissioning of the reactor?

If you do not support in-situ decommissioning of the reactor, the first step is to continue engaging with Canadian Nuclear Laboratories about the project to improve understanding of concerns, improve understanding of the project, to potentially find common ground and compromises. In addition, you have the option of participating in the public Commission hearing for the project as an intervenor. The public Commission hearing for the project is current planned for the summer of 2021. Closer to the hearing, the official dates will be provided at the following link on the Canadian Nuclear Safety Commission (CNSC) website:

[http://www.cnscc.gc.ca/eng/the-commission/hearings/documents\\_browse/index.cfm?yr=2020](http://www.cnscc.gc.ca/eng/the-commission/hearings/documents_browse/index.cfm?yr=2020)

In order to become an intervenor, you must submit a request to participate to the Commission Secretariat by using the online request form, by sending an email to the Commission Secretariat, or by submitting a request via fax or mail. The online request form can be found at the following website:

<http://www.cnscc.gc.ca/eng/the-commission/intervention/>

## Monitoring:

### How is the site presently being monitored and how will it be monitored in the future? By whom?

Canadian Nuclear Laboratories (CNL) monitors the Whiteshell Laboratories site extensively throughout the year. The table on the next page describes these monitoring activities.

CNL currently analyzes approximately 18,000 environmental samples per year. Any additional monitoring identified for the Whiteshell Reactor 1 (WR-1) project will be done over and above the current monitoring program. In addition, the Canadian Nuclear Safety Commission (CNSC) completes its own independent sampling program to verify the CNL results. To review the available data from the CNSC, please go to: <https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/whiteshell.cfm>

| Environmental Component | Sampling Location                                         | Parameters                                                                                                                                                                                                                                                                                                                                                                                                                           | Sampling Frequency                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Air                     | WL Perimeter and Off-Site                                 | $\gamma$ (TLDs)                                                                                                                                                                                                                                                                                                                                                                                                                      | Continuous                                                                                                                                                                                                                                                                                                                                               |
|                         | WL Site                                                   | Dust Particulates (TSP, PM <sub>10</sub> , Gross $\alpha/\beta$ , $\gamma$ -spec)<br>Quantities of fuel combusted for building heating. Diesel burned in their standby generators.<br>Quantity of Total (filterable) Particulate Matter, particulate below 10 microns (PM <sub>10</sub> ), particulate below 2.5 microns (PM <sub>2.5</sub> ) <sup>[1]</sup><br>Record of Dust Control Treatments and Site Inspections<br>Halocarbon | Continuous during building demolition<br><br>Internal worksheet tools are used to perform the calculations required to report to the NPRI. In addition, Environment Canada provides companies with various calculators (road dust, landfill gas)<br><br>All releases of halocarbons are recorded and those over 10 kg are reported to Environment Canada |
| Air Effluents           | WL Facilities (B100 (WR1), B200, B300) and WMA Facilities | Gross $\alpha/\beta$ , $\gamma$ -spec, tritium <sup>†</sup>                                                                                                                                                                                                                                                                                                                                                                          | Continuous                                                                                                                                                                                                                                                                                                                                               |
| Noise                   | WL Site                                                   | Noise monitoring                                                                                                                                                                                                                                                                                                                                                                                                                     | During periods of high activity                                                                                                                                                                                                                                                                                                                          |
| Topography              | Concrete Monolith, surface drainage areas                 | Visual inspection of Berm and Fencing and Grounds Maintenance<br>Visual Inspection of WMA ditch system and other drainage pathways identified in Storm Water Management plan<br>Visual Inspection of the Winnipeg River Bank in the vicinity of the WL site                                                                                                                                                                          | Semi-Annually                                                                                                                                                                                                                                                                                                                                            |
| Surface Water           | Winnipeg River                                            | Sr-90, Gross $\alpha/\beta$ , Tritium, Uranium, $\gamma$ -spec                                                                                                                                                                                                                                                                                                                                                                       | Daily to Weekly, monthly composite analyzed                                                                                                                                                                                                                                                                                                              |
|                         | WMA Ditches <sup>‡</sup>                                  | Tritium, Gross $\alpha/\beta$                                                                                                                                                                                                                                                                                                                                                                                                        | Periodically during ice free periods <sup>[2]</sup>                                                                                                                                                                                                                                                                                                      |
|                         | Landfill Dugouts                                          | Gross $\alpha/\beta$ , Tritium, Uranium, non-radiological                                                                                                                                                                                                                                                                                                                                                                            | Annually                                                                                                                                                                                                                                                                                                                                                 |
|                         | Primary Cell of the Sewage Lagoon                         | Gross $\alpha/\beta$ , $\gamma$ -spec                                                                                                                                                                                                                                                                                                                                                                                                | Prior to isolation from Secondary Cell and/or Discharge                                                                                                                                                                                                                                                                                                  |
|                         | Miscellaneous (manholes, excavations, sumps, catch trays) | Gross $\alpha/\beta$ , other parameters based on reference hazard                                                                                                                                                                                                                                                                                                                                                                    | Prior to pump-out                                                                                                                                                                                                                                                                                                                                        |
| Atmospheric Deposition  | Off-Site                                                  | Sr-90, Gross $\alpha/\beta$ , $\gamma$ -spec                                                                                                                                                                                                                                                                                                                                                                                         | Monthly                                                                                                                                                                                                                                                                                                                                                  |

<sup>[1]</sup> As the result of travel on gravel roads, sand blasting activities, use of gas powered vehicles, propane tanks, other CO<sub>2</sub> emissions, burn pile.

<sup>[2]</sup> Ditch locations are checked and, if water is flowing, are sampled after rain events greater than 5 millimetre of rain in a 24-hour period, preceded by at least 48 hours of no precipitation. Samples should also be taken during the spring (snow) melt and not more than weekly unless there is some operational concern that triggers additional sampling.

The proposed monitoring program for the WR-1 project includes the following:

**Physical Monitoring** – Physical monitoring will include semi-annual visual inspection of the WR-1 areas for subsidence, erosion, and animal or other intrusions with decreasing (or increasing) inspection frequency as the performance of the engineered controls are demonstrated. Maintenance activities will be performed as needed to repair damaged areas. A stormwater management plan is being prepared and maintained.

**Groundwater Sampling** – Semi-annual water level measurement and water quality measurements will be included in the Environmental Assessment Follow-Up Program (EAFP). The frequency of recurrence of water sampling will be reviewed based on performance data. The number and location of wells, and parameters measured, may change based on an annual review of the data. Testing will determine if any radiological or non-radiological contaminants are released from the Whiteshell Reactor 1 Disposal Facility (WRDF) and confirm if the concentrations of released contaminants are within the range predicted in the Environmental Assessment (which are concentrations well below established benchmarks for the protection of humans and the environment). No changes to groundwater are predicted to occur for the first 25 years based on the predicted contaminant transport in the Decommissioning Safety Assessment Report.

**Surface Water Sampling** – Surface water (Winnipeg River) and ditch system water will be sampled on a semi-annual basis at one upstream and two downstream locations as part of the EAFP. Frequency of recurrence will be assessed based on performance data.

**River Sediment Sampling** – Sampling of the river sediments will be conducted.

**Air Emissions Monitoring** – Passive tritium in air network monitoring (semi-annual change out) will be included as part of the EAFP. Monitoring locations (~4) will be selected to be within the main upriver and downriver windrose sectors, at the site boundary and on-site mainly to monitor airborne tritium plumes potentially originating from the entombed reactor.

**Soil and Vegetation Sampling** – Should the surface and/or groundwater results reach Environmental Effects levels, CNL would undertake additional monitoring including, but not limited to, soil, vegetation, fish, and wildlife. Remedial action plans will be prepared so that remedial action can be executed in a timely manner.

An Environmental Progress Report will be prepared each year and include a summary of the environmental monitoring results and the safety considerations of the waste left in-situ. Cessation of a monitoring activity would occur once it can be shown that an effect has stabilized or has been reduced to a level where it is no longer considered significant by regulatory requirements or community concerns. Any proposals on modifications to the monitoring program will be communicated to the CNSC.

It is CNL's understanding that Atomic Energy of Canada Limited (AECL), as the owner of the Whiteshell site, plans to contract CNL to provide the proposed follow-up monitoring program. AECL follows the federal government procurement rules related to conflicts of interest. These rules will be considered when establishing this service contract.

### **How often is monitoring done? How can us First Nations access the reports?**

Canadian Nuclear Laboratories (CNL) monitors the Whiteshell Laboratories (WL) site extensively throughout the year. CNL currently analyzes approximately 18,000 environmental samples per year. Any additional monitoring identified for the Whiteshell Reactor 1 (WR-1) project will be done over and above the current monitoring program.

WL Environmental Protection Program can be found in its series of annual reports that are publicly available. If you would like to be added to the distribution list for these reports, please contact Whiteshell Stakeholder Relations (alanna.wilcox@cnl.ca; (204)753-2311 ext. 63033). A summary of the annual report is also available on the CNL website:

<https://www.cnl.ca/en/home/environmental-stewardship/performance-report/default.aspx>.

### **How are you able to check radioactivity of reactor if it is entombed in concrete?**

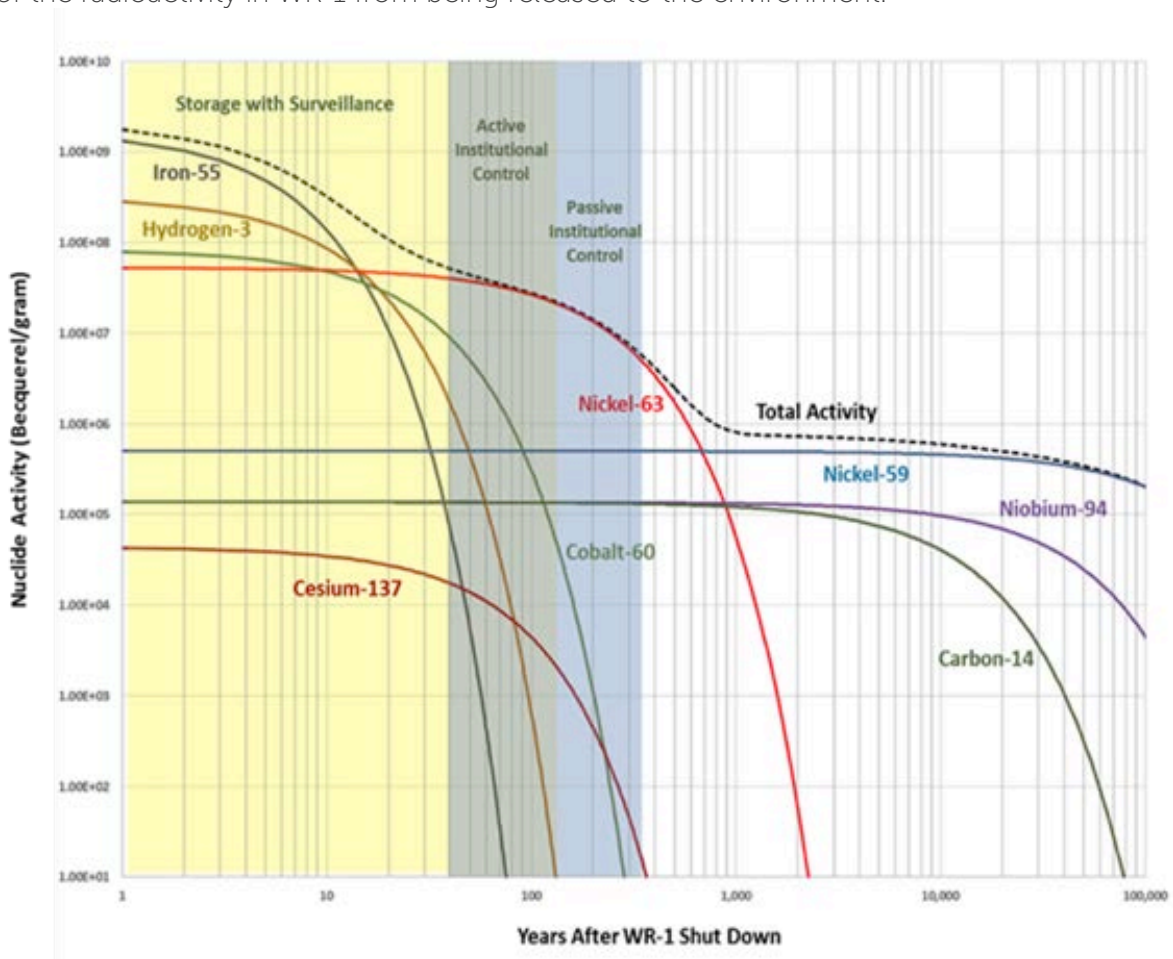
Canadian Nuclear Laboratories (CNL) is not planning to measure the radioactivity in the reactor components of Whiteshell Reactor 1 (WR-1) after they have been encapsulated in grout and the concrete cap and engineered cover has been put in place. CNL will monitor the groundwater around the Whiteshell Reactor 1 Disposal Facility (WRDF) for as long as the regulator determines is necessary to verify that the WRDF is performing as CNL expects. Therefore, CNL does not need to monitor the reactor components inside the WRDF.

WR-1 was shut down in 1985 and placed into storage with surveillance in 1995. The activity in the reactor

has been tracked for the past 34 years. The specific nuclides in the reactor components decay away at a known rate. In fact, over 95.5% of the activity in the reactor has decayed away since 1985. The total activity in the WRDF will be about  $1 \times 10^{15}$  Bq (or  $5 \times 10^7$  Bq/g; see the figure below) when the reactor is encapsulated in grout. A small amount of tritium (H-3) is expected to be released ( $< 0.002\%$ ) from the WRDF after about 90 years. This small tritium release will continue for another 60 years until most of it decays away.

After 150 years, carbon-14 (C-14) becomes the dominant potential release nuclide for the next 10,000 years. The other longer-lived nuclides (nickel-59 and niobium-94) shown in the figure are not expected to dissolve into groundwater. After 10,000 years, only about 0.112% of the C-14 originally in the WRDF in 2025 is released to the environment through the groundwater.

Totalling all the nuclides that might be released from the WRDF over the first 10,000 years, the maximum amount could be as high 0.03% of the total activity in the WRDF in 2025. The facility will prevent over 99.97% of the radioactivity in WR-1 from being released to the environment.



**How will you respond in the event if testing reveals unsafe radioactive levels in the area, or a failure of the entombed reactor? What is the response time and when will we be notified?**

Should groundwater testing in the vicinity of Whiteshell Reactor 1 (WR-1) indicate abnormal results, an investigation will be initiated. This investigation will include sampling and analysis to determine/confirm the source and the extent of the contamination. This will include sampling at additional locations and for several matrices (water, soil, sediment).

The impacted area could be mitigated through soil removal and/or treatment of groundwater (permeable active barrier) to the extent practical to minimize adverse environmental impacts. The need for removal of the structure/source of contamination would be considered.

The Environmental Assessment Follow-up Program for the site includes work tasks for the preparation of remedial action plans. This will ensure that remedial action can be executed in a timely manner.

CNL has emergency response plans in place, including notification protocols. CNL is open to discussions with interested parties on appropriate communication measures for such events.

**Did you get a second opinion on what levels are considered "safe"?**

CNL operates under a decommissioning license from the Canadian Nuclear Safety Commission (CNSC). The CNSC may consider the incorporation of international standards into their regulatory framework, but the CNSC maintains their own independent set of codes and standards that they consider appropriate for Canadian corporations. CNL must comply with these CNSC standards. Therefore, CNL has not considered any "second opinions" on safe radiation levels.

## Risk:

**Concrete is known to be fallible and have a limited life span. How will the in-situ decommissioning be affected by time, changes in the environment, and disasters (ie. Bank erosion, plane crashes, earthquakes)?**

As a result of aging, the concrete of the Whiteshell Reactor 1 Disposal Facility (WRDF) will break down over time until all of the cement is gone and the concrete becomes loose sand. Canadian Nuclear Laboratories (CNL) has modelled this process to predict the overall performance of the WRDF. It is important to note that CNL expects this process to occur and this is built into the engineering of the facility. Values used to model the concrete were based on literature reviews and were conservatively made 50 to 100 times less effective. To explore the effects of concrete break-down on in-situ decommissioning, several sensitivity analyses were performed including, but not limited to:

- Halving the time to for break-down to occur
- Decaying the concrete to native soils in 100 years
- Assuming the existing building walls and floor are just native soil, instead of thick concrete

Because a large portion of the radioactivity is contained within the metals of the reactor which have slow corrosion rates (17,780 years to 635,000 years to fully corrode), the break-down of concrete has a minimal effect on the containment.

Changes in the environment including temperature changes, extreme rainfall, flooding, heavy snowfall, extreme tornadoes, wild fires, earthquakes, climate change, and glaciation have been assessed for their impact. For a full assessment of environmental effects on the project, see Section 10 of the project's Environmental Impact Statement (EIS) which can be found at the following website:

<https://ceaa-acee.gc.ca/050/evaluations/document/120753?culture=en-CA>

Bank erosion could reduce the distance between the WRDF and the Winnipeg River and as such, will reduce the time it takes for contaminants released from the WRDF to make it to the river. A similar scenario, where the time it takes for contaminants to travel from outside of the WRDF to the river was reduced, was assessed as a sensitivity analysis. Because a large portion of the radioactivity is contained within the metals of the reactor which have slow corrosion rates (17,780 years to 635,000 years to fully corrode), the WRDF is still safe if significant bank erosion were to occur.

Both plane crashes and earthquakes have a low probability of occurring as the area of the WRDF is relatively small (100 ft by 85 ft) and Manitoba is the least earthquake-prone area in Canada. Additionally, if either of these disasters were to occur their damage would not affect the reactor.

**How can you be certain that there isn't a risk to us, the land, the water, and the air? If workers are tested for radioactivity, doesn't this mean it is dangerous?**

Canadian Nuclear Laboratories (CNL) operates under a decommissioning license from the Canadian Nuclear Safety Commission (CNSC). As part of that license, CNL is required to monitor all workers and ensure radiological doses to workers are maintained below regulatory and administrative limits and kept as low as reasonably achievable. CNL has been compliant with these requirements throughout its decommissioning activities to date.

The Environmental Impact Statement (EIS) being submitted to the CNSC describes the potential risks associated with in situ decommissioning (ISD) Whiteshell Reactor 1 (WR-1). The proposed decommissioning approach will be considered complete by the Regulator when:

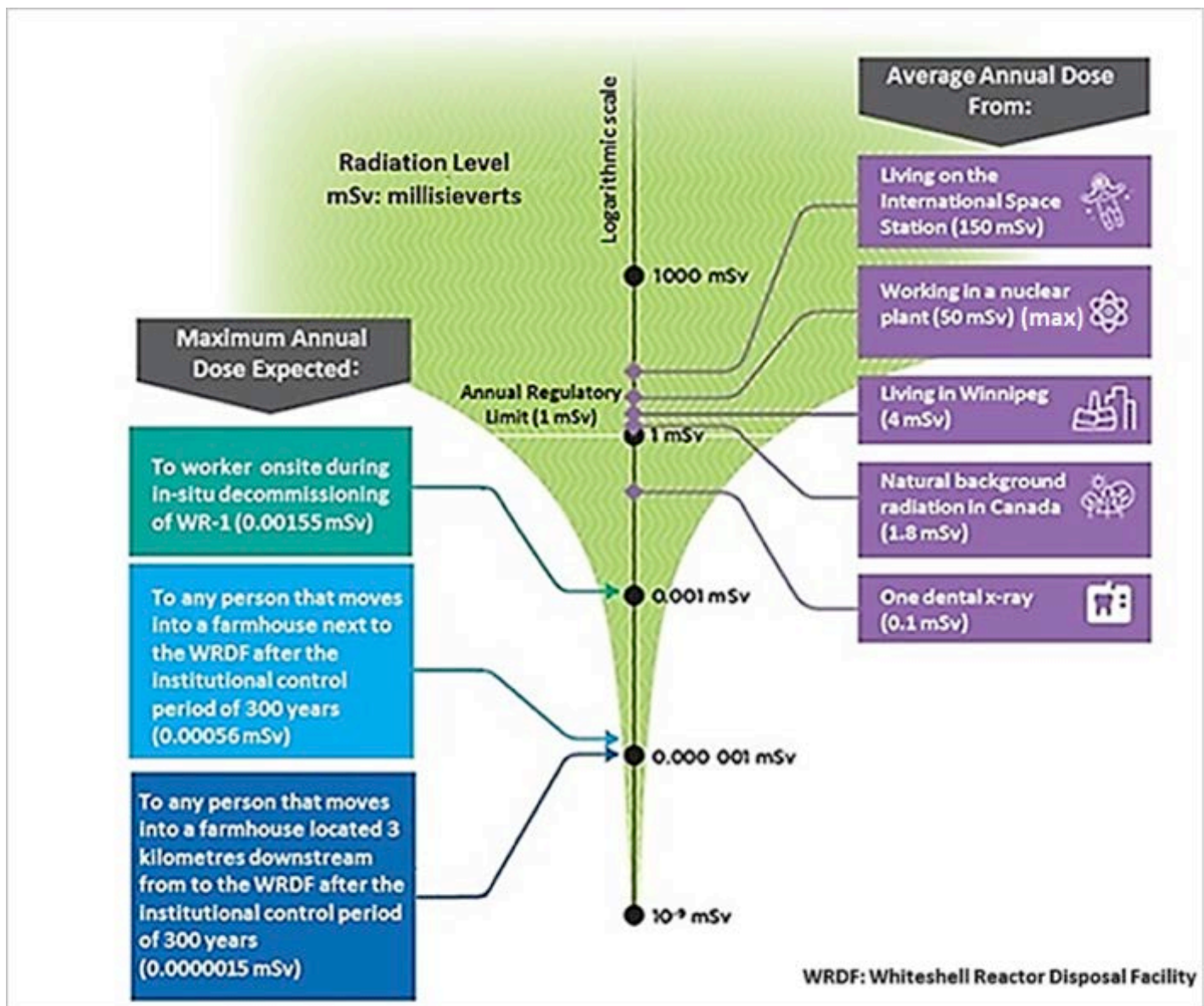
- WR-1 is permanently decommissioned in a manner to protect the health, safety, and security of workers, the public, and the environment. The Project:
  - is designed to a target dose rate to members of the public below 0.25 mSv/a for the long-term expected evolution of the site (i.e. does not include human intrusion), which is below the average Canadian individual background dose rate of 1.8 mSv/a;
  - is designed to a target dose to the public and to workers performing the decommissioning that is consistent with ALARA (as low as reasonably achievable) principles; and
  - has demonstrated long-term safety through a consideration of site characteristics and engineered design features.
- Passive engineering features (containment, sealing, structural stability, and design) are installed to:
  - contain the waste inside the reactor vault until most of the radioactivity, especially that associated with short-lived radionuclides, has decayed;
  - isolate the waste from the biosphere, preventing inadvertent human intrusion into the disposal facility;
  - delay migration of radionuclides to the biosphere until a time when most of the

- radioactivity has decayed; and
  - confirm radiological effects to the biosphere from migration at peak impact are acceptably low.
- Ongoing environmental monitoring program is established.
  - The project site is prepared for institutional control.

CNL's confidence in the project plan is based on our understanding of the science associated with decommissioning, our 50 years of experience in operating nuclear reactors and managing the associated radioactivity, and comparing the project to other decommissioning projects around the world. CNL has attempted to provide all the needed information in the EIS and associated documents to allow the public to understand what is proposed and to evaluate and compare the risks of the plan to the other decommissioning options for WR-1. The Whiteshell Reactor 1 Disposal Facility (WRDF) end-state has been summarized below to further help you evaluate our proposal.

### **Radiological End-State**

No members of the public are expected to be exposed to a dose above 0.001 mSv/year at any time, as a result of the WRDF. The dose from the WRDF to local residents after the 300-year institutional control period is less than 0.00006 mSv/year. Disruptive events, such as failure of the WRDF and the digging of water wells near the WRDF, were shown to raise this expected dose to about 0.25 mSv/year for the local public groups (farming and living on-site). Note that the Canadian dose limit is 1 mSv/year. Disruptive events are plausible, but unlikely to occur. The expected annual dose to workers at the WRDF is less than 0.1% of the typical background radiation level in Manitoba.

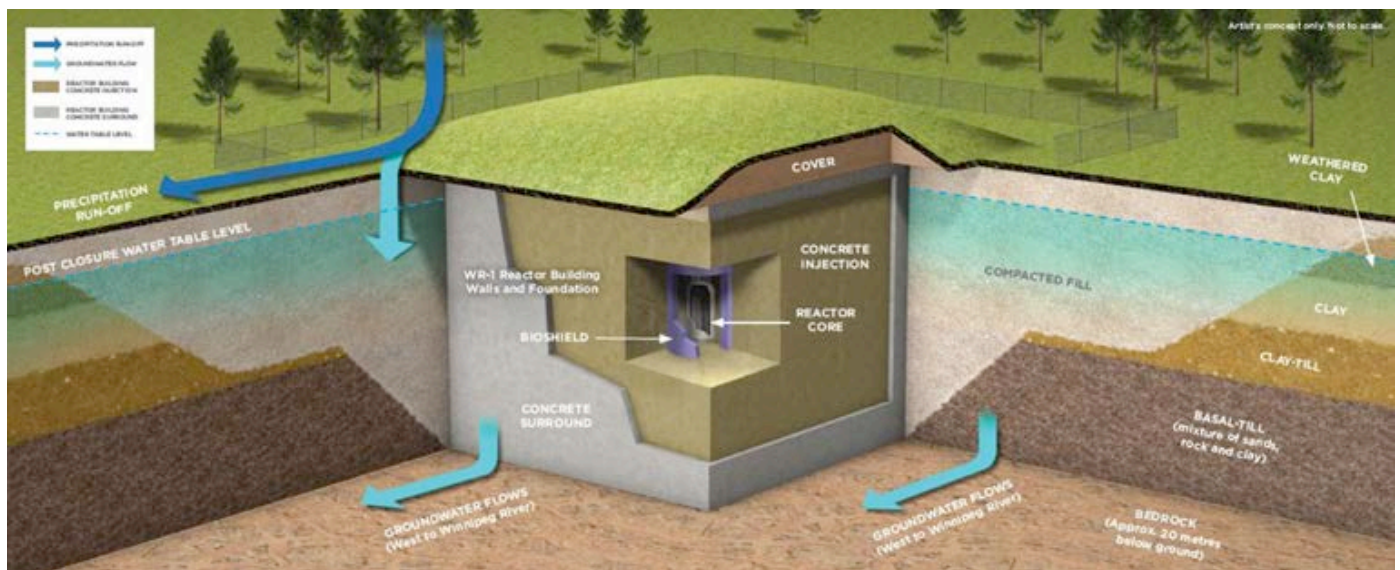


## Physical End-State

ISD uses multiple barriers to contain the waste in the WRDF, as shown in the following figure.

The first barrier is the reactor components and piping. Most of the remaining activity in WR-1 is from the activated metals of the reactor core. These metals will take 17,780 years to 635,000 years to corrode, impeding the release rate of contaminants.

The second barrier is the thick (approximately 2 m), concrete biological shield surrounding the reactor core. This heavy concrete isolates the reactor and limits the release of contaminants.



The third barrier is the reactor building itself. Reinforced concrete makes up the thick walls and floor (approximately 1 meter thick) of the WR-1 building.

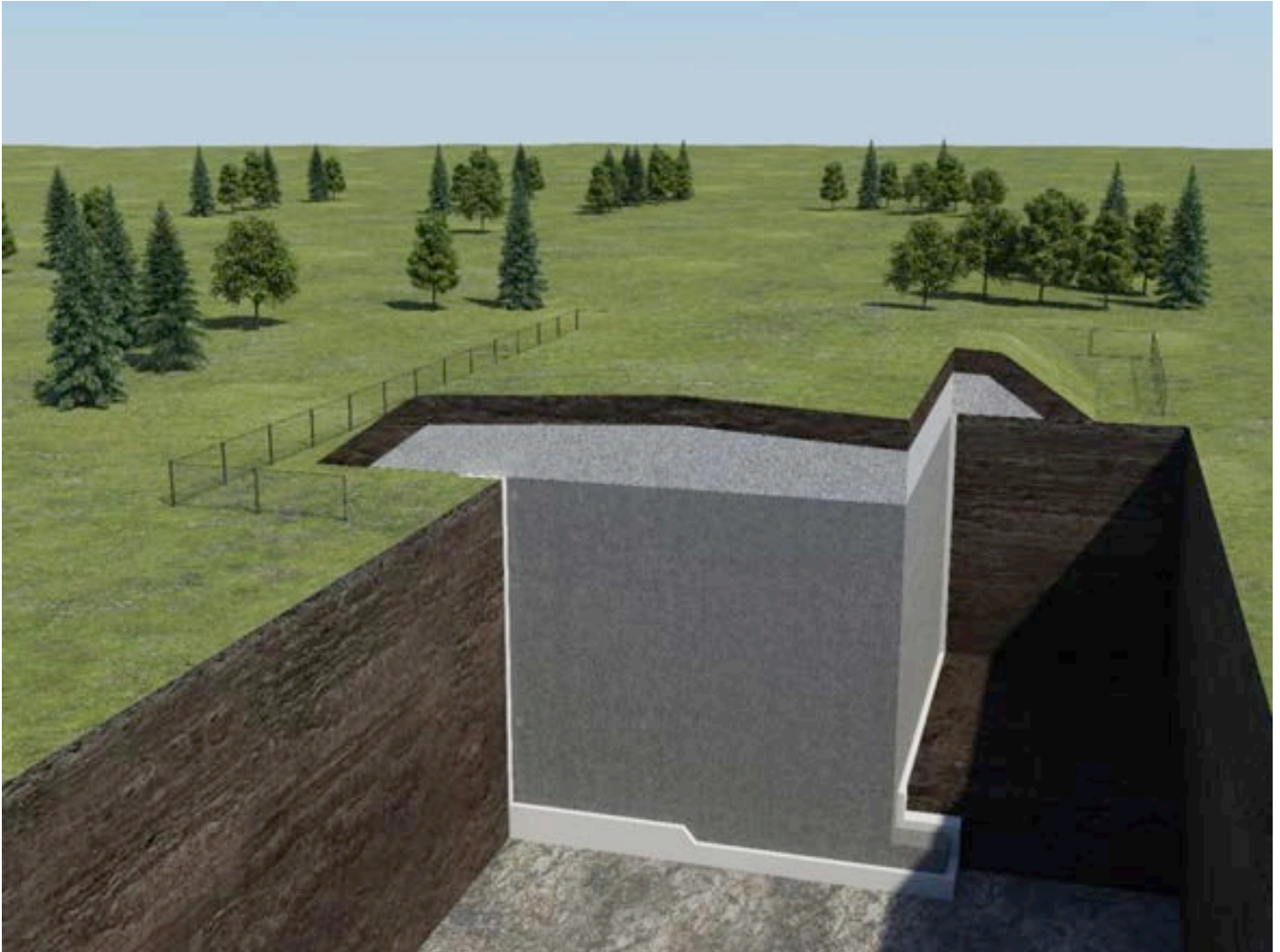
The fourth barrier is the engineered cover that will be installed over the WRDF. This cover will minimize water ingress, prevent access, and prevent intrusion by plants and animals.

The final barrier is the geology of the region, which is rich in clays and limits the rate of groundwater movement. The primary pathway for release of contamination from the WRDF is by groundwater that has infiltrated into the grouted structure, picked up contamination, and then carried it out of the structure to the surrounding environment.

Though not considered a barrier, the concrete grout that will fill all major void spaces in the reactor facility surrounding the reactor vault will further slow the release of contaminants. Approximately 10,000

cubic meters of grout will be used to provide structural stability.

The final end-state of the WRDF is depicted in the following figure.



### **What is the danger in removing the reactor if all the contaminated fuel is already extracted?**

Even though the reactor has been defueled, 20 years of operation has caused the metals and concrete of the reactor vault, which contains the reactor, and reactor systems to become contaminated.

Removing the reactor will require:

- Workers to spend more time in these contaminated areas, being exposed to more radiation.
- More cutting of contaminated systems that can cause contamination to become airborne which is more hazardous in terms of worker safety and limiting releases to the environment.
- More transport of contaminated materials which increases the likelihood of a transport accident which may cause releases to the environment.
- More asbestos remediation, hoisting/rigging work, working in confined spaces, working from heights, and other general decommissioning work place hazards.

All of the above work can be completed safely while keeping releases to the environment below the regulatory requirements, but the large amounts of work required make it more dangerous.

### **Which option is safest (short and long term) and most cost effective: to entomb the reactor or to dismantle it?**

In the short-term, entombing the reactor is the safest option. Dismantling the reactor will require the following additional risks:

- Workers to spend more time in these contaminated areas, being exposed to more radiation.
- More cutting of contaminated systems that can cause contamination to become airborne which is more hazardous in terms of worker safety and limiting releases to the environment.
- More transport of contaminated materials which increases the likelihood of a transport accident which may cause releases to the environment.
- More asbestos remediation, hoisting/rigging work, working in confined spaces, working from heights, and other general decommissioning workplace hazards.

In the long-term, both entombing the reactor and dismantling the reactor are equally safe. Dismantling the reactor relies on the assumptions that a future disposal facility will be constructed and that it will meet the applicable Canadian standards and regulations. Entombing the reactor does not rely on a future disposal facility and has been shown to meet the safety standards currently in place.

Entombing the reactor is the most cost effective option. Entombing the reactor is estimated to cost 1/3 of that to dismantle the reactor. Waste storage resulting from dismantling will require additional costs.

### **What are the risks to removing hazardous used fuel off site? What if something breaks?**

Canada is one of the major producers of nuclear substances (radioactive material) in the world and has an excellent safety record for the transport of radioactive material. More than a million packages containing radioactive material are transported safely in Canada each year. The responsibility for regulating safe transport of nuclear substances is jointly shared between the Canadian Nuclear Safety Commission (CNSC) and Transport Canada.

Transport Canada's Transportation of Dangerous Goods (TDG) regulations deal with the transport of all classes of dangerous goods, while the CNSC's Packaging and Transport of Nuclear Substances (PTNS) regulations are primarily concerned with health, safety, and security of the public, and protection of the environment related to the special characteristics of radioactive material. Both the TDG and PTNS regulations apply to all persons who handle, offer to transport, transport, or receive nuclear substances.

All industrialized countries use the International Atomic Energy Agency (IAEA) TS-R-1, Regulations for the Safe Transport of Radioactive Material as the basis to regulate the packaging and transport of radioactive material. Through the PTNS regulations, the CNSC regulates all aspects of the packaging of radioactive material including the design, production, use, inspection, maintenance, and repair of packages. The CNSC also regulates all phases of transport from the preparation of packages for shipment until unloading at the final destination.

### **Safety of Transport Package Design**

The basic philosophy that has guided the development of the CNSC regulations is that safety relies heavily on the design of the transport package. Package designs are combined with additional regulatory controls including labelling, placarding, quality assurance, and maintenance records, and allow for radioactive material to be carried safely in all modes of transport such as road, rail, air, and sea transportation.

All nuclear substances are transported in packages that are selected based on the nature, form, and quantity or activity of the substance. There are general design requirements that apply to all package types to ensure that they can be handled safely and easily, secured properly, and are able to withstand routine conditions of transport.

## **Certified Packages**

Packages designed for the transport of high-risk levels of radioactive material require certification by the CNSC before they can be used in Canada. Persons must register their use of the package with the CNSC and acknowledge that they have the necessary training to properly prepare it for shipment. These packages are required to undergo stringent testing since improper handling of their contents can give rise to severe consequences. Testing must simulate both normal and hypothetical conditions of transport and can include free-drop testing, puncture testing, thermal testing, and simulated aircraft accidents. These packages are designed to transport used nuclear fuel.

## **Emergency Preparedness**

Current regulations don't allow the public disclosure of security information on the location, routes, and timing of shipments, nor any security arrangements or procedures specific to the transport of certain types of packages. This type of information is considered prescribed and is limited to persons who have a legitimate need to know, such as police response forces.

Under the PTNS and the TDG regulations, the shipper must have measures in place to respond in the event of an emergency involving the transport of their radioactive material. In addition, the TDG regulations require the shipper to display a 24-hour emergency telephone number on the shipping document that accompanies a shipment of dangerous goods. The purpose of these requirements is to ensure that appropriate technical assistance is immediately available to initial emergency responders.

The PTNS regulations require that all incidents be immediately reported to the CNSC. Once notified of a transport incident involving radioactive material, CNSC transport staff will follow up to provide appropriate technical information and advice to responders onsite. CNSC staff can be deployed immediately, if needed, to assist in managing the incident.

## **Compliance with CNSC Regulations**

CNSC inspectors do regular compliance verifications to ensure that licensees and carriers comply with the PTNS regulations. They verify proof of training for transport workers, review transport documents, and inspect packages to ensure they are prepared for transport in accordance with regulations. If a licensee or carrier is found to be non-compliant with these regulations, the CNSC uses a graded enforcement approach for the implementation of corrective measures. The CNSC remains committed to ensuring the health, safety, and security of the environment and the Canadian public.

The risks of transporting radioactive waste are small, but are not zero. CNL adheres to provincial permits,

licenses, or other authorizations required for the management of hazardous non-radiological wastes. CNL's Whiteshell Laboratories is registered with the Manitoba Government as a Waste Generator and as such is required to abide by Dangerous Goods Handling and Transportation Act (Manitoba), R.S.M. 1987, c.D12 and the regulations under the Act. This includes the management of hazardous non-radiological waste under the Hazardous Waste Regulation (195/2015). All fuel is shipped using approved Type B shipping containers, specifically designed for reactor fuel bundles.

WR-1 has no used fuel within it. All fuel was removed by the mid-1990s and stored at the Waste Management Area in concrete canisters. Plans are now in place to ship this fuel off-site over the next few years.

## Appendix C: Study Methodology

The following work plan is based on integrated participation of BRFN, BON, HWFN and Professional Support to successfully carry out the various components of The Study.

**Task 1: Project Start-Up will include:**

- A project start-up meeting to review the TK proposal and initiate the upcoming tasks.
- Identifying and hiring a Community Coordinator for each community

**Task 2: Workshop Preparation & Background Research will include:**

- Review of background documents: Obtain and review background documents, historical materials, and other studies. This information will provide important context for the traditional knowledge study and will contribute to the analysis of interview and workshop materials.
- Community Invitation and Project Summary: With input from the Project Manager, HTFC will prepare a community invitation and project summary to explain the background of the traditional knowledge study, as well as a letter of invitation to members to participate in the work. The project summary will also include information about the project's commitment to confidentiality, ownership, and access to information. Invitations will be finalized and distributed with the aid of the Community Coordinators.
- Preparation of workshop materials: With input from the Project Manager, HTFC will develop TK study materials for workshops including:
  - A group interview guide
  - Base maps for use during workshops

**Task 3: Elders' Meetings Preparation**

The Project Team will work together to plan and coordinate meetings with elders and resource users in each of the three communities.

**Task 4: Elders Meetings Facilitation**

HTFC and the Community Coordinators will facilitate discussions and be responsible for asking the questions and marking sites, routes, and areas on a topographic map and in notes. A local translator/helper will be hired to provide translation and assistance during the meetings, if required.

Mapping methodology will include conventional land use and occupancy techniques to represent activities, resources and important places as sites (points), routes (lines), and areas (polygons) according to predetermined themes. Spatial information will be recorded on 24" x 36" NTS base maps, and corresponding notes will be recorded providing details about each item marked on the maps.

### **Task 5: Initial Multi-Community Workshop**

An initial workshop will be held in Brokenhead to present the study and project information to the three communities, hear from CNL and CNSC, and begin documenting traditional knowledge relevant to the project.

The workshop will include an introduction to the Traditional Knowledge Study facilitated by HTFC. CNL and CNSC will be invited to offer an introduction to the nuclear decommissioning project and assessment process. They will attend the morning portion of the workshop. In the afternoon, knowledge holders will form breakout groups to begin documenting their perspectives. Large base maps will be available to each breakout group to document spatial information. Handwritten notes will also be made to summarize key points. Translation, if necessary, will be provided by a local translator/helper.

The research team will document all comments, concerns, and spatial information arising out of the workshops. Base maps and questions will be re-visited after the initial workshop and adjustments may be made, if needed.

### **Task 6: Digitize Workshop Materials**

HTFC will type the workshop and meeting notes and input the spatial data into the project GIS (Geographic Information System). Information recorded on interview maps will be digitized and entered into the GIS database as a digital shapefile in ArcGIS software.

### **Task 7: Analyze, and Organize Findings**

Once digitized, information from multiple interviews will be organized for display on report maps. Within the shapefile, each point, line, or polygon on a map will be cross-referenced with the interview notes that capture the significance of the marking as shared in the original interview.

HTFC will conduct an initial review and organize the information documented during the interviews. Coding will help to identify key messages, themes, questions, or contradictions within the information collected. Key findings will then be prepared for review with the Community Leads and Community Coordinators prior to inclusion in the draft TK study report.

### **Task 8: Prepare Preliminary Draft Traditional Knowledge Study Report**

HTFC will prepare a Preliminary Draft Traditional Knowledge Study Report, which will be shared with the communities to review. This draft report will provide a summary and analysis of information shared by

local knowledge holders. The report is expected to include text, quotes, and maps. The text is expected to:

- Provide a detailed description of the approach, methodology, and study design employed in the study;
- Summarize background information, cross-referencing any previously recorded knowledge and on-going projects;
- Present information relevant to historical and current environmental conditions in the project area;
- Document historic and current land use in the area;
- Present specific concerns and mitigation measures relevant to the WR decommissioning project.

Maps will be developed for the Preliminary Draft Report. Draft maps will be carefully reviewed with the communities to confirm that any information included in the final report is suitable for public distribution.

### **Task 9: Final Multi-Community Workshop**

To close out the project, a final multi-community workshop will be held in Black River, MB, in anticipation of the hearings for the decommissioning project. All knowledge holders interviewed during the project will be invited, as will Chief and Councils and other interested community members. CNL may also be invited to listen to presentations and answer any questions.

The Project Team will present preliminary findings and seek input from participants about key issues, themes and perspectives arising out of the interviews. Translation, if necessary, will be provided by a local translator/helper.

Note: This workshop may be held before finalizing the project report, depending on the guidance of the project team.

### **Task 10: Finalize Report**

HTFC will incorporate feedback on the Preliminary Draft Report into a final TK Study Report. The final report will be circulated to the Community Leads and Community Coordinators to share with their Band Councils. Once the document has been approved, the final report will be submitted to the CNSC.