



# 2005 Annual Environmental Agreement Report



June 2006

# EXECUTIVE SUMMARY

The Parties to the Environmental Agreement include the Tlicho Government, Yellowknives Dene First Nation, North Slave Metis Alliance, Kitikmeot Inuit Association, Lutsel K'e Dene First Nation, the Government of Canada, the Government of the Northwest Territories, and Diavik Diamond Mines Inc.

This report is written each year to meet the needs of Article 12 of the Environmental Agreement. It gives information about Diavik Diamond Mine's activities in 2005 and plans for 2006, to the affected communities and to the Parties to the Environmental Agreement. Each year, Diavik is supposed to arrange meetings in the communities to talk about this report. This is written in the Environmental Agreement.

## **The Environment**

The Diavik Diamond Mine site at Lac de Gras is about 100 km north of the treeline in the Northwest Territories. Lac de Gras is a large lake that empties into the Coppermine River, which flows north to the Arctic Ocean. The lake is 60 km long, and is an average of 16 km wide and 12 meters deep. At the deepest spot, it is 56 meters. Like many arctic lakes there are not many fish or plants in it. This is natural because there is not much food or light in the winter months because ice covers the lake for a long time, and the water is cold. There is not very much rain or snow here and the wind is calm on most days. The lake freezes up in October, and it thaws in late June or early July.

The land near the Diavik mine site is the home for a lot of wildlife. There are 84 kinds of birds and 16 kinds of animals in this area. Some of them stay the whole year and some just come for the summer. Some of the ones that stay are wolverine, red fox, arctic hare, arctic ground squirrel, red-backed vole, brown lemming and rock ptarmigan. The Bathurst caribou herd travels in the area near Lac de Gras. Some of the herd passes through this area in the spring and fall during migration. Wolves following these caribou den in the area during summer. Grizzly bears also travel in this area.

## **The Diavik Diamond Mine**

The diamonds at Diavik are found in kimberlite pipes underground, just off the shores of East Island in Lac de Gras. Large dikes are built to hold back the water of Lac de Gras, so that Diavik can safely mine the diamonds from the bed of the lake. The A154 dike was completed and mining started in late 2002, and construction of the A418 dike was started in the summer of 2005.

2005 was the third year that Diavik was busy in full operations. Right now, Diavik is using open pit mining methods, and then will switch to underground mining if a research study determines it will work well and safely. This would allow almost all of the diamonds to be mined from the kimberlite pipes. For open pit mining, trucks run day and night. They take kimberlite rock to the processing plant, where diamonds are separated from the kimberlite. If and when underground mining starts, smaller equipment will bring rock and diamonds to the surface.

Diavik is made up of various facilities for workers and for operations. There are rooms for accommodations, dining rooms, offices, water and sewage treatment plants, a waste facility, maintenance shops, a power plant and an airstrip.



Each winter, a 350 km ice road is built so supplies can be brought up to the mines in the region. This has been done for the last 20 years or so, and the ice road is very important for restocking the supplies at Diavik.

Many activities happened during 2005 at the mine. Diavik produced about 8.3 million carats of diamonds during the year. An application was submitted for the renewal of the water license which will expire in 2007. Some important physical changes also took place - the new dike around the A418 kimberlite pipe was started in 2005. The rock was all placed for the dike, and it will be finished and sealed off in 2006. Also, a decline (or tunnel) was started and will gradually get deeper into the ground towards the A154 north and south and the A418 pipes. This tunnel will be used to find out if it is practical to finish mining the kimberlite from underground. Another tunnel will help us collect a sample from a pipe called A21.

### **Adaptive Management**

Diavik has several plans, programs and policies in place to help protect the environment, but also uses something called Adaptive Management to help improve environmental performance. Adaptive management means that we use our past experiences to improve on how we do things in the future. Another way to describe adaptive management is that we start an activity or a program, and then we monitor how it works for us. Then, based on that information, we might adapt or change the way we do it in the future to make it work better. As an example, lessons that we learned from building the first dike (A154 dike) were included in plans for the second dike (the A418 dike) that was built this past summer. Screening and washing the filter blanket before placing it along the A418 dike was done - this washing reduced the amount of fine material being suspended in the water column. Another example would be changing our procedures on orientations at the mine site to make sure that everyone, even our contractors, is aware of how we manage our waste. There are other examples of adaptive management that are listed in this report.

### **Environmental Management System (EMS)**

In 2003, Diavik developed a system called an Environmental Management System, or EMS, that helps with reducing the environmental impact of what we do at the mine. This EMS is certified to a standard called ISO 14001, which is known around the world. In 2005, Diavik's EMS had to be tested by auditors to make sure it still meets the Standard. We passed this checkup, and our EMS is still working well for us. The system includes a lot of things that we've always had, such as procedures for our operations, environmental plans and programs, and tools like communication plans and tables of all the environmental records we keep. It is nothing new, just an organized way to make sure we are continually improving the way that we manage the environment. Having the system certified is just a way to show that people outside of Diavik agree that our system meets international standards. In a way, our Environmental Management System is another way that we practice adaptive management, because it encourages us to improve on the way we do things based on our environmental monitoring.

### **Diavik and the Environmental Monitoring Advisory Board (EMAB)**

The Environmental Agreement was signed in March 2000, and it contains several clauses that outline the responsibilities of Diavik, Aboriginal governments, and the federal and territorial governments. It outlines Diavik's environmental commitments, and also says that an advisory board needed to be formed. As a result, EMAB was created - a board that is separate from

Diavik or the other Parties that signed the Agreement. EMAB has one representative from each of the parties that signed. The Board's goal is to work with the communities to provide Diavik with comments and advice on environmental issues at the mine. EMAB also monitors Diavik's activities as well as the government Regulators - recommending changes when they feel it is appropriate.

One part of the Agreement says that Diavik must write this Environmental Agreement Annual Report, and also says what sections must be included in the report. Many parts of the report have summaries of other environmental reports and programs. There are also sections on activities at Diavik, public concerns, a comparison of environmental effects to what was predicted, new ideas that Diavik is looking into, and a record of Inspectors' reports.

## Monitoring Programs

Diavik has different plans and programs to check how healthy the environment is in the area around the mine. Below is a short summary of results from our monitoring programs from 2005. There is more detail on each of these in the main part of this report.

### Wildlife

Under the Environmental Agreement, Diavik conducts a Wildlife Monitoring Program. This program was created to collect information about animals in the area to see if they are affected by the mine being operated. Some of the things we noticed and concluded or recommended from monitoring in 2005 were:



*Caribou on the tundra*

- During 2005, the area of vegetation and habitat lost due to the mine was 0.84 square kilometres. This was within the expected amount from the Environmental Assessment.
- The habitat loss for caribou was within the expected amount in 2005, and no caribou died or were injured near the mine during the year. Diavik will keep doing aerial caribou surveys because the surveys give information about changes in behavior as well as movement and number of caribou in the area. In 2005, a total of 28 caribou were seen on East Island on 20 different occasions from April to September. They were always seen in groups of one or two animals.
- The grizzly bear habitat lost was also within the predicted amount, and no bears were killed, injured, or relocated during the year. The number of bears on the Island reported to Environment staff from May to October 2005 was 60, but it is important to note that the actual number of bears on site is unknown because the same bears were observed more than once at different times.
- Wolverines were still on East Island in 2005 and no wolverines died, were injured or moved because of mining in 2005. Diavik will keep checking wolverine tracks in the snow to see how many there are and where they travel. During 2005, 41 sightings were reported but many of these were the same animal being sighted at different times.
- During 2005, no peregrine falcon nests were productive within the study area. A pair of peregrine falcons made a nest on the high wall of the A154 pit. No peregrine falcons died because of the mine in 2005.
- Compared to the Environmental Assessment predictions, the waterfowl habitat loss was within the expected amount for 2005. The habitat was lost due to the A418 dike being built. Waterfowl were seen at the East Island shallow bays and the waterfowl are still using the

wetlands that have been changed by the mine on the Island.

- Waste inspections were conducted every second day in 2005. Food and food packaging were found during many inspections at the Waste Transfer Area and the inert landfill. Because these are wildlife attractants, a lot more effort was put into awareness sessions for old and new staff at the mine. Inspections of the waste facilities will continue.

### Dust

In 2005, dust measuring continued around the Diavik mine site. Diavik does snow surveys every spring, and the sampling for this part of the dust program includes melting the snow and testing for water chemistry and for the amount of dust in the snow. Diavik also collects dust particles to see if there are patterns in the amount and location of dust near the mine.

As it was predicted, dust deposits are greater closer to the mine operations and become less further away from the mine operations. Snow survey sampling and dust monitoring both showed an overall increase in annual dust deposition from 2004 to 2005. The rate of dust being deposited was affected by activities in the area as well as by wind direction.

Overall deposition rates observed during 2005 were a lot more than what was predicted by models in the Environmental Effects Report. The predictions, however, were based on normal air quality at that time that the predictions were made and did they did not consider construction periods which occurred during 2005. It is expected that dust will be less as construction slows down and ends. Dust monitoring will continue in 2006.

### Aquatic Effects

Diavik continued to do the Aquatic Effects Monitoring Program (AEMP) in 2005. This is the fourth year of aquatic effects monitoring and it is required for Diavik's water license. At the time of submitting this Environmental Agreement Annual Report, the AEMP report for 2005 was not yet released due to activities that occurred in 2005 related to the Program.

Two meetings with the Diavik Technical Committee (DTC) took place, and the AEMP was reviewed by the Mackenzie Valley Land and Water Board (MVLWB). The DTC reviews focused on the baseline data, the quality of the data considering how analysis was able to be done 10 years ago, and how the data was used in the AEMP. The DTC agreed to work as a group to address issues with the AEMP. In December 2005, technical sessions were held by the MVLWB as part of Diavik's Water License Renewal review. Issues were again raised with the AEMP, and different ways of doing the AEMP were suggested for revising it. To respond to direction from the Wek'èezhìi Land and Water Board (WLWB, the new Board formed under the Tlicho Agreement), Diavik prepared and submitted a revised AEMP in March 2006. This is now being reviewed and will be considered more at public hearings in September 2006.

The 2005 AEMP Annual Report will be submitted at a later date with all the results from monitoring done in 2005.

### Fish

In August of 2005, Diavik provided funding for EMAB to hold a Fish Palatability and Texture Study at Lac de Gras. The study took three days and included people from the Lutsel K'e Dene First Nation, North Slave Metis Alliance, Kitikmeot Inuit Association and Yellowknives Dene First Nation. Participants collected and tasted the fish,



*Fry from Lac de Gras*

and fish was also sent out for scientific testing. This study was originally going to be done every five years but people in the 2002 study suggested that it be done every year so it was changed.

34 lake trout were caught and four of these were tasted. All participants agreed that the fish from Lac de Gras tasted good as it has in past years when this was done. The scientific testing results were the same as the results from the community participants - the fish from Lac de Gras that were sent for analysis were healthy.

A Turbidity Monitoring program was also done for the A418 dike construction in 2005, and the report for this was submitted to the Department of Fisheries and Oceans (DFO). A fish habitat assessment was done before dike construction (spring 2005) and another will be done after construction is done (August 2006) - the report for this will be written after August. A Fish Health and Population Estimate study was also done in September of 2005 with help from two technicians from Kugluktuk. Right now the data is being put together and the report is being written. Finally, a Fish Habitat Utilization study was done in 2005 and this report is being written right now. It will be submitted this summer.



*Construction of the A418 dike*

### **Submissions Made by Diavik**

During 2005, Diavik sent many reports in to the regulators such as the Mackenzie Valley Land and Water Board, the Department of Fisheries and Oceans, and Environment and Natural Resources. The main part of this report gives a summary of each of these other reports and plans.

### **Ammonia Management**

In May 2003, Diavik notified EMAB and regulators about concerns with ammonia levels (resulting from using explosives) in water being pumped from the pit. Although measured ammonia concentrations were well below levels those known to cause environmental effects, they were higher than predicted. The higher than predicted levels were important because the effluent quality limit for ammonia in the Water License was based mostly on these original predictions. Measured levels showed that these limits could not be achieved.

Diavik applied for an amendment to the Water License and suggested mediation involving communities and regulators instead of a hearing, to allow more effective technical discussions. The result of the mediation was a temporary increase in the effluent quality limit to allow further studies on water management and treatment options. This led to the development of an Ammonia Management Plan and a final effluent quality limit. The commitments from the mediation agreement are almost completed and the WLWB has said that the Ammonia Management Plan and final effluent quality limit for ammonia will be considered more at the public hearings in September 2006.

### **Operations Activities**

It was a very busy year for Diavik in 2005. Diavik began the portal (tunnel) for underground mining, and the winter road had a successful season with a total of 7607 truck loads being

hauled up. EMAB came up on the winter road for a visit in March. Later in the year, the A418 dike construction began after a curtain was put in the water to keep sediments in, and crushing of rock for the dike took place during the year. A new pond (Pond 14) was also constructed, and work also began on Pond 2. Construction of a new haul road began in the fall. Diavik had ISO 14001 audits and a Rio Tinto Health, Safety, and Environment audit during the year.

Regular sampling was done for Diavik's water license requirements and samples were also collected for the Dust Monitoring Program during the year. Wolverine track surveys were done in March and December, and Diavik took part in a joint study on wolverine hair DNA analysis. From spring through to fall, aerial surveys and ground observations were done for caribou in the area. Sampling for the Aquatic Effects Monitoring Program was done in May and in August/September. Observations were made of waterfowl around the mine from May to October, and researchers returned to continue studying revegetation at the mine site.

Community-Based Monitoring Camps were held in July and August for Water Quality Monitoring, Caribou Monitoring and Fish Palatability and Texture. Diavik also participated in falcon observations and grizzly bear habitat surveys during these months.

### **Public Concerns**

Diavik did not receive any communication or concerns from the public during 2005, related to the mine. However, Diavik did receive communication from the Environmental Monitoring Advisory Board during the year and a summary of all of this communication can be found in the main part of this report.

### **Technology**

During 2005, Diavik investigated some new ways of doing things at the mine. Using wind as a source of energy was something that continued to be looked into, as it was in 2004. Also, research was done on installing extra heaters near the engines of the large haul trucks, so that the drivers could turn the trucks off during breaks and shift changes and still have the truck start again when they come back. In the winter this would help reduce fuel burned and reduce greenhouse gases.

### **Results of Monitoring Compared to Predictions**

The section later in this report, called the Rolling Effects Summary, looks at the predictions that were made for many areas related to the environment. This section gives an idea of how Diavik is doing compared to the predictions, in 2005 as well as the bigger picture since the monitoring started. This section talks about predictions related to Climate and Air Quality, Vegetation and Terrain, Wildlife, and Fish & Water.

Of all the comparisons to predictions, the only one that showed results higher than what was predicted was dust. The amount of dust deposited in 2005 was higher than in past years and higher than predicted, but it is important to note that the predictions did not take into account extra activities such as the construction of the A418 dike that took place during the year. Dust levels are expected to return to lower levels in the coming years as these kinds of activities decrease.



*Flora near the Diavik site*

## Compliance

In 2005, Diavik was in compliance with the Land Lease and the Water License. Most months during the year, an Inspector from the Department of Indian Affairs and Northern Development (DIAND) visited Diavik to do an inspection. The main part of this report contains a summary of issues that were raised by the Inspector during the year, as well as a list of the actions that Diavik took to correct any problems. Some of the issues that were raised were related to the Inspector requesting more information (such as plans or drawings) and others were to request Diavik to make changes (such as moving drums of gasoline from an area where they were no longer needed). In some inspections, the Inspector requested that Diavik make changes or updates to operating plans such as the Hazardous Materials Management Plan.

## Environmental Monitoring

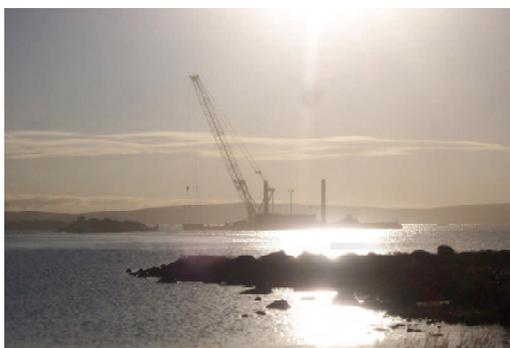
Table 1 at the end of this report contains a summary of the different kinds of environmental monitoring that was done at Diavik in 2005, as well as a short outline of activities and results. This table includes details about:

- Dust monitoring
- Weather
- Quantity and quality of water
- Aquatic effects
- Wildlife
- Wildlife habitat (vegetation)
- Fisheries
- Several university studies that are being done

## Adaptive Management and Mitigation

There is a table at the end of this report (Table 2) that shows several parts of the environment that Diavik manages. These include waste, water, hazardous materials, wildlife, dust and greenhouse gas emissions.

For each of these, there is a short outline of how we do adaptive management (or how we change our management of these areas based on our experiences). As an example, Diavik learned that by using the heat from the generators on site to heat the maintenance building and accommodations, the greenhouse gas emissions could be reduced. The table also describes mitigation (what we do to reduce environmental effects from each element). An example that is found in the table is how we use water to reduce the amount of dust on roads, during the times of the year when it is not freezing.



# Translations of the Executive Summary

1. Chipewyan
2. Dogrib
3. Inuinnaqtun







ʔeyi Diavik ʔeghádálada xáʔa sí harelyu ʔelk'éch'a ʔasíe beyé ʔeghalada kué dóli ʔat'e. Beyé nats'etís kué-u, shéeh'élyi kué-u, ʔereht'ís ghálada kué-u, tu chu tu ch'él ʔádil kué-u, ʔasíe ch'él ʔáldél k'é-u, satsán ghálada kué-u, kón dek'en kué-u tth'r dzeretáy nanedíl k'é xáza.

Xaye tanélt'u xai t̄lu 350 dechën ʔáft̄tha xale bet'a kozí Diavik betse'en ʔasí ʔelánalyi xa. Dú ʔasíe yuni nóna ghaye ts'í hálzi ʔat'e, xai t̄lu bedí náltí dúe ʔat'e, Diavik xat'u t'a ʔasíe ʔalánalyi t'á.

Yuni 2005 kú ʔeyère tsamba k'é la ʔa ʔegháladá. ʔeyi Diavik bets'í tsamba k'é diamonds 8.3 million carats húlye hílchú kú ghayé. ʔeyi tu xa ʔereht'ís selyá sí 2007 ghaye ts'én ʔúhí ʔat'e. Kos ʔanaré tth'í ʔedú ʔája – tu bedárelýe A418 gódhe húnídhër ʔeyi yuni 2005 kú sí. ʔeyère tthe nílye ʔat'e bet'á tu dárélye xa ʔeyi sí 2006 dé beghá nõghót'e ʔat'e. Tth'í méyaghe beyéʔoníza búndhër sí ʔáʔí méyaghe dezániltha dáze ts'én chu sase ts'én A154 beghá núníza ʔat'e tth'í ʔeyi A418 sase ts'én núníza ʔat'e. ʔediri níyághe núníza sí begharé tth'e kumberlite húlye beghálada sí xa dé bek'oreja xa. ʔeyíle beghat̄thën méyaghe núníza bets'í tthe hílchu xa sí A21 húlye ʔat'e.

### **Hedú núʔúdhír bets'eldí ts'én ʔeghálada**

ʔeyi Diavik ʔelk'éch'a ʔereht'ís k'e yatí thela gháre ní xadí xa ʔeghádálana ʔat'e húlí, ʔeyi ʔereht'ís Adaptive Management húlye gháre ní sughá xa ts'én beghálada. Kú ʔeyí ʔereht'ís (Adaptive Management) k'e yatí tthela begharé yunedhé xa sughá xa ts'én ʔeghálada xa. ʔeyíle ts'én ʔeyi ʔereht'ís (Adaptive Management) t'ats'edí sí ʔasíe ghálada húnídhër dé t'at'u xalt̄th'el sí badí xa. ʔeyi beneredí gháre t'at'u nuúdhír bets'eldí-u to, yunedhe xa ʔedú nalye-u to xa t'at'u bet'õrdhër lasí gháre ʔalye xa. T'a ts'edí sí, yuni sine tu bedárelýe A154 (dike) húlye t'at̄the t'u xali hílé ní sí kú tth'í ʔeyi tu dárélye A418 (dike) húlye ʔeyi xél xa ʔaldën ts'etay halya ní'te. Tu beyúzet̄ír bek'e thelchuth sí bek'altsil húldú ʔeyi tu dárélye A418 (dike) sí hálye ʔat'e – ʔediri bek'altsil t'á beyé ʔasíe dek'áʔú tu ye húht'ír . Tth'í t'a ts'edí sí, ʔeyère tsamba k'e xáʔa t'á t'at̄the tth'í-u ʔeghádálana ghá nídel sí harelyú, contractors dõlye sí ʔúli t'at'u ʔasíe ʔáldel sí beghálada ghá te yek'órelyá xáʔa. ʔediri ʔereht'ís det'ís ʔle ní sí bexél ʔediri hedú núʔúdhír bets'eldí ts'én ʔeghálada ghá bexél thelchúth ʔat'e.

### **Ní k'e t'atú beghálada (EMS húlye)**

2003 kú, Diavik ʔediri Ní k'e t'at'u beghálada (Environmental Management System –EMS húlye) húnídhër sí tsamba k'é xáʔa dek'áʔú ní k'e náadhër xa ts'én ʔat'e. ʔediri EMS sí ʔediri ISO 14001 húlye gháre ʔálzi, ʔeyi sí harelyú néne bek'óreja ʔat'e. 2005 kú, Diavik bets'í EMS ʔeyi auditors dáúlye yeníʔi ʔahú ʔelt̄th'í-u xáʔa dé xa. ʔediri ʔate huzú net'í sí ʔesát'eíle t'a nuwe ts'í EMS ʔahú nuweba ʔaghálana lat'e. ʔeyi t'at'u beghálada xa sí ʔasíe ʔa xél ʔats'edí, ʔeyi sí t'a gháre ʔeghálada-u, ní xa ts'etáy seʔú't'e-u, tth'í bet'á ʔasíe ʔeghálada ʔediri ʔelts'én yats'elti xa ts'etáy seʔú't'e-u, tth'í harelyú ní ghá ʔereht'ís xale bek'ílní ʔat'e. ʔediri k'áni ʔúli halyi ʔat'eíle, dat'u dé ʔate súrdhën-u, xát'u dé ní k'e ʔeghálada sí ʔás huzú xadhel xa. ʔediri t'a gháre xáʔa sí ʔeyi Diavik beghat̄thën yuz'éné ts'í dëne dáyenelzi xa tu ʔeyi gháre harelyú néne k'ízí xa húltá. ʔeyíle ts'én lánat'e, nuwe ts'í ní k'e t'at'ú beghálada begharé t'at'u xáʔa bezeldí ts'én ʔeghalada lát'e, ʔeyi ts'ʔaéné ʔediri ní xadí (environmental monitoring húlye) xa ts'én ʔelza lát'e beghálada dé.

### **Diavik chu Ní Xadí xa Dél̄tth'í (EMAB húlye)**

Ní'ts'í cho Zá 2002 kú ʔediri ʔereht'ís ní xadí xa dëne zí bek'enílye tth'í bek'e yatí thela ʔeyi sí ʔate t'at'ú Diavik-u, Dëne Xárelza K'aldé Dél̄tth'í-u, Government Nedhe-u, ʔedizí néne ts'í Government tth'í sí t'at'u bets'én ʔahí sí xa. ʔeyi yé ʔate t'ats'edí sí bek'eréht'ís ʔeyi Diavik ní ghá ʔé héní-u tth'í ʔediri advisory board húlye húnídhír xa bedí nálti. ʔeyi ts'íʔéné EMAB ʔúnídhër – ʔeyi board sí Diavik to t'á ʔeyi ʔereht'ís k'e bezí thela beghat̄thën ʔats'edí. ʔeyi t'á ʔereht'ís k'e bezí níla ts'íʔéné ʔhághe ʔeyi EMAB yek'e theda ʔat'e. ʔeyi Board dél̄tth'í t'a ts'én ʔeghádálana sí





Harelyú t'á 34 húzəne hílchú bets'I dıghı bents'édli. Harelyu t'ə nádhedel sí dáhedı-u zeyere Lac de Gras ts'ı hıe húzılnı yunı sölághe ghayé hályı nı sí ts'ı. T'at'ú zasıe k'órelya nedhé yek'ónéta nı sí, t'á hıe nárádhı nı sí kızı lát'e zat'e – zeyere Lac de Gras ts'ı hıe bek'ónéta xa nályá nı harelyú hıe dánezı.

Yunı 2005 ghayé zeyer tu bets'uk'áth bedárelıya A418 (dıke) xalı nı sí zeyı tu t'arıkk'al xa badı zate', xél tth'ı zeyı badı ghá zereht'ıs xalı nı zeyı Department of Fisheries and Oceans (DFO) húlye bet'álchuth hılé zat'e. Łue t'a dölı nı net'ı-u zeyı tu bets'úk'ath bedárelıa zalya the (Łuk'é 2005 ghayé) kú xályá tth'ı (Dzínédháze Zá 2005 ghayé) dé zeyıle tu bets'úk'ath bedárelıye beghálada beghanoót'e t'ághe dé (Xayt'ás Łuedaltı Zá) – zeyı zereht'ıs report húlye xayt'ás Dzínédháze Zá dé begha noót'e xat'e. Zetená néné Kugluktuk húlye ts'ı nádéne zasıe nedhé k'ádorelyá deneséııı Łuetaltı Zá zeyı hıe t'anılt'e hulı-u, betthén t'at'e sí xa bek'ónéta. Dı zeyı yatı náłts'ı nı sí dı zelá nılye-u zerehat'ıs (report) det'ıs xat'e. Yunı 2005 ghayé kú hıe bek'onéta (Fish Babıtat utilization) nı sí dı zeyı ghá zereht'ıs det'ıs zat'e. Dúrıdzıne dé zeyı zereht'ıs dene t'alye xat'e.

### **Diavık t'at'u yatı helts'ı**

2003 ghayé kú, Diavık zerehat'ıs dárıt'ıs sí zeyı tı k'alde détt'ı zedırı bet'ázı tu chu ní chu xa zereht'ıs dene ghále (MVLWB) nı-u, Government Nedhé bets'ı hıe chu tu cho ghá k'aldé déłtt'ı-u, tth'ı Nı chu zasıe zelananelıye ghá k'aldé deltt'ı sí. Zedırı zereht'ıs beye harelyú zeyıle zerehat'ıs dáğá sí ts'ı yatı nedúı xalı det'ıs zat'e.

### **T'at'u t'á Náıdı sġne bexél zeghálada**

Yunı Dagáy Marı Zá 2003 ghayé Diavık zedırı EMAB chu yatı begharé zeghálada déłtt'ı xáts'edı zat'e zeyı náıdı sġne t'anılt'e bet'at'ı sí (ní k'enılk'ıth xa bet'át'ı ts'ızéne) zeyı tu ní háger ts'ı tu pump t'á xát'ır sí t'á. Zeyı náıdı sġne t'anılt'e hulı xa búldzáy sí gharé bet'á nı tsédhır k'unéłıá húlı t'anılt'e xa hunıdhén nı sí dezánılt'e zat'e k'é. Dezánılt'e xa hunıdhén nı sí bet'óreıa kú zeyı t'at'a ts'edı sí zeyı tu ch'él zıdıl beyé náıdı sġne t'anılt'e beyé zalı sí xa dé zeyı t'a gharé tu zereht'ıs bağhálchut gharé zelı zat'e. zedırı t'anélt'e xa búldzaey sí kızı zalne xazáıle.

Zeyı Diavık tu xa zereht'ıs beyé yatı thela hudı nalye xa hureker húlı zelıghe dene nıltı-u hayurıla chu begharé zeghádálada k'aldé déłtt'ı ts'uk'adhé theda xa, zela nets'ıdel beghánátıle-u, xat'u dé t'a zasıe nedhé ghá náyatı xa. Zeyı t'ajá nı sí gharé zeyı tu ch'ele zıdıl sí dezánılt'e zalyá xat'u dé tu t'at'u beghálada-u tth'ı tu t'at'u zırırdhén lızı xa bek'ónéta. Zedırı ts'ızéne Náıdı Sġne xél zeghálada (Ammonıa Management Plan) húlye búnıdhér xél tth'ı zate t'anılt'e tu ch'ele nıdıl xa sí zeyı gharé zalye xa. Zeyı límashı xalı sí gharé dé zé snı t'adı sí k'ájjen begha noót'e zat'e, tth'ı WLWB hedı-u zeyı Náıdı Sġne xél zeghálada xa zereht'ıs chu t'anılt'e tu ch'elé nıdıl náıdı sġne beyé zalı zalı dene xél begha náyatı xat'e xayt'ás Łudaltı Zá 2006 ghayé dé.

### **Zeghálada t'anádhér sí**

Yunı 2005 ghayé Diavık beba la ıa zılé. Diavık zeyı mıeyághé tthe hóneta xa húłıa húnıldhér tth'ı xayı tıú bet'órıdhér harelyú t'á 7607 nélt'e Tlesbeschéne Cho zasıe zela dánéłıá zelanáthela. Zeyı EMA k'alde déłtt'ı sí hıka Nıłts'ı Cho Zá xayı tıú t'a náhedel. Zekú ghayı nades ts'én xadhér-u, zeyı tu dárélıa A418 (dıke) húlye beghálada húnıdhér zeyı bets'úk'ath curtain húlye tu ye nılchuth te ts'ı tthay beghat'ır ch'á tth'ı ku ghayé tthe nalt'és bet'á tu dárélye xa. Tuezaze xalı t'á nıhıt'ı (Pond 14) húlye tth'ı beghatthéne tuezaze Pond 2 beghálada húnıdhér. Xayt'azı zasıe zelanalyı xa tıú ghálada hunıdhér. Zeyı ghayı tth'ı Diavık zeyı ISO 14001 audit húlye chu Rio Tinto Health chu Safty tth'ı Environment audit húlye yehenııı.

Zedırı zasıe bek'oneta xa náłtsı nı sí xályá Diavık beba tu xa zereht'ıs zale xadé tth'ı tthay tth'aghe bek'oneta tth'ı xa hílchú ku ghayé. Nághay beke k'é xa tth'ı net'ı zeyı Nıłtsı Cho Zá chu

Tëthyati Zá chu xél tth'í Diavik dëne xél nághay beghá net'í xa t'at'í nághay heli sí xa. Łuk'é ts'í xayt'as ts'én zethhén zasíe dzérét'ay ts'í-u, ni ts'í-u bek'óneta k'oszáináré. Te yághe zasíe dána/dániye t'at'e sí xa net'í sí luk'é Degay Marí Zá chu tth'I Dzínézáze/Łuedaltí Zá dé. Żeyër tsamba k'é xáza náre tu k'e nanedíl chëth lát'í badí hłe Degay Marí Zá ts'í Żelts'us Kat'í Zá ts'én tth'í zasíe k'edoóneta dàli ni Żeyi tsamba k'é xáza náre zasóe dániye k'oneta ghá nıdel.

Hayurıla dála tu t'ate lası xa Monitoring Camps dáıle Żeyi Tsamba Nálye Zá ts'í Żelts'us K'atı Zá ts'én, Żethhén chu łue chu dılnı-u, bettén t'at'e sí xa-u bek'ónetá. Ku Zá-e Diavik dëne xél tthatsël chu dléze chu t'oót'ı náday sí xa tth'ı badı hıle.

### **Harelyı beghá nánadé**

Diavik 2005 kú ghayé zasíe ghá nánats'ıde dé beghá zazádıle, Żeyi tsamba k'é ghá. Xat'e hılı, Diavik Żeyi Ni Xadı xa K'alde Délth'ı ni sí t'a xáyelı kú ghaye, tth'I Żedırı Żereht'ıs det'ıs ni sí xél thela zat'e.

### **Żasíe godhé t'ádáhat'ı**

Żeyi 2005 kú ghayé, Diavik Żeyër tsamba k'é xáza Żeghádálada ts'én zasíe godhé t'at'ı xa Żete bek'ónetá. Nıts'ı t'át'ı t'á zasíe satsáné bet'á het'él xa (energy hılye) Żeyi Żaıı net'ı zat'e yunı 2004 ghayé hályá ni kızı. Tth'ı, łesbeschëne cho t'á zasíe ŻelánalŻyı bets'ı satsáné gá bet'á hunıdhıle xa satsáné nılye xa tth'ı bek'óneta zat'e, xat'u dé tı łesbeschëné t'á dzérédıl sí break hılchu to dëne Żelnádél dé yedžréldeth t'ıaghe dé hılı kudëne nakéth xa nııdéd t'ıaghe dé hılı Żeyi tth'ı xa bek'ónet zat'e. Xaye dé bet'óréza xél k'ázı łes k'erek'ı-u, ní hunıdhıl sí tth'ı dek'ázı xa.

Żasíe badı chu t'azıt'e xa hunıdhën sí chu net'ı

Żedırı Żereht'ıs beye Żeyıle Żereht'ıs Rolling Effects Summary hılye bexél thełchúth zat'e, Żeyi yunedhé ni ta't'e xa hunıdhën ni sí net'ı zat'e. Żedırı yunedhé t'ane xa hunıdhën ni sí Żeyi gháre Diavik t'ájá sí-u bek'óreja 2005 kú, tth'ı xél Żate net'ı zat'e t'ats'ı búnıdhër ni sí ts'ı. Żedırı Żereht'ıs beye t'a ghá náyalı sí ni-u, bet'á ts'ejı-u (air hılyé), zasíe dániye-u, ní t'at'e sí-u, Żedech'adı-u xél tth'ı łue chu tu chu ghá.

Harelyı t'ane xa hunıdhën ni sí net'ı-u begháre t'adežánılt'e žájá xa dé Żeyi tthay tth'aghe zat'e. Yunı 2005 ghaye t'a dežánılt'e tthay tth'aghe náıt'ır Żıle sí t'anılt'e xa hunıdhën ni sí žánılt'e zat'e k'e, xat'e hılı dırı Żelághe zasíe benanıle Żeyi kú ghayé Żeyër tu bets'úk'ath bedžarélya A418 (dıke) begháladá ni sí xél hult'aáıle. Żeyi tthay tth'aghe dek'ázı žáne xat'e yunedhe xaza sí Żeyër dek'ázı Żeghádálada xat'e-a.

### **Żeltth'ı náádhër**

Yunı 2005 ghaye kú, Diavik Żeyi ni xa Żereht'ıs chu tth'ı tu xa Żereht'ıs chu Żeltth'ı-u Żeghálaná. Żeyi ghayé Żaıı za Żeyi Government Nedhe (DIAND hılye) bets'ı zasíe k'onelıa Inspector hılye Żeyëre Diavik ghá náıdıl. Żeyi ghayé dagháre Żedırı zasíe k'onelıa dëne yeghá sadı sí Żedırı Żereht'ıs det'ıs sí xél thela zat'e, Żeyi xél tth'ı Żeyi Diavik t'anılt'e zasíe Żeltth'ıle žájá sí senayıla sí. Żedırı naye zasíe ghá háyáıtı sí Żeyi zasíe k'onelıa dëne denı Żadı-u Żaıı dıre (t'at'u gháladá xa sí-u to Żereht'ıs sí-u) tth' Żeyıle Diavik bets'ekér Żedı ne xa (kú Żeyi líbaré gesłın t'a bedžánıltıle ch'azı nılye xa). Żedıre naye zasíe bek'ónetá gháre, t'ı zasíe k'onelıa dëne Żadı-u Żeyi Diavik Żedı to zasíe k'anı bet'áhat'ı sí xa zasíe bech'ónejër Żaldél ghálaná helısa xaza.

## Nı Badı

Ʒeyı zerehtı'ıs xalı yé Table 1 húlye belaghe harelyú zek'éch'a zeyıle nı badı sı xályá ;at'e yunı 2005 kú zeyere Diavık xázá gá xél tth'ı, t'anádhër-u tth'ı bets'ı zéne t'ajá sı-u gha zerehtı'ıs xalı. Zedire zerehtı'ıs table húlye beyé zate t'a ts'edi sı:

- ◆ Tthay tth'agh badı
- ◆ Bıt'as hadhël/hak'ath
- ◆ Tu t'arızú, t'anıl't'e-u
- ◆ Teyaghe zasıe dána/dániye
- ◆ Zech'adié
- ◆ Zech'adié t'qót'ı nádaı (yuneye)
- ◆ Łue
- ◆ Zerehtı'ıs Kúé Nedhé naye zasıe k'onelta xázá

## Hedú núzúdhır bets'eldı ts'éñ zeghálada tth'ı zasıe nıdıl-u, nadél-u

Zedırı zerehtı'ıs belaghe (Table 2) húlye helchuth zat'e zeyı Diavık t'anıl'te-u, t'at'u ní ghálana sı. Zedırı t'a xél zats'edi sı zasıe zaldel-u, tu-u, zasıe ch'onejër-u zech'adié-u tthaye tth'aghe-u tth'ı zedırı tles dárék'én ts'izéné lere t'á ní nıdhıl sı-u.

Zedırı harelyú setthı t'at'u adaptive management húlye ghálada (zeyıle xa dé t'at'u zasıe ghálaıda zedú ts'éñ zailı sı zasıe hurıddën bek'orılya gháre zat'e). Zeyı t'ats'edi sı, Diavık zılaghe zasıe hureldën sı zeyı generator t'át' bet'á zeghálada kúé nıdhıl-u, beyé nats'et'ıs kúé, xat'u dé tles dék'én lere t'á hunıdhıl sı dek'ázú zá ne xat'e. Zedırı zerehtı'ıs table húlye beyé zate t'at'u zasıe dek'ázú ts'éñ zálye xa dé (nuwenı t'aıt'ı gháre ní k'e k'azú náhadhër xa). T'a ts'edi sı zeyı zerehtı'ıs table húlye beye hılı zat'e zeyı t'atu tu t'áxat'ı bet'a tılu bek'e tthay zett'aghe ch'a tu bek'e del, t'ó ghaye zalı sı xaténıle dé.

## 2. Dogrib

### **Njhtf'è Nek'òà T'à ʔaàt'è**

Ndè wexòedi ha naawo ts'ùitò sù, dõne dù hatlò wexè hõt'e; Tłıchò Government, Yelllowknives Dene First Nation, North Slave Metis Alliance, Kıtıkmeot Hotenda Assoiation, Łutsel K'e Dene First Nation, Government of Canada, Government of Northwest Territories eyits'ò Diavık Diamond Mines Inc.

Ndè wexòedi ha naawo ts'ùitò ghaà, njhtf'è 12 t'á dù njhtf'è xo ʔaàt'e ets'eètf'è ha gogedi. Diavık Diamond Mine 2005 ayı edàtlò k'e eghàlagında wegodi hõt'e eyixè sù 2006 ayı edàtlò k'e eghàlagide ha wegodi hõt'e, amee see dù ndè wexòedi ha naawo gıitò sù gıgha dù njhtf'è hoòlò hõt'e. Xoò ʔaàt'e Diavık kòta yagola xè dù wegodi ghò dõne xè gogede ha hõt'e ıle, eyı naawo, ndè wexòedi ha naawo haanı dõne gha njhtf'è gehtsı ha dek'èt'è.

### **Ndè**

Diavık Diamond Mine Edzanèk'e goòzò, hòezi k'e 100 gochl Ek'atı k'e. Ek'atı Coppermine River ts'ò njlı eyits'ò chl'edà ts'òhk'e Tıcho ts'ò hajlı. Eyı Tı 60 km hõt'e eyits'ò 16 km dekò eyixè 12 meters teè hagohwha. Sı teè gowha dè 56 meters hõt'e. Hòezi k'e fı yagohlı nındè hıwe eyits'ò teè t'oh yàeshe laanı-le. Hot'a haanı dıjt'e, edzanèk'e agoh't'e, hıwe wendi gohlı-le, teè t'oh lò yàeshe-le eyits'ò xoò k'e nındè dzè njıwha-le ts'ıřò, wha gots'ò tò gohlı ts'ıřò eyits'ò tı sı edza. Chòh eyits'ò zhaa sù gohlı-le laanı eyits'ò njhts'ı sù gohlı-le laanı. Ezòdzè Zaà k'e deètı eyits'ò June welò haanı-le dè July wexèhòewı edàek'ò.

Diavık Mine goògaà tıch'adı lò naàde. 84 chl kaza gohlı eyits'ò 16 tıch'adı ladı gohlı. Mòhdaa xoò ghaà akò nàgedè eyits'ò mòhdaa ımbe k'e zò naàdè, nògha laanı, nõge dek'ò, ghahcho, xòezi dlò, dlıa laanı wekaza dek'ò/dehbaà eyits'ò k'amba. Ek'atı gaà ekwò nàede. Mòhdaa Łık'e eyits'ò xàt'ò nàedè. Nòdı ekwò k'è k'eède sù ekiyeh gıt'ò akò gohlı. Sahcho sù akò sù k'eèza.

### **Diavık Diamond Mine**

Diavık lamòòkwe gıhchl sù, ndègot'á ts'ò agehı, Ek'atı k'ambatsòò ts'òhk'e ndıa k'e hõt'e. Tı weyı eètf'I haà-le gha, wemò emòhch'ò hoòlò. Tı goòt'á ts'ò ts'ehwhıa lamòòkwe gıhchl. A154 emòòhch'ò wehoòlò xè 2002 gots'ò lamòòkwe haàzhe eyits'ò 2005 A418 k'e emòhch'ò hoòlò.



2005 k'e Diavik dzeḡ tḡat'e tai xoḡ ts'ḡ gik'e eghàlada. Dii gha sii, Diavik ndè weyigḡḡa k'e eghàlagide, haanikò dḡne mḡhdaà dii wedanàgeta, ahsì ndè gotf'a ts'ehwhì akḡ dḡne eghàlagide ha dile gedi t'à esanḡle nindè, haanì eghàlagide ade ha. Dii haanì eghàlahòda ha nindè, kwetf'ì nḡt'ì sii haanì haàzhe ha. Ndè yigḡḡa k'e eghàlahòda ha nindè, dzḡghaà eyits'ḡ toḡghaà aget'ì ha. Lamḡḡkwe, kwe wek'enàetsekḡ ts'ḡ agehḡ, akḡ t'ah kwe eyits'ḡ lamḡḡkwe lak'è haàzhe. Ndè gotf'a eghàlagide ha nindè, mbehchì nechàlèa kwe Nde goka ts'ḡ neyele ha.

Diavik dḡne gha eyits'ḡ eghàlagide kḡ kaḡa gits'ḡ hot'e. Dḡne nàgeteè kḡ gohì, shègezhe kḡ, nḡhtf'è k'egedi kḡ, tì eyits'ḡ tich'ì k'eètf'ò kḡ tì k'enàetse kḡ, asìch'ì lààtf'ò k'è, mbehchì segehḡ kḡ, k'ak'ḡ kḡ eyits'ḡ nḡhtf'è nàdek'è gohì.

Xoḡ tḡat'e, 350 km xoḡ tḡlì hohè, wek'e asì hazḡ git'à eghàlagide ha akḡ negele. Dii xoḡ tḡlì idi 20 xoḡ ḡts'ḡ gots'ḡ gehtsì hot'e.

Akḡ sḡmbak'è 2005 xoḡ k'e asì lḡ hagojà. Eyì xoḡ k'e Diavik 8.3 lemizhḡ lamḡḡkwe hagìla. 2007 k'e nindè tì gha nḡhtf'è gits'ḡ sii welahòewì ha neèt'à, achì nàgeke ha wexèhòḡwo. Asì mḡhdaà sii hagojà – 2005 k'e hò lamḡḡkwe A418 nḡt'ì sii wemḡ emḡch'ò hohè ha wexèhòḡwo. Kwe hazḡ wemḡ whela ha sii negitf'ì ha eyitf'ahḡ 2006 dè wedàedzè ha. Eyits'ḡ ndè yì goḡza adle ha wexèhòḡwo, A154 wets'ḡ eghàlageda ha eyits'ḡ A418 ts'ḡ gḡwalèa. Dii ndè yì gḡḡa wek'ats'ehḡ tf'ahḡ, ahsì lamḡḡkwe haàzhe wet'aḡa nì hoḡdit'à wek'ahoḡta. Eyits'ḡ lamḡḡkwe nḡt'ì A21 wìyeh sii, eyì sii ahsì wet'aḡa nì gedi t'à wek'agehta.

### **Asì wexòedi ghaà ladì ats'ehḡ**

Ndè esawodèch'à Diavik asì mḡhdaà hagele ha wek'e eghàlagide, haanikò ndè esawodèch'à asì wexòedi ghaà ladì ats'ehḡ. Dii naawo wegoḡ weghaà edàanì ida asì k'e eghàlats'èda nindè ha ladì ats'ehḡ hot'e. Yatì ladì k'è weghḡ gots'ende ha nindè, asì wek'e eghàlats'èda wexòts'ihdi ghaà, edàanì nezì nezì-le ts'edi t'à ladì ats'ehḡ aweèts'edi. Wet'à ida gogha haanì k'e eghàlats'èda nindè deḡḡ nezì ats'ehḡ. Dii haanì laanì, akwetḡ emḡḡch'ḡ A154 hoḡlì hò, edàanì ats'ìla sii A418 yazèa ladì ts'ìla – dii weghaà edàanì tì wek'enàetse eyits'ḡ edàanì wek'ahoḡtah ladì ajà eyits'ḡ ehtf'è sù hoḡtf'ò teè at'ì-le. Eyits'ḡ asì mḡhdaà ladì ats'ìla sii, dḡne hazḡ eyits'ḡ eḡk'èats'ìwḡ nḡhtf'è t'à eghàlagide dḡ sii akḡ nèk'e edàanì eghàlagide hazḡ weghḡ hoghàgehtḡ. Dii naawo weghḡ sii dii nḡhtf'è wek'e dek'ètf'è.

### **Ndè wexòedi naawo**

2003 k'e, Diavik ndè wexòedi naawo gehtsì EMS wìyeh, dii naawo edàanì ndè xiidi wexòedi gha naawo hoḡlì. Dii naawo ISO 14001 wìyeh, dii naawo hazḡ nèk'e wek'èdzḡ hot'e. Ahsì Diavik gits'ḡ EMS degghaà wek'e eghàlagide nì gedi t'à 2005 k'e wek'ahoḡḡ. Esanḡle gedi eyits'ḡ dii dzḡ ts'ḡ gots'ḡ EMS nezì gogha eghàlada.

Dii naawo ats'q wegħaà eghàlats'ide hq̄t'e, edàani asii wegħaà eghàlagide naawo, ndè esawodèch'à naawo, edàani efets'q̄ gots'ede naawo eyits'q̄ edàani edàwha gots'q̄ ndè wexòedi n̄htf'è wek'èts'èdi. Dii naawo sii wegoò n̄le, ast'q̄ edàani ndè esawodèch'à gha n̄htf'è sets'jwhq̄ hq̄t'e. Dii haani naawo wegħaà d̄one Diavik gha eghàlagide-le edàani ndè wexòets'ihdi gik'èzhq̄ xè di nèk'e hazhq̄ gik'èzhq̄ ha. Ndè wexòedi għaà, asii ład̄j adle ha n̄ndè hats'ehz̄j.

### **Diavik eyits'q̄ ndè wexòegihdi d̄o dekw'e (EMAB)**

March 2000 k'e ndè esawodèch'à gha naawo k'e d̄z̄i neḡz̄q̄ eyit'à Diavik, D̄one S̄q̄j gha Government, Federal eyits'q̄ Edzanèk'e Government edàani ndè wexòegihdi ha naawo hoòlj. Edàani Diavik ndè wexòegihdi ha hazhq̄ dek'ètf'è eyits'q̄ d̄one gixòedi ha dekw'e aḡla. Eyit'à EMAB hoòlj – Diavik eyits'q̄ d̄one hazhq̄ eyii naawo d̄z̄i dek'èneyjtf'è ts'q̄ ład̄j d̄one dekw'e hoòlj. Dii d̄one dekw'e sii, edàani Diavik ndè wexòegihdi gha eyits'q̄ ḡigha yat̄i gehz̄q̄ gha k̄eta yagola xè eghàlagide ha d̄one dekw'e hq̄t'e. EMAB edàani Diavik eghàlagide xogihdi ha eyits'q̄ government sii ahs̄j naawo wegħaà eghàlagide naawo wexòegihdi n̄i gedi t'à gixòedi.

Asii j̄è hagele ha gedi sii, xod̄ t̄aqt'e dii haani n̄htf'è d̄one gha gehts̄j gits'q̄ hòel̄j eyits'q̄ ayii n̄htf'è edàwhit'j̄ sii n̄htf'è wexè ha gedi t'à dek'ètf'è. Dii n̄htf'è weèz̄q̄ ts'q̄, yeèz̄q̄ ndè k'e eghàlagide sii gits'q̄ n̄htf'è eyits'q̄ ayii laa k'e eghàlagide sii wegħaà dii n̄htf'è eḡtf'è. Eyits'q̄ Diavik ayii edàtf̄q̄ wek'e eghàlagide, k̄eta gots'q̄ d̄one asii edàtf̄q̄ weghon̄aneḡide, ndè edàani wex̄ied̄i, asii edàtf̄q̄ hagode haj̄le, asii wegoò gehdzaà eyits'q̄ asii wek'ahod̄ta t̄aqt'e wen̄htf'è sii d̄one gha geh̄la.

### **Asii wexòedi**

Eyii s̄ombak'è wemq̄ ndè edàani nee sii Diavik wexòegihdi hq̄t'e. 2005 gots'q̄ asii edàtf̄q̄ wexòegihdi sii hazhq̄ dek'ètf'è. Dii wegondi n̄htf'è nechagq̄ hazhq̄ dek'ètf'è h̄ot'e:

- 2005 k'e ndè edàgq̄q̄cho wek'e eghàlagide t'à 0.84 square kilometres, tf'oh yàeshe j̄le sii wed̄e hoòlj. Ddè esawodèch'à ghq̄ lègèadi hò ndè dii haj̄cho wek'e eghàlahòda haj̄le ts'edi j̄le.
- 2005 k'e ekw̄ò wenee edaj̄cho weghq̄ while ade haj̄le ts'edi j̄le sii, haaj̄a eyits'q̄ akq̄ nèk'e ekw̄ò łaj̄wo-le xè esaja-le. Diavik j̄la edàani n̄htf'èk'èt'a t'à ekw̄ò wexòegihdi sii aij̄j̄ ha eyits'q̄ edàani ed̄j̄ ekw̄ò k'èza wexòedi. April September gots'q̄ K'ambatsq̄ ts'q̄hk'e ekw̄ò 28 20 eht'a ḡiaz̄j̄. Ats'q̄ j̄è haani-le dè nàke ełexè k'èza gogez̄j̄.
- Eyits'q̄ sahcho weneè edaj̄cho wed̄e hohfè ha hq̄oni ts'edi t'à haaj̄a eyits'q̄ 2005 k'e sah w̄j̄z̄i łats'j̄hwho-le, esaja-le eyits'q̄ ład̄j̄ ts'q̄ neḡj̄wa-le. May October

2005 gots'ò done ndè xogihdi yagılı sah 60 gıazı gedı, haanıkò sah edàtlòzeht'a sòmbak'è ts'ò nõqfla hats'edi haadì, sah ıfè edlatlò akò ts'ò nõqja.

- Sòmbak'è eghàlagide ts'ıřò 2005 k'e nõgha k'ambatsò ts'òhk'e gıazı haanıkò nõgha wıřı ıfıwo-le, esaja-le. Nõgha edı eyits'ò edàtlò k'era Diavik wexogihdi ha. 2005 k'e 41 nõgha gıazı, haanıkò mòhdaà nõgha eyit'ı hõt'e.
- 2005 k'e tatsea wet'o wexogihdi ıfè. A154 yeèt'a k'e et'o gehtsı, sòmbak'è ts'ıřò 2005 k'e tatsea wıřı ıfıwo-le.
- Ndè wexòedi gha nıhtf'è hoòlı ghaà, chih wenèk'e edàgòhcho 2005 k'e wexıdı haıle hodi sıı hagojã. A418 hoòlı ts'ıřò wenee mòhdaà wedè hoòlı. K'ambatsò ts'òhk'e ndıa chih ıfa akò aget'ı eyits'ò sòmbak'è ndègotsò gehtsı sıı chih wet'ageèt'ı.
- 2005 k'e nàke dzeè tãat'e asıch'ı ıfàtt'ò k'è wek'agehta. Weghò shèts'ezhe eyits'ò weghò shèts'ezhe wet'à wek'èhòdı daht'ò laanı lò wegots'ıhò. Dıı haanı tıch'adı weghàıwı hõt'e neèt'à, done ıadı laa k'e nıde nınde eyıı weghò hoghàgogehtò. ıfa ats'ò akò wek'ahòta ha.

## **Ehtf'è dàedi**

2005 k'e Diavik sòmbak'è wemò ehtf'è edàtlò dàedi wexègıhdzã. Xoò tãat'e ımbe ekıyeh zhah wek'agehta eyits'ò zhah naèyı agehı t'à wexègıhdzã eyıxè tı edànahtso gha wek'agehta eyits'ò ehtf'è edàtlò zhah wetah hõt'e gha wek'agehta. Eyits'ò Diavik edı ehtf'è dàedi eyits'ò edı ts'ò wek'eweètsıh wexòegıhdi.

Hagedı ıfè, sòmbak'è gaà goıwalèa ehtf'è lò eyits'ò sòmbak'è ts'ò goıwa ehtf'è lò-le laanı gedı, ehkw'ı agedı. 2004 2005 gots'ò zhah k'e ehtf'è edàtlò dàedi wek'agehtò t'ahò xoò tãat'e ehtf'è lò adàde gedı. Akò nèk'e gık'e eghàlagide neèt'à eyits'ò edàanı nıhts'ı wek'eweèts'ıh ts'ıřò hõt'e. 2005 k'e ehtf'è dàedi wexogihdi hò, ndè edàanı wexıdı ha hõnı gedı t'à weghò nıhtf'è gehtsı hò, haàtlò ehtf'è wek'eweèts'ıh ha gıwò-le ıfè. Ekò edàgedı ıfè, nıhts'ıh edàanı wek'eweèts'ıh ghaà gedı ıfè eyits'ò 2005 xoò k'e kò yagıhtsı gha weghò nànegide-le ıfè t'à eyıı nàgıhta-le. Kò hazhò gehtsı t'ahò dè zò, ehtf'è yazèa netlò-le ade ha. 2006 k'e ıfa ehtf'è dàedi wexogihdi ha.

## **T'ahsı Hazhò wexèıdzã**

2005 hò asıı hazhò teè naàde Diavik wexòegıhdi. Tı wet'à eghàlagide gha nıhtf'è gıòchı ghaà, Teè t'asıı hazhò naàde hazhò wexòegıhdi gha dı xoò agoòjã. Dıı nıhtf'è hohfè ekıyeh, asıı mòhdaà 2005 k'e hagoòjã wegondı hazhò deghaà dıı xoò k'e dıı nıhtf'è hoòlı dek'ètt'è-le.

Diavik gıts'òhk'e, asıı k'egzhòdò yaalı sıı xè nãakè gıxè ıegèadı eyits'ò Mackenzie Valley Land and Water Board dıı nıhtf'è ghàgıdã. Diavik gha dehkw'e dıı wegondı nàgehtsı sıı gıghàıda, eyits'ò ıdı 10 xoò hò edàanı dıı haanı wegondı nàgehtsı ıfè sıı

eyits'ò edàani wegondi t'ageèt'ì. Diavik gha dehkw'e du hagedi, hazhò efexè eghàlats'ide t'à du Teè t'asii hazhò naàde wexòets'ihdi gedi. Tati Zaà 2005 k'e MVLWB du ti nìhtf'è weghàgeda ha weghò legèadi. Ekò legèadi hò achì Teè t'asii hazhò naàde weghò nànegidè t'à weghò gogende, eyits'ò edàani ìadi wek'e eghàlagide nindè nezja gedi t'à weghò goginde. Eyits'ò wek'èezhii gha dōne dehkw'e sù, sù du haani woòle gedi, eyit'à March 2005 k'e Diavik achì nìhtf'è ìadi ts'ò nàgìt'è. Du nìhtf'è ìadi adle gots'ò, September 2006 nindè achì kòta du weghò nàlegèadi ha.

2005 k'e Teè t'asii hazhò wexèridzà wegondi hazhò nàts'ehtsì sù, nòqòdè nindè weghò nìhtf'è hohfè ha.

### **Ìiwe**

August 2005 k'e Ek'atì ìiwe edàani fendi eyits'ò edàetò gha wek'ahòta gha Diavik EMAB ghàe sòmabjla. Ìitsohk'è, Waàk'òq goòt'ì, Hotenda goòt'ì eyits'ò Sòmabk'è goot'ì tai dzè ts'ò ìiwe giichi t'à wek'agehtò. Eyits'ò ìiwe ida neèk'e sù wek'ahòta gha akò ts'ò agjla. Du haani ìiwe wek'ahòta sù, sùlai xoò tjàt'e adle hajle, haanikò 2002 k'e dōne xoò tjàt'e gedi t'à ìadi àdla.

Ìiwezò 34 gihchì eyits'ò dì zò wek'afegogehli. Dōne hazhò wexè ìle du hagedi, ìiwe fèkò xè ìdi akwelò wek'agehtò hò laani fendi gedi. Ìiwe gha nàedik'èzhò du ìiwe yik'atò hò kòta edàani ìiwe k'aatò sù laani gedi – Ek'atì gots'ò ìiwe ida wek'ahòta gha hoti genda gedi.

2005 k'e A418 yìi ahsì ehtf'è edàtò teè dàede gha wexòedi adlà eyits'ò eyi weghò nìhtf'è hoòlì sù Ìiwe gha K'aade giilì sù ts'ò nìhtf'è agjla. Emòhch'ò hoòlì kwe, Ìimbe 2005 k'e ìiwe edàtò eyii tì naàde ha wek'ahòtò ìlè eyits'ò August 2006 kò hazhò gehtsì t'ahò dè achì du weghò nìhtf'è gehtsì ha. September 2005 ìiwe edàtò gohì eyits'ò ahsì hoti genda hòqni gedi t'à wek'ahòtò, dōne nàke Kugluktuk gots'ò du haani naawo k'egèzhò gots'agjdi. Du gha eyii nìhtf'è hazhò efexè nègèwa eyits'ò weghò geèt'è. Du Ìimbe nindè nìhtf'è weghò naget'e ha.

### **Diavik du hatò nìhtf'è gehtsì**

2005 k'e Diavik edàani eghàlagide weghò nìhtf'è lò gehtsì, Mackenzie Valley Land and Water Board ts'ò, Ìiwe eyits'ò tì gha k'aade ts'ò, Ndè wenaawo ts'ò. Du nìhtf'è hazhò gits'ò adla sù, wegondi hazhò wetjàt'e nek'òa t'à àt'è t'à hoòlì.

### **Ammonia Wexòedi**

May 2003 hò, Diavik EMAB eyits'ò naawo gha k'aade yaalì sù ts'ò gogende, ammonia yazèa nàtso gedi t'à gots'ò goginde (kwe nàgehk'è lò ts'pò) ndè yìigòra gots'ò tì hageèzò wetah du ammonia gohì wegogjò. Eyii ammonia sù hoòt'ò

netfò-le wet' à ndè sù wexìdia-le gedi, yazèa netfògòò gedi. Yazèa netfògòò gedi ìlè sù, haanikò akwefò tì gha nhtf'è gòchì sù, akwefò ayì wegogùzò gha aglì ìlè. Wek'agehta t'at'e, haatlò ade ha d'ì.

Diavik gits'ò tì nhtf'è wet' à eghàlagìde gìgha ìadì azòdle gedi eyits'ò weghò neyàeti ch'aa, d'one taanì wheda xè kòta yagola gixè d'ì nhtf'è weghò gogende ha g'wò. Wet' à asù fògòò weghò gogende ade ha gedi. D'ì haanì adlà nindè wet' à deèzò tì wek'ahòòta xè edaanì wexòedi ha nezì ade ha gedi. Eyit' à edaanì ammonia wexòedi ha naawo hoòlì eyixè sù, sù hoòt'ò tì wetat'ia-le gedi. Eyì d'one taanì wheda sù, weghò nhtf'è ahjone yìghò nàit'e nee. September 2006 nindè kòta yagola xè d'ì wenaawo achì weghò nàgogede ha.

### **Edaanì eghàlagìde**

2005 xòò gha Diavik sù gìgha laa fò ìlè. Ndè goòt' a ts'ò n'ra adle wek'e eghàlagìnda eyits'ò xo t'ìlì hoòlì t' à 7607 satsò behch'ì haatlò asù akò neglìla. March k'e hò EMAB xoo t'ìlì k'e ekò ts'ò negìnde. Eyì xòò k'èet'ì, A418 emòch'ò hohfè ha wexèhòwo xè tèè dejiwò laanì tèè whehchì aglì wet' à ehtf'è sù wek'eweets'ia-le gha adlà, eyits'ò eyì xòò k'e sù akò gots'ò kwe nàgeh'è ha g'chì. T'ia 14 sù hoòlì, eyits'ò t'ia 2 k'e laa wexè hòwo. Xat'ò edì satsò bech'ì ewa nògele ha t'ìlì hoòlì. Diavik sù ISO 1401 gha wek'ahòòtò eyits'ò Rio Tinto naèdik'èzhò naawo, d'one esawòdech' à eyits'ò ndè esawòdech' à gha naawo nhtf'è gehtsì.

Tì nhtf'è g'ochì gha tì sù wek'agehta eyits'ò ehtf'è sù g'chì t' à wek'agehta, eyì xòò k'e haanì eghàlagìda. March eyits'ò December k'e behch'ì t' à nògha wexòedi ha wek'e eghàlagìda, eyits'ò nògha weghàà gidhchì t' à wek'agehta sù d'one xè g'k'è eghàlagìda. Imbe Xat'ò ts'ò nhtf'èk'et' a t' à edì ekwò k'èzaà wexog'ìdì ha g'k'è eghàlagìda. L'ìwe wek'ahòòta gha sù May, August eyits'ò September sù wegondì g'chì. May October ts'ò chih edàwhit'ì akò goh'ì sù gha wegondì nàgehtsì, eyits'ò d'one asù wedànetadò yag'ìlì akò s'ombak'è wemò edaanì t'oh yàeshe gha wek'agehtò.

July eyits'ò August kòta gots'ò d'one tì g'k' àtah ha g'k'è eghàlagìda.

Asù wek'agehta, ekwò wexòedi, h'we edaanì eyits'ò edaanì fendi gha sù wek'agehtò. Diavik sù tatsèa eyits'ò sahcho edì nàgede gha wexòedi gha eyì sa k'e wegondì nàgehtsì.

### **Asù wegòò geèdzà**

2005 k'e, Diavik asù mòhdaà wegòò geèdzà ha wek'agehtò. I'dì xòò 2004 laanì, ahs'ì nhts'ì wet' à edì ehtsì ha d'ile gedi t' à wek'agehtò xè ìlì wek'e eghàlagìda. Eyits'ò

asok'ò necha satsò behchij nìt'á nindè wegaà asok'ò necha whela t'á, behchij wedagehde nindè, achij nàeke agele ha nindè, wjidì nàeke ha wek'agehtò. Xoò k'e nindè wet'á sù, sù hoòt'ò t'eh ló k'ehòwà-le eyixè sù wet'á t'ehstì ló ehtsja-le.

### **Asù hagode ha gedi eyits'ò asù hogihdi e'ek'a edàani**

Dù n'ht'è nòde ts'ò hoòlì sù, ndè wets'òhk'e edàdèa hòonì gedi t'á weghageèda. Dù n'ht'è wegghà Diavik asù hazhò wexègìdzà, 2005 k'e edàgòdjà eyits'ò edàgòde hajle gedi t'á weghò n'ht'è hoòlì hazhò gìghàda. Dù n'ht'è dek'èt'è sù mòht'áà edàgòht'e eyits'ò edàani n'hts'ì edàani wek'eweets'ì, t'oh yàeshe, ndè edàani wegaat'ì, tich'adi, l'we eyits'ò tì weghò gogende.

Asù hazhò wedanàgeta xè wek'agehta dè, eht'è zò haat'ò haadèa-le hòonì g'wò-le jìlè. 2005 k'e eht'è edat'ò dàedi jìlè sù, jìdì xoò edat'ò gedi jìlè sù, wezòò ts'ò net'ò ajà, haanìkò asù mòhdaà net'ò k'e eghàlagìde nàgìhta-le, A418 k'e eghàlagìda eyits'ò kò yagìhtsì hò nàgìhta-le. Dù xoò k'e eht'è edat'ò dàedi jìlè sù, yazèa net'ò-le ade ha, sù hoòt'ò asù k'e eghàlagìdea-le ts'ìzò.

### **Edàgedì ghaà**

2005 k'e hò, edàani ndè eyits'ò tì wek'e eghàlagìde hajle gha n'ht'è g'òchì sù wegghà eghàlagìda. Edlat'ò sa t'at'è Sòmba Naaledò gin'ht'è gots'ò d'one ekò sòmbk'è k'e eghàlagìde ekò gok'áata. Eyì xoò k'e asù edat'ò yìghò n'ht'è whehtsì sù dek'èt'è ayìla eyits'ò ayìlì edat'ò Diavik ladì agele ha gedi sù hajìla. Asù mòhdaà asù k'atadò gondì eèke sù eyìlì weghò hòt'e (wegghà eghàlahòda n'ht'è haanì-le dè n'ht'è'echì) eyits'ò asù Diavik mòhdaà ladì ayeèle ha gedi sù, ladì agìla (t'ehgaalò hot'a wet'aahòt'ì-le t'á ladì ts'ò nìzhe ha gedi). Asù mòhdaà wek'agehtò sù, asù k'ataadò elì sù Diavik ladì ayìlì dù t'á asù mòhdaà wegghà eghàlahòda naawo ladì ajà sù, asì wech'ahòejì sets'ìwhò naawo laanì.

### **Ndè Esawòdech'á Wexòedi**

N'ht'è 1, dù n'ht'è welò wheh'ì sù, 2005 k'e Diavik edàani asù wexòegihdi weghò n'ht'è gehtsì eyixè n'ht'è nèk'ò t'á asù hazhò edat'ò wek'e eghàlagìda weghò n'ht'è gehtsì. Dù haanì wegondì:

- Eht'è dàedi wexòedi
- Mòht'áà edàgòht'e
- Tì edat'ò eyits'ò edàdehzì
- Asù teè naàde wexègìhdzà
- Tich'adi
- Edì tich'adi nàgedè (t'oh yàeshe)
- L'we
- N'ht'è'ekòdee asù wedanàgeta

## **Asii wexòedi ghaà ìadi ats'ehzi**

Dii n̄htl'è welo whehchì, (n̄htl'è 2) edàani Diavik ndè asii hogihdi wegho n̄htl'è gehtsi. Dii haani, asich'I zoòtl'o, ti, asii wech'ahòejì wexòedi, tich'adi, ehtl'è dàedi wexòedi eyits'ò tlehtsi wet'à n̄hts'I yii at'ì.

Dii wetàat'e wegghà, edàani asii ìadi ats'ìla ha dek'èt'è (haani-le dè edàani goxè nàhowò ghaà asii ìadi ats'ehzi). Akihò, satsò wet'à edi ehtsi t'ageèt'ì wet'à satsò behchì segehzi kò eyits'ò nats'etekò whekò agiwhò, wet'à sii tlehtsi ló ehtsi-le. Eyii n̄htl'è sii, edàani ndè nàeshe adle ha sii dek'èt'è (asii wetàat'e edàani wet'à ndè sii hoòtl'o wexìdia-le). Akihò, eyii n̄htl'è weyii, edàani ti tii k'e agehzi t'à ehtl'è dàedi-le, ndè ehtò-le ekìyeh agehzi.

### **3. Inuinnaqtun**

#### **Havaotikhat Naitoliogat**

Okoa Havakatigiit Nunalikotini Angigotikoktot elakaktot okoalo Tlcho Government, Yelonait Iktiliit, North Slave Iktiliigat Katimayiit, Kitikmeot Inuit Katimayiit, Lutsel K'e Dene Itkileet, okoalo Kavamatokat Kanatami, okoa Nunatiap Kavamait, okoalo Diamond Mines Inc.

Hamna onipkak titigakhimayuk okiotoak piomayait okoa atoktokhat ovani Nakatak 12 Nunalikotini Angigotini. Ona naonaitk okoa Diamond Mine's havaagivagaity ovani 2005 ovalo opalongaiyaotaoyut omonga 2006-mot, okoa nunat kanogilitaoniakmata voalo okoa Havakatigiit Nunalikotikot Angigotikoktot. Okiotoaqk, Diavik havaktokhaotit meetikatikaklotit nunaliknik okaotikaklotit haffominga onipkalmik. Hamna titigakhimayu Nunalikotini Angigotini.

#### **Ona Nunat**

Okoa Diavik Diamond Mine oyagakhiokvik ovani Lac de Gras-mi emakak 100 km north of the treeline in the Northwest Territories. Lac de Gras tahik angiok kugaktok tonomot Kugluktumot, taononga taggiomot kugaktok. Ona tahik ema 60 km takiok, ovalo etitigiok emalo 16 km hiliokot ovalo 12 meters etitigiok. Ona etinikhaa tahiop, 56 meters etiyuk. Ona tahik allatlo tahit tahamani ikalukokittok naliak nunanik naoyukangitok ataa tahik. Ona tahik nikiavangitok naliak kaomatiangitok okiomi, ovalo emak kayuknaktok. Tahamani nippalokokitok naliak apivalaayoitok tahik nunalo, hila anogikpalaayoitok. Ona tahik hikkovaktk Aktobami, ovalo hikkoikpaktok June-mi Julaimi.

Tahamna nuna haniani Diavik oyagakhiokvikmi hogaat allatkiit nunagiyat. Ona emakak 84 allatkiit tingmiat okoalo 16 allatkiit hogaat nayukpagat. Elait hogaat aoyak okiok tahamaniitpaktot elaittaok aoyami tikitpaktot. Tahamaniotatok hogaat okoat kalviit, kayuktot, okalgit, higheet,ogyunngat, avingat, okoalo akilgit. Okoalo Kengaop tuktoit apkohinigiyaat tahamna nuna Lac de Gras. Haniani. Elait tuktot apkohakpaktot tahamani opingami ovalo okiakhami. Amakkot malikpagait tuktot ovalo hitiliokpaktot tuktukaknikmi aoyami. Aghatlo tahamani apkoahaayuktut.

#### **Ona Diavik Diamond Mine**

Okoa kovvikhat ovani Diavik-mi nalvaaktqaohimayut kaiktomi kaiktup ataani, hinaani tahiop ovani kivatani East Island ovani Lac de Gras-ni. Tahik elanga emaiyakhimayuk oyagaknik algakvikhak ovani Lac de Gras-mi, emaokoa Diavik oyagaknik kovvikhanik algagianganani nunap ataani tahiogaloamit. Ona A154 algakvik kovvikhani enikhimayuk ovalo oyagaktakvioliktok ovani nongoliktomi 2002-mi, onataok tahiogaloak emaiyaliktat ona A418 emaitok ovani aoyak 2005.

2005 pinggahoat okiok ovani Diavik havakpiaktot aolalikhotik angmaktot oyakilikhotik. Hajja, Diavik nunap kangani oyagaknik algaktot kovvikhanik, ovalo kakogo nunap ataant algalikniaktot kovvikhat atpakkata. Hamani nunap kanganit algaktot kovvikhanik ovalo ehivgiokaklogo nunap ataant oktolikniaktot maniktokpalaaknaitpat. Ona nunap kangani algaktot atpakkaliayut oblogaalok onok algakkamik oyagaknik. Ona oyagak algaktat agyakpagat nunamit iglokpakmot pilokyiligivikmot okoa kovvikhat amovagait oyagakmit. Nunap ataantilikata algaktot kakogo, mikkait aghalutit agyaktakniaktot nunap kanganot pilokyiligivikmot.

Diavik allatkiinik iglokpakaktok havakviknik havaktit havakviinik ovalo aolavaktok. Hinniktakvilik havaktinot, niggivilik, afisikavilik, emiktavilik ovalo annakovilik, ekkakovikakhonilo, aghalutinik havakvilik, paowahaosikakhonilo ovalo milvikakhoni tingmianotlo.

Okiotoak, ona 350 km ongahiktigiok hikkokot apkohiokpata tamayat agyaktaovakhotik aghalutikot oyagakhiokvip pikhainik. Ona havaktaovaktoni okiotoak apkot 20 okioni, ovalo apkot hikkomi hivitogiyat tamayanik agyakovakpak Diavik-mot.

Amigaitot havakpagait ovani 2005 oyagakhiokvikmi. Diavik amohivaktot emakak 8.3 million carats kovvikhanani talvani okiomi. Ona apikotigikmiyat toniyat nutaamik emaktutmik laisimik ona



laisia nongonniakmat ovani 2007. Elait hivitoyut nunat allangoktok havakviogami talvani – ona nutaak emaiyaktaokmiok tahik elanga algakvikhak ovani A418 kimberlite pipe algalikmiyat ovani 2005-mi aolalikhimayuk. Ona oyagak kaligeektikpat tattip elagaloanga emaiyaktaovaktok, ovalo enikniaktok ovani himiklogo emalaiyaklogo ovani 2006-mi. Hamalo, anmohaktoknmiaktok nunap ataanoktikvikhak (nuna ataani) havaktaolikmiok ovani ovalo anmokomi atpakniaktok nunap ataanot omonga A154 tononganot ova hivogaanotlo omonga A418 pipes. Ona anmokitvik nunap ataanot emakak oyagak algakniagat kovvikhakaknik. Ovataok aipaa nunap atanot nalvaakhioviginiaktok kovvikhani ovani A21.

### **Ehoaktomik Aolayami**

Diavik kaffinik oktogomayut, atogakhanik ovalo maligakhanik eniktigihimayut ematot nuna ahigoktiktailiyutikhanik, kihime atokniaktot nutaamik Ehoaktonik Aolatjutikhanik emato nuna kayagilogo oyagakhiogiami. Ehoaktonik aolayutikhat atokniaktavut kanok ehoaktokot kengolikmi atoktaptinigi ehoakmata nunalikotit kakogo hivoniptinigi aolaniaktot. Ovataok ehoaktokot aolayami nunami havaotigiliktakot, ovalo taotoktakot kanok ovaptingnot ehoakhivaktok. Ematot, elitpaktavut nunalikotit ehoakhitiot, ovalo kengoliptinigi atoktakhavut kanok ehoaktiatigut atoliktakhavut. Ematot, ona hivolik elitpaktakot emaiyaktakot elanga tahik algavikhak oyagaknik ona (A154 dike) elaohikayut opalongaiyaotivut aipanot emaiyaktakotlo ona (ona A418 dike) ona emaiyakta aipangani aoyami. Maklonaktailitkot ovalo oakhitjut emakmik halumatjut eliogakhimayuk ovani A418 dike eniktikpagat - ona oaktiktaat makloitkot emakmot ahinot maklokaknik hiamayaktailitkotigiyat tahikmot. Onataok allangoktok kanok havaotikput ayoikhaotigiaktok oyagakhiokvikmi ema havaktivut tamakmik elihimayakhat, okoalo kantolaktivut ayokiktokhimayavut hamani onipkami.

### **Nunalikotit Monagitjutit Atoktakhat (EMS)**

Ovani 2003, Diavit-kot hanahimayut atoktakhani atilik Nunalikotit Monagitjutit Atoktakhat, naliak EMS, ema ekayutigiaktok ovaptingni nuna ehoiyakpalaaknaitomik havaktitlota oyagakhiokvikmi. Hamna EMS elitkohikaktok ema atikaktok ISO 14001, hamna havaknik elihimayaoyuk nunakhyoani. Ovani 2005, Diavik's EMS oktokhimayut okoa nunalikiot taotoktitlogit maliktakhat maliktait okoa Atoktakhat. Ehivgioktaogapta kavamanit ehoagiyaooyugut, ovalo EMS nunalikotivut ehoaktot aolayoitot. Ona atokvikhak aolayut elait amigaitot havaotigivagavut, maliktakhat aolayami, nunalikotit opalongaiyaotit, okoalo tohaatjutit okoalo nunalikotit pihimayavut titikkat. Okoa nutangogitot, ehoaktotigivut ehoakmata nunami ahigoiyaknaitomik nuna kayagiyami. Hamna pihimayakot ehoakotaoyuk ema inuit elihimayakhat hilataanit Diavitkonit angikhimayavut malikkaptighik nunat atogiami. Ematot, ovagut Nunalikotity Monagitjutit Atoktakhat maliktavut njuna ahigoktiknaitomik, ema ehoaktomik aolayaptingi nuna taotokhogo.

### **Diavik okoalo Nunanik Taotoktit Okaktit Katimayiit (EMAB)**

Okoa Nunalikotit Angigotit sainiktaohimayuk ovani Masi 2000, ovalo pikaktok kaffinik titiganik okaohinik maliktait okoa Diavik, Kablonangogitot kavamat, okoalo kavamatokat okoalo nunat kavamait. Ona maligakhaotait Diavit-kot nunanot angikhimayait, ovalo okaohiliklo atokoiyut katimayiit okakviovaktokhat. Emailikmata, EMAB katimayiit eliyaovaktot – okoa katimayiit elikoktot Daivtkonit naliak allat Meetiktit sainikhimayut Angigotinik. EMAB okoa meetiktit kinaoyut kitkoningaktonit sainikhihimayunit. Okoa Katimayiit hivonikaktot havakativilogit nunaliit Diavitkot okakvigivlogit ovalo onnioyukhogitlo nunalikotinik oyagakhiokvikmi. EMAB hamalo taotoktait Diavitkot havaangtnik okoalo kavamat Malikoiyit – pitkoyait allangoktok kakogo okakvigilogit.

Ona ataohik hamani Angigotmi okaohilik okoa Diavitkot titigaktokhat haffominga Nunalikotmik Angigotit Okiok Onipkakanik, ovalo elait hamani elaoyukhat onipkami. Amigaitot elait onipkami havaagivagait Diavitkot, inuit ehomaalogiyait, nunalikotit kanok okaktaohimayut, nutaat ehomagiyaooyut Daivtkot ehomagiyait, titigakhimayutlo ehivgioktit onipkangit.

### **Taotutit Atoktakhat**

Diavik allanik opalongaikhimayut ovalo atoktot kanok ehoaktomik nuna kayagiyami tahamani oyagakhiokvikmi. Atanik hamani naitot titigakhimayut ovagut taotutivut atoktavut 2005-mi. Talvani titigattiakhimayut okonai elaini onipkami hamani.

### Hogaat

Hamani Nunalikotini Angigotini, Diavik havakakpaktot Hogaanik Taotutini. Ona atoktakhak eiogakhimayuk katitigiyami naonaitkotikhanik hogaat taotokpagait kanok kanogilitaokpata oyagakhiokvikmi aolatitlogit. Elait ovagut taotokpagavut ovalo ehomaliktavut naliak pitkoyavutlo taotoktappingnit ovani 2005 okoat:

- Talvani 2005-mi, nuna naovaktok kioknik ovalo nunaiktat elait hogaat angmakmat oyagakhiokvik ovani 0.84 square kilometres. Hamna emaitot Nunalikotini Ehivgiogotini.
- Okoa nunat hogaat tuktut atokpagat elihimayat atogoiktat ovani 2005-mi, ovalo tuktut tokottokangitot haniani naliak annitokangitok oyagakhiokvikmi. Diavik emalo tingmiakot tuktunik ehivgiokhivakniaktot ehivgiogiyami kanok homotlo aolavakmata oyagakhiokvikmi. Ovani 2005, amigaitigot okoa 28 tuktut takovagait ovani East Island ova 20 obloni allatkiini ovaniit April-mit Saptaiptomot. Tuktut takovagait allakiit amihootkiagit tuktut.
- Hamna aghakaktoklo nuna elait aghat nunaiktot ekitot oyagakhiokvikmi nunakaktot, ova aghait tokoyoitot oyagakhiokvikmi, annitokangitok, naliak ahinot nutingitait talvani okiongani. Kaffit aghat Kikiktamiitot Nunalikionot havaktit ovani May-mi Aktobamot 60-goyut aghat takovagait takokatakpagait.
- Kalviit tahamani East Island-mi takokataktaik 2005-mi ovalo kalviit tokoyoitot, annitokangitot naliak nuutaongitot oyagakhiokvimit ovani oyagakhiokvikmi 2005-mi. Diavik ehivgioklogitlo takokataklogit kalviit tovyakpagait apotimi kaffioyakhaita ovalo homot pihokpaktot. Talvani 2005, 41 tqkovagait kalviit onipkaktait emakak tahanikmiotat.
- Talvani 2005, kilgaviit evangnitot tahamani ehivgioktamingni. Malgok kilgaviik oblolioktugaloak algakvikmi ovani A154 . Kilgavikinik tokottokangitok oyagakhiokvikmi ovani 2005.
- Kanga emaitoni Nunalikotini Ehivgiogotni ehomagiyait, okoa emakmiotat tingmiat emaknik atokviiyakhimaitot ovani 2005-mi. Emmat elait emaitot ovani A418 oyakivikhak emaiyaktaokmat. Emakmiotat Tingmiat takoyaovaktot ovani East Island ekkattoni emakni ovalo tingmiat atokhimaktait tattit natiknatlo tahamani Kiktami.
- Ekakotlo ehivgioktait akagoanigaikpat ovani 2005-mi. Nikkitlo nikkit poktait takovagait ehivgioghigangamik ovani Eggittokhat Ekakokvikmot ovalo haoyukhat. Okoa nikkit hogaat naggiakpakmagit, nagiakvikhailgomot eggitpagait kaoyihaotigivlogit havaktotokanot havaliihaaktonot oyagakhiokvikmi. Ekkakoviit ehivgiokhimakniaktait oyagakhiokvikmi.

### Poyok

Ovani 2005, poyot poyokpaktot tahamani Diavikmi oyagakhiokvikmi. Diavik ehivgiokpagat apotit opingami, ovalo ootakpagait apotit kanok poyoknik halumaikpaktot apot mahaktiligangat ovalo ehivgiokpagat ootakhogo emmak kanogilitok ovalo kanok poyot tolvigivagat apot. Diavikot pokokpaktot poyoknik homi ongahiktoanitt oyagakhiokvikmit.

Ehomagihimayait nalonaitot, poyut nunalitpaktot haniani oyagakhiokvikmi ovalo ekilivaalikpaktot ongahiktonit oyagakhiokvio[. Apotit ehivgiogait okoalo poyut taotoktait okiok nunalitot ovani 2004-mot 2005-mot. Poyut nunalitpaktot havaktonit ovalo homit annogimit.

Tamainit poyut hiamayakpaktot nunamot talvani 2005-mi amitaitkiat poyut ehomagihimayuit ovani Nunalikotini Kanogilitjutivaktot Onipkaktait. Ona elihimayat, kihime, hila aolatinago ovalo ehomagihimaitait nappaktigilitlogit ovani 2005-mi. Nappaktigihokkata ekilivaktot poyot. Taotoktatlo poyut aolahimaktot ovani 2006-mi.

### Emakmiotat Kanogilitot

Diavik ehivgiokhimaktait okoa kanogilitot Emakmiotat Omayut Taotoktait (AEMP) ovani 2005. Hamna hitamagilikta okiok emakmiotat ehivgiokpagait ovalo taotokoyaohimakmata Diavitkot emaktutaita laisianit. Talvani tonihigamik Nunalikitinik Angigotinik Okiok Onipkakanik, okoa AEMP okaktai ovani 2005-mi tonilangitpagait havaktoni ovani 2005 Atoktakhaotini.

Malgok meetiotigiyait okoat Diavik Naonaktolikiot Katimayit (DTC) okaotigivlogit, ovalo ona AEMP ehivgioktait okoa Mackenzie Valley nunalikiot Emalikiot Katimayit (MVLWB). Ona DTC Ehivgioktat naonaikhogo nunat ehivgiogotaini, ona emaklo ehivgioktat ovani 10 okioni, ovalo kanok titigakot atoktat ovani AEMP. Ona DTC agiktat havaagilogo okoa okaotigiyat meetiktot ovani AEMP. Ovani Desaipa 2005, naonaktolikiot meetiotigiyat okoat MVLWB elaokmat okoa Diavitkot Emmaknot Laisiat Nutangogiami ehivgioktat. Okaotigiyait okoat okaotigiffakhogit okoa AEMP, ovalo allatkiiktonik havaotini ovani AEMP onniotigiyait nutangokovlogit. Ona keoyat emaktot okoat okaotigikmatjuk Wek'èezhii Nunalikiot Emalikiot Katimayit (WLWB, okoa nutaat Katimayit eliyaoyut ovani Tlichu Angigotait), Diavik opalongaiyaktot tonihivlotik nutamik AEMP ovani Masi 2006. Hamna hajja ehivgioktaoliktok ovalo ehomalioktaoniaktok inuit tohaktitaolikata ovani Saptai 2006.

Ovani 2005 AEMP Okiok Enikmat Onipkakat toniyait kakogo ehivgioktaoyukhat titigat taotutaini havakhimayait ovani 2005.

### Ikaluit

Ovani Agasimi 2005, Diavik tonihivaktot manikmik okononga EMAB-konot Ikaluit Niggominagonakhiot ovalo Nikkikatiagonaktot Ehivgioktait ovani Lac de Gras. Ona ehivgioktat oblot pinggahoni ovalo inuit kaggitivlogit Lutsel K'e Dene Itkileet, North Slave Itkiliagat, Kitikmeot Inuit Katimayitlo okoalo Yellonaimiotat Itkileet. Meetigiaktoktoto katitigiot ovalo niggivagait ikaluit, okoalo ikaluit aolaktitpagait ehivgioktinot ootaktakhait. Ona ehivgioknik aolahimaktokhaot okiok tallimat enigaikpata kihime inuit ovani 2002 ehivgioktit okiotoak ehivgiogomayait.

34 ehookit ikaluktagiyait ovalo hittamat mammaknikhioktait. Inuit tamaita angiktait okoa ikaluit Lac de Gras-mi mammaktot kangamit ehivgiokakmagit. Okoa naonaktolikiot ehivgioktit ajikotaitlo nunaliit okakmagit – Ikaluit ovani Lac de Gras-mit aolaktitait nakooyuniktot nikkait.

Emmak emagiknialo ehivgioktat Taotogiakakmikmat ehivgiokpagatlo ovani A418 emaiyaktaoklmat algavikhak ovani 2005-mi, ovalo onipkakat hamna toniyat Kavamat Ikalulikinot Taggiokmiotalikionot (DFO). Tattit ikaluit nayugat ehivgioktalo hanaliktinagok tahik elanga emaiyaktaoniaktitlogo (opingak 2005) ovalo ehivgiovakniaktat hanahoikkatjuk emaiyaktaoyuk emak (Agasi 2006-mi) – ona onipkaniaktat titigaklogo enikat Agasi. Ikaluit Nakoyunaktot ovalo Kaffioyut Okaktait ehivgioktait ovani Saptai 2005-mi ekayukhikhotik ayoitonit Kugluktukmiotak. Hajja titigaktait onipkakat katitiktait ovalo titigaktaitlo. Kengolikmi, Ikaluit Tahiotait Atoktokhat ehivgioktait ovani 2005-mi onipkakat. Toniniaktiat aoyak.

### **Okaotigiyait okoat Daivitkot**

Talvani 2005, Diavik amigaitonik titiganik aolaktivaktot malikoiyinot okononga Mackenzie Valley Nunalikiot Emalikiot Katimayit, okoalo Kavamatokat Ikalulikiot Taggiokmiotalikionot, okoalo Nunalikiot Manikaknilikiot. Ona onipikagiloaktat naitokot onipkaliokhogit opalongaiyaotitlo.

### **Kagaktitaotit Monagiyakhat**

Ovani May 2003, Diavik onniotiyait EMAB okoalo maliktakhalikiot ehomaalogigamik kagaktitaotit makinigit nunamot (kagaktitanik hiamayaotivaktok) emakmot puppikpagat emak nunap kaggaktivilianit. Okoa kagaktitaotit mikkaogaloakhotik nunamot hiamayakpaktot, amigaitot elittogivagait. Halumaitot kagaktinit hivitokmata okoa ammonia elaokmat Emaktutmi Laisimi.

Ootaktit kanok agtigiyaaita elittogingitait.

Diavikot apikhivaktot allangogomaplogo Emmaktut Laisia ovalo okaktat nunaliit okaotivlogit ovalo malikoiyit kavamayt inuknik tohaktitingitkaloaklotik. Ona eniktok apigivlogit emmaktut angiklivaaligomayat kovigagiami ehivgiogiami emmak monagiyami ovalo halummaktigotikhatlo. Ona hanaliktot Ammonia Monagitjutikhat Opalongaiktok ovalo kengolikpak kovvigaiyami emakomik. Ona angiktaokmat angigotikot enikpaliayunaktok ovalo WLWB okaktot ona Ammonia Monagitjutikhat Opalongaiaot ovalo emmaknik kovigagiami ammonia ehomagiyayooyukhat inuit tohaktitaolikata ovani Saptaipami 2006.

### **Aolayut Havaktot**

Hamani okiok havakyoaknaktok Daivikni ovani 2005-mi. Diavik kaiktok angmokhakhikhak (ataankhioknik) nunap ataanik oyagaktaliklotik, ovalo okiok apkot aolatiaktok ema aktigiok 7607 aghalutit ohiyait kagitivlogit oyagakhivikmot. EMAB kaivaktot okiomi apkotikokhotik polakpaktot Masi. Okiok enilikmat, ona A418 emaiyakhimayut hanayaoliktok emak kugalaiyakhogo anmokvikhamot ovalo oyagatlo emaiyaitaovaktot okiok. Nutaak tahigak(Pond 14) ovalo hanayaovaktok, havalikta ovani Pond 2. Hanaliktat apkotikhat agyaktagiomi onaganik okiakhak. Diavik emaitok ISO 14001 maniktutilikiyaoyut ovalo Rio Tinto Aniktailinik, Hivoganainik, Nunalikotaitlo ehivgioktait okiok.

Ehivgiokataktait emat haniani Diavik ovalo katitigivaktot Poyokik Taotoktot Atoktait okiok. Kalveet ehivgioktaovaktot Masimi ovanilo Desaipami, okoa Diavikot elaovaktot ehivgiokhikatiigiikhotik kalviknik mitkoinik DNA ehivgiogakhak. Ovani opingamit okiakhamaot, tingmiaktot nunakotlo ehivgiokhivaktot tukunik tahamani. Ehivgiokpagait Emakmeetot kanogiliyut Taotutikaktot ovani May-mit Aktobamot, ehivgioktait ehivgiokhihimaktot nunamik oyagakhivikmi.

Nunanit-Atoktonit Taotutit Tupikvikaktot Julaimit Agasimot Emat Emaginit Taotoktait, Tuktut Taotoktait Ikaluit Nikkikatiaknihogait. Diavik hamalo elaovaktot kilgaviit taotutinik aghaniklo tabkonani tatkihhotini.

### **Inuit Ehomalogiyait**

Diavik pingitpakmata tohaatjutink naliak ehomalogiyaitnik inuit ovani 2005, okaotaoyuni oygakhivik. Kihime, Diavik titigakhakpaktot Nunalikiyit Taotoktikhat Katimayit okiok ovalo naitot titigat piinagialgit hamani onipkami.

### **Ayoknakoknik**

Talvani 2005, Diavik ehivgiokhivaktot nutaakot havaklotik oyagakhivikmi. Atokhogit annogik kuliktutikhak ehomagiyait ehivgiogakhjak, ovanilo 2004. Hamalo, ehivgioktat eliogailotik onakotini engnikotini aghalutikpakyoanot, ema aghalutit kamitangitni havagoigomik. Ematot aghalutit oghoktokpalaknaitomik ovalo poyokpalaaknaitomik.

### **Taotutit Enikmata Kanoginikat Ehomagiyait**

Hamani elangani ovatiago onipkakhak, atikaktok Rolling Effects Summary, ehomagiyait kanogiliniaktot amigaitoni nunamot. Hamna elanga naonaitok kanok Diavikot ehomatik kangami innikat, ovani 2005 ovalo angitkiak ehomagihimayat talvani taotutit aolaliktitlogiy. Hamna okaohikaktok kanogiliniaktonik Hilat onalo Hila Kanogitpa, Nunatlo Naovaktotlo, Hogaat, Ikaluit & Emmaklo.

Kangamik okoat emaitkiyaoniktot, ona naonaitok angitkiak ona poyok poyokpalakpaktok. On poyok nunalitpaktok ovani 2005-mi amigaitkiyaoliktok okiok, kihime ehomat kangogilitpaktot nappaktigiliktoni onalo algaktaolikmat A418 oyakivikhak okiok. Poyot naonaitot ekitkiyaoyut kanganiit havaat ekiligangata.

### **Malikhimayait**

Ovani 2005, Diavik malikpaktok atokoyaitnik Nunanik Atutikot ovalo Emaktutit Laisit. Kanga tatkihlotini okiok, ona ehivgiokti okonanit Kavamatokat Itkilinot Okioktaktolikiot (DIAND) polakpaktot Diavik-mot ehivgokhiyaktokhoni. Ona elaonia haffomi onipkak okaotigiya Kavamamiotap, ovalo titigat Diavik ehoakhaktait ehoigiyait. Elait Havakti toghikto allaniklo naonaitkotinik allakokoyait (nuutigini katakoyit kasileet nunamit kagititkoyait). Elait ehivgioknimi Diavitkot nutangokoyut aolatjutikhanik Hivoganakto Tamayat Monagitjutikhainik Opalongaiknik.

### **Nunanik Taotutinik**

Table 1 hamani nongommani onipkami elakaktot naitonik alolatiinik nunani taotutinik enikpagait Diavik ovani 2005, hamalo naitot havaatik ovalo eniktotlo. Ona titigak elakaktok emaitonik:

- Poyot taotoktait
- Hilalikinik
- Emakoktoniklo emagikniklo emmak
- Emakmiotat kanogilitot
- Hogaat
- Hogaat nunait (avalakiat)
- Ikaluit
- Elihakyoktoto ehivgiokhiyut sekogtot

### **Atolikpaliayukhat Monagitjutit ovalo Ehoinktailiniklo**

Hamani titiganiitoni nongommani hamani onipkami (Table 2) takokhaopkaiyuk kaffinik elanik nunalikotinik okoa Diavitkot monagiyait. Okoa elaitlo ekkakot, emmat, hivoganaktot tamayat, hogaat, poyot okoalo aghalutit poyoit.

Hapkonani titigani, okoa naitoliokhimayut kanoik ovagut atolikpaliayaptingnik monagitjutinik (naliak kanoik allangoktavut monagitjutivut ayoiktavut). Ematot, Diavitkot elittot kanok onakotigiyat engnikotit hopoktaotainit onakotikaktot aghaluhikivikmot hinniktakvikmot, ema poyokpalaknaitomik Ona ehoinaktailitikaktok (kanok nuna halumaiktailivlogo). Ona elitogiyat emaklo atoktakot poyolaitkotigivlogo apkotinot, apkotit hikkotigoikata.

# Article 12 of the Environmental Agreement

## 12.1 ANNUAL REPORT

- (a) DDMI shall prepare and submit an annual report (the "Annual Report") to the Parties, the Government of Nunavut, and the Advisory Board on March 31, (or on such other date as prescribed by the Minister from time to time), for each calendar year during the term of this Agreement, commencing March 31, 2001.
- (b) Each Annual Report shall include the results of Environmental Monitoring Programs, and a rolling summary and analysis of environmental effects data over the life of the Project to illustrate any trends. The actual performance of the Project shall be compared to the results predicted in the environmental assessment and the CSR and an evaluation provided as to how DDMI's adaptive environmental management has performed to the date of each Annual Report.
- (c) Each Annual Report shall include, but not be limited to, the following:
- (i) a comprehensive summary of all supporting information, data and results from the Environmental Monitoring Programs and all studies and research;
  - (ii) a comprehensive summary of all compliance reports required by the Regulatory Instruments;
  - (iii) a comprehensive summary of operational activities during the preceding year;
  - (iv) actions taken or planned to address effects or compliance problems which are set out in the Annual Report;
  - (v) a comprehensive summary of operational activities for the next year;
  - (vi) lists and abstracts of all Environmental Plans and Programs;
  - (vii) verification of accuracy of environmental assessments;
  - (viii) determination of effectiveness of mitigative measures;
  - (ix) a comprehensive summary of all adaptive management measures taken;
  - (x) a comprehensive summary of public concerns and responses to public concerns;
  - (xi) a comprehensive summary of the new technologies investigated;
  - (xii) the Minister's comments, including any Minister's Report, on the previous Annual Report; and
  - (xiii) a plain English executive summary and translations into Dogrib, Chipewyan, and Innuinaqtun using appropriate media.
- (d) In order to prepare each Annual Report and with a view to both ensuring that an opportunity is provided for early disclosure and discussion of problems and that each Annual Report meets with the requirements of this Agreement, DDMI shall Consult with the Minister and the Advisory Board as DDMI compiles the information and data to be included in such Annual Report.
- (e) Within forty-five (45) days of the receipt of the Annual Report, any Party or the Advisory Board may advise the Minister whether such Annual Report is satisfactory or unsatisfactory.
- (f) Within ninety (90) days of the receipt by the Minister of the Annual Report, the Minister shall advise DDMI whether such Annual Report is satisfactory or whether the Minister has determined that such Annual Report is deficient. In the event that the Minister has determined the Annual Report to be deficient, the Minister shall provide DDMI with a Minister's Report.
- (g) In relation to matters substantially within the jurisdiction of the GNWT, the Minister shall provide DDMI with a Minister's Report pursuant to Article 12.1(f) when the Minister receives advice from the GNWT that the Annual Report is unsatisfactory and the GNWT's advice shall be included in the Minister's Report.
- (h) Within sixty (60) days of the receipt by DDMI of a Minister's Report, DDMI shall reply to the Minister's Report and provide the Minister with a revised Annual Report or an addendum which addresses satisfactorily the deficiencies described in the Minister's Report.
- (i) The Minister may provide DDMI with an extension of time where DDMI is bona fide delayed in completing an Annual Report or providing a reply to a Minister's Report.

# Article 12 of the Environmental Agreement

## (Plain Language, provided by EMAB)

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### 12.1 Annual Report

- a) Diavik will create an annual report and pass it on to the Parties, the Government of Nunavut, and EMAB on March 31. If the Minister of DIAND OKs it, the date can be changed. The annual report has to come out each year of this agreement, starting March 31, 2001.
- b) Each Annual Report will include:
  - The results of Environmental Monitoring Programs
  - A summary that adds in data of each year and an analysis of environmental effects data over the life of the Project - to show patterns over the years.
  - How the Project is actually affecting the environment will be compared to the results predicted in the Environmental Assessment and the Comprehensive Study Report
  - A review of how Diavik's adaptive environmental management has been working so far
- c) Each Annual Report will also include:
  - A full summary of all supporting information, data and results from the Environmental Monitoring Programs, plus all studies and research related to these;
  - A full summary of all reports on how Diavik has followed all rules and regulations in the Regulatory Instruments;
  - A full summary of mining activities during the year up to the annual report;
  - The ways Diavik is fixing any environmental effects or problems following rules and regulations;
  - A full summary of mining activities for the next year;
  - Lists and summaries of all Environmental Plans and Programs;
  - A check that environmental assessments are correct;
  - A report on how well steps to lessen effects are working;
  - A full summary of all adaptive management steps taken;
  - A full summary of public concerns and responses to public concerns;
  - A full summary of the new technologies Diavik has looked into;
  - The Minister's comments on the Annual Report from the year before, including any Minister's Report; and
  - A plain English executive summary and translations into Dogrib, Chipewyan, and Innuinaqtun.
- d) Diavik will consult with the Minister and EMAB as Diavik puts together the information and data to be included in the Annual Report. This is so that there is the chance to find out and discuss problems as early as possible. This will also make sure that each Annual Report does what the Environmental Agreement requires.
- e) Any Party or EMAB may let the Minister know if the annual report is satisfactory or not. They have forty-five (45) days after receiving the Annual Report to do this.
- f) The Minister of DIAND has 90 days after receiving the report to let Diavik know if it is satisfactory or not. If the Minister decides that the report needs to be fixed, the Minister will give Diavik a Minister's Report.
- g) For the parts that involve the GNWT, the GNWT will let the DIAND Minister know if they think the report needs to be fixed. The Minister will include that information in his Minister's Report.
- h) Diavik has 60 days to answer to the Minister's report, and revise the Annual Report or add to the parts that need fixing.
- i) The Minister can give Diavik more time for the Annual Report or to fix the Annual Report if there's a good reason.

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# Introduction

The Environmental Agreement was signed by several Parties in March 2000, and was written and agreed to with the goal of minimizing the environmental impacts caused by the Diavik Diamond Mine. The Agreement contains several clauses, or Articles, that outline the responsibilities of Diavik, Aboriginal governments, and the federal and territorial governments. For Diavik, the agreement outlines Diavik's environmental protection commitments, establishes reclamation security requirements, and provides transparency to local communities.

Part of the Environmental Agreement also states that an advisory board would need to be formed. As a result, the Environmental Monitoring Advisory Board (EMAB) was created—a board that is independent of Diavik or the other Parties that signed the Agreement. EMAB has one representative that sits from each of the parties that signed the Environmental Agreement.

One of the clauses of the Agreement (Article 12) requires Diavik to write this Environmental Agreement Annual Report, and sets out what all must be included. This report gives an update on operations, environmental plans and programs, submissions, public concerns, new technologies that Diavik is investigating, compliance, monitoring and results that are important to the communities' and EMAB's interests and needs. This report has, in summary form, all the sections required by the Environmental Agreement (Section 12.1).

## Minister's Comments

*In January 2006, Diavik received comments from the Minister regarding last year's (2004) Environmental Agreement Annual Report. The Minister acknowledged that some of EMAB's comments on the report were not incorporated by Diavik, and that Diavik provided reasons for this. The Minister also supported EMAB's recommendation for a meeting between EMAB and Diavik to develop shared expectations for the next (2005) annual report.*

## **Company Profile**

The Diavik Diamond Mine is an unincorporated joint venture between Diavik Diamond Mines Inc. (60%) and Aber Diamond Limited Partnership. (40%). Both are Canadian companies with headquarters in Yellowknife, Northwest Territories, Canada. Diavik Diamond Mines Inc. is a wholly-owned subsidiary of Rio Tinto plc of London, England and Aber Diamond Limited Partnership is a wholly-owned subsidiary of Aber Diamond Corporation of Toronto, Canada. Diavik Diamond Mines Inc. manages the operation.

The Environmental Monitoring Advisory Board's (EMAB's) goal is to work with the communities near the mine site, and to provide Diavik with input, feedback and advice on environmental matters. EMAB also monitors and evaluates Diavik's activities - recommending changes when the Board feels it is appropriate.

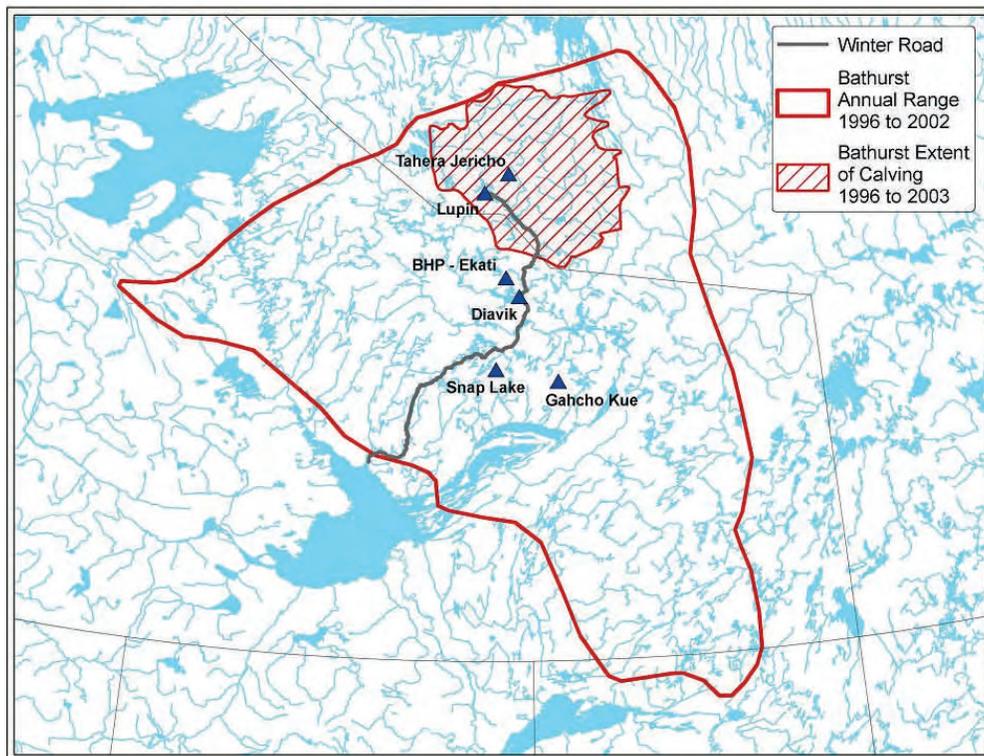
Community members have been to Diavik on different occasions, to participate in camps and other events. Examples include the Wolverine track surveys and community-based monitoring camps that take place at Lac de Gras during the summer. These camps also provide training opportunities for community members.

## Regional Environment

The mine is located on an island in Lac de Gras, approximately 300 kilometres northeast of Yellowknife, Northwest Territories. Lac de Gras is roughly 60 kilometres long and is about 100 kilometres north of the treeline in the arctic tundra of the Northwest Territories. The lake has a large drainage area with inflow through a channel from Lac du Sauvage. The Coppermine River flows from Lac de Gras, way north to the Arctic Ocean. The map on the previous page shows Diavik in Canada's north.

Aquatic productivity is fairly low in Lac de Gras, as it is in most northern lakes. This refers to how fast plants and animals (such as fish or bugs) grow in a lake environment, and it is affected by low natural concentrations of nutrients, low light levels during winter, long periods of ice cover and low water temperatures. However, many fish species still make the lake their home. Lake trout, cisco, round whitefish, arctic grayling, burbot, longnose sucker and slimy sculpin are among the fish species found in Lac de Gras.

84 bird and 16 mammal species have been recorded as occasional or permanent residents in the region. Many of the bird species breed in the area. During spring and fall, part of the Bathurst caribou herd migrates through the area; the map below shows the range of the herd in relation to where Diavik is located.



## East Island

Although there are many mammal and bird species in the region, only a few species live on East Island permanently. These include wolverine, red fox, arctic hare, arctic ground squirrels, red-backed voles, brown lemmings and rock ptarmigan.

Caribou may cross the ice of Lac de Gras during migration periods. Many bird species stop at

the island during spring and fall migrations, and a variety of waterfowl, shorebirds and songbirds nest on East Island during the summer. Grizzly bears, wolves and wolverines have large home ranges and occasionally visit East Island.

The region has long, cold winters and cool, short summers with little annual precipitation; most of the precipitation that does fall is in the form of snow. The table at the right shows Diavik's average monthly temperatures during 2005. This climate helps to determine the kinds of vegetation that are found and hearty, tough species make up the northern shrub tundra vegetation in the area.

Average Monthly Temperature at Diavik in 2005	
January	-30.3
February	-28.3
March	-22.7
April	-9.6
May	-6.5
June	6.5
July	11.0
August	10.2
September	2.1
October	-4.6
November	-14.8
December	-18.7

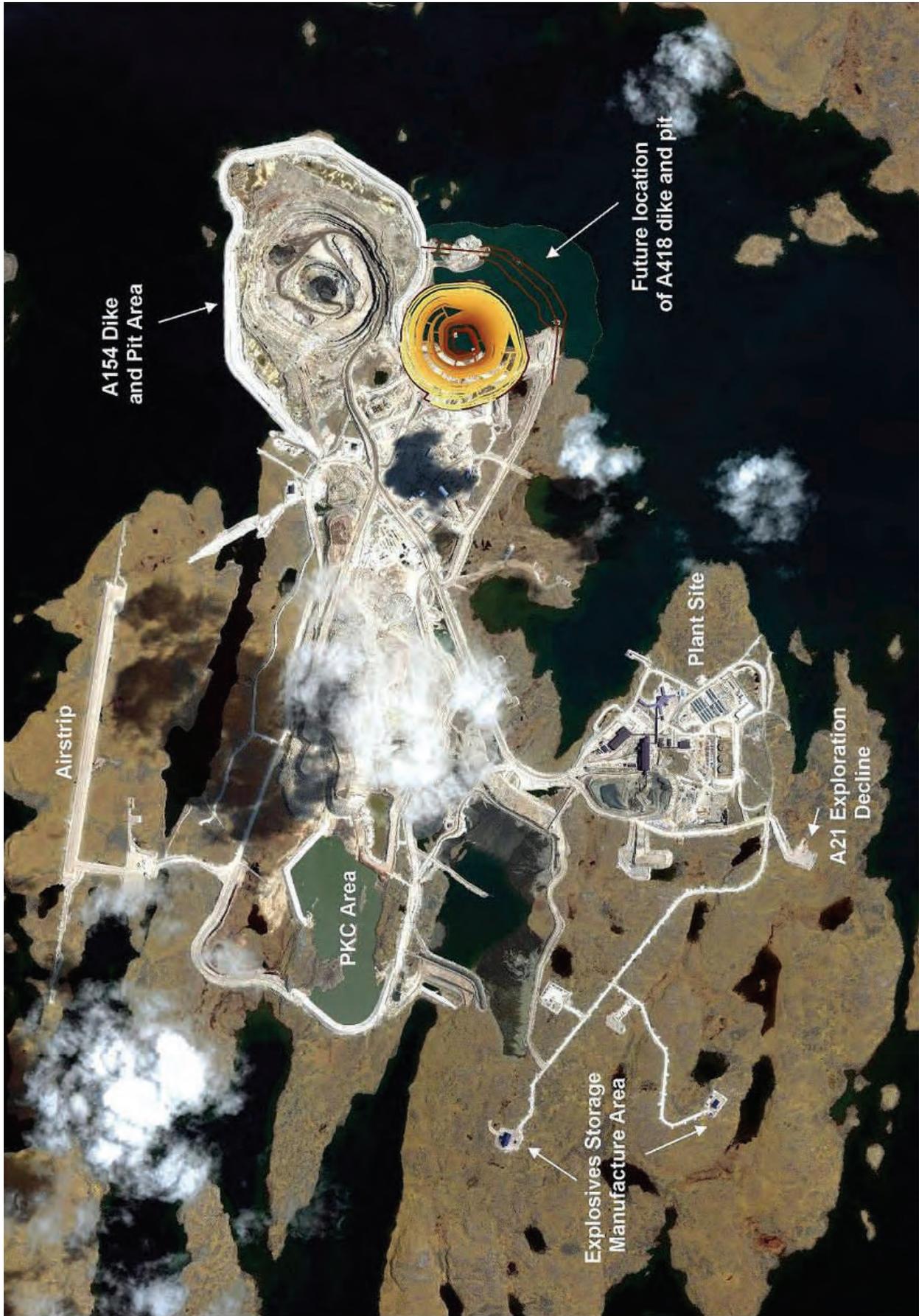
**The Year in a Brief Review**

The Diavik Diamond Mine had another productive, busy year in 2005. While emphasizing safety, community and environmental responsibilities, the mine produced about 8.3 million carats of diamonds during the year. The figure on the next page shows the layout of the Diavik mine site, for reference.

During the year, as waste rock material was excavated from the A154 pit, it was separated into three types based on percent total sulphur: Type I - clean rock (<0.04%), Type II (0.04-0.08%), and Type III (>0.08%). The figure below shows the amounts of these types of materials deposited on the island in 2005.

Quantity and Types of Materials Moved in 2005 (million m <sup>3</sup> )			
Month	Type I	Type II	Type III
January	0.38	0.10	0.31
February	0.19	0.05	0.61
March	0.29	0.10	0.45
April	0.30	0.04	0.52
May	0.41	0.05	0.40
June	0.42	0.07	0.45
July	0.51	0.09	0.30
August	0.54	0.08	0.31
September	0.37	0.01	0.50
October	0.55	0.12	0.28
November	0.23	0.06	0.46
December	0.26	0.11	0.23
<b>Total</b>	<b>4.45</b>	<b>0.88</b>	<b>4.82</b>

# Diavik Site Layout



Type I material is used for construction (e.g. PKC dam raises and road construction or maintenance or the A418 dike), or is stockpiled in the Type I rock pile. Type II and III rock is placed within the designated piles. Type III material is held in by surrounding rock piles to prevent acid rock drainage (ARD). ARD can occur when a certain rock type is exposed to air and water, causing sulphuric acid to be formed. This acid can then dissolve some of the metals within the rock (e.g. lead, arsenic, mercury), allowing them to flow into ground and surface waters. For this reason, Diavik contains (keeps separate) any rock that may potentially cause ARD.

The amount of fresh water taken in 2005 from Lac de Gras is shown below. This water was used for many things including the main accommodations complex, south construction camps, maintenance shops, process plant, dust control around the site and other infrastructure such as drills. The total amount of fresh water used from Lac de Gras was below the 1.28 million cubic metre limit set out in the water license, and the total used in 2005 was also lower than the quantity used in 2004.

<b>Freshwater Use 2005 (m<sup>3</sup>)</b>			
<b>Drills</b>	<b>Domestic Water Use</b>	<b>Process Plant and Dust Control</b>	<b>Total</b>
<b>120,137</b>	<b>77,985</b>	<b>775,101</b>	<b>973,223</b>

Diavik's water license will expire in August of 2007. To prepare for this, Diavik submitted their application (in August of 2005) to start the renewal process. No new or different terms are being requested by Diavik for the new license, other than asking for it to cover a longer term. In December, Diavik participated in public technical sessions for the renewal, and these were organized by the Mackenzie Valley Land and Water Board. More hearings are planned for 2006.

Progress on the construction of a second dike (A418) took place in 2005 as well. The rock barrier was closed off in the fall, and during 2006 the dike will be completed and made water-tight to prepare for de-watering. A decline (or tunnel) was also started and was 800 meters below ground level by the end of the year. The purpose of the decline is to help with deciding how practical underground mining of the A154 and A418 kimberlite pipes is. A smaller decline, when completed, will allow for bulk sampling of the A21 kimberlite pipe.

In late 2005, Diavik's Environmental Management System (EMS) received re-certification to the internationally-recognized ISO 14001:2004 standard. The EMS was first certified a year before that, and must undergo annual audits by a third party to make sure that it still meets the standard. The EMS and the ISO 14001:2004 standard are based on the idea of continual improvement with respect to environmental objectives and targets.



# Environmental Plans & Programs

*This section contains a brief outline of each of the various plans and programs that Diavik follows, related to the environment. The outlines are intended to introduce you to the documents and provide an abstract of each one. Some of these documents were submitted and approved a few years ago, but they still applied to 2005 operations.*

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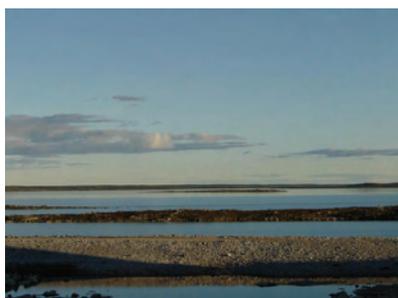


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**A418 Construction Environmental Management Plan**  
**Submitted to MVLWB November 2004 (resubmitted April 2005 with minor changes)**  
**Approved**

The Diavik Diamond Mine deals with the development of the kimberlite pipes A154, A418 and A21, located beneath Lac de Gras. The initial construction included many structures, including the A154 dike in Lac de Gras and other facilities such as accommodations, processed kimberlite containment facility, a sedimentation pond, a rock quarry, access roads, pipelines, power lines, a water treatment plant, and a sewage treatment plant.

Construction of the A418 dike will be carried out to allow the mining of the A418 kimberlite pipe. It will be constructed in Lac de Gras using the same design and the same construction techniques as were used for the construction of the A154 dike. Other facilities will be limited to the construction of small stretches of new access roads, new rockfill laydown areas, power lines and pipelines and moving some existing temporary facilities.



*Lac de Gras on a summer evening*

This document outlines the environmental construction management plans to be implemented to minimize environmental effects during the A418 dike construction activities. Diavik is committed to implementing Best Management Practices (BMP) for these activities. A description of each on-land construction activity such as crushing, and in-lake construction activity such as dredging, cut-off wall construction and pool dewatering is provided within this Plan. Environmental management controls available to the constructors are also described. Finally, monitoring and inspection programs are described which are compatible with the described BMP and which would provide performance measurement.

**A418 Dike Quality Assurance/Quality Control Plan**  
**Submitted to MVLWB November 2004**  
**Approved**

The A418 dike is required to circle the A418 kimberlite pipe located beneath Lac de Gras, to allow dewatering, and to allow open pit mining of the pipe.

The A418 dike will be constructed of rockfill from mining and crushing operations. The dike will be built in the wet and, due to the short summer season, some of the work will be carried out in cold weather conditions. For these reasons the A418 dike construction will have some unusual challenges, which require a detailed Quality Assurance/Quality Control (QA/QC) manual. This Plan applies to the construction of the A418 dike and is meant only for the field inspectors.

**Aquatic Effects Monitoring Program 2001**

This document describes the Aquatic Effects Monitoring Program (AEMP) for the Diavik Diamond Mine site at Lac de Gras. This program was developed from the information collected

through six years of project development (1994-2000), including aquatic baseline studies, community consultation, engineering design, and environmental assessment, including recommendations from the Diavik Technical Committee. The program has been designed together with the Type A Water License and the Fisheries Authorizations for the mine. This version takes into consideration aquatic-based technical issues and follow-up recommendations developed through the public Comprehensive Study Review, June 1999. The Aquatic Effects Monitoring Program was approved by the Mackenzie Valley Land and Water Board in July 2001.

In summary, the AEMP tries to measure changes over time in the water quality, phytoplankton, zooplankton, benthic invertebrates, and sediment quality of Lac de Gras. Monitoring locations are found throughout Lac de Gras with most of the sites closest to East Island and a site about 60 km away at the outlet of Lac de Gras. With only a few exceptions, monitoring is done twice per year during the late ice-cover period (April) and during the open-water period (August). The monitoring program design allows changes in the aquatic ecosystem to be evaluated over time at locations closer to and farther from the mine, to find out if environmental effects are occurring.

A four-step method for analyzing AEMP results was approved as a part of the program. The first step is to use monitoring data to determine if there are any effects on the Lac de Gras aquatic environment, and the second step is to determine whether or not the effects are due to Diavik's activities. If the activities are due to Diavik, then the effects are compared to original Environmental Impact Assessment predictions (step 3). The last step, if the effects are greater than the predictions, is to evaluate whether or not the effects cause a significant adverse environmental impact. The results of the last step determines whether any mitigation measures are required.

Reporting for the 2005 program will happen later in 2006, as the program is being updated and changes to reporting are being made.

### **Blasting and Explosives Management Plan v.5 Approved**

Explosives are used as a normal part of the mining operations of Diavik Diamond Mines Inc. (DDMI). This document describes steps that are taken to minimize effects on the environment (water quality and wildlife) from blasting. It describes actions that are taken to manage spills of explosives that in turn will assist in reducing ammonia levels to the environment. It also describes how larger wildlife (i.e. caribou and bears) are protected during blasting activities. Some measures that are described include:

- Explosives ingredients are delivered to site in separate bulk containers and stored in separate bulk storage facilities. The bulk explosives manufacturing plant and storage facilities are operated by an experienced, reputable explosives supplier (Denesoline Western Explosives) under long-term contract to DDMI. This supplier uses state-of-the-art facilities and equipment licensed and approved by National Resources Canada, Explosives Division. Materials are stored securely on site in approved magazines until released for use by authorized persons.

- Procedures are in place to ensure loading of holes is done with minimal spillage of material, reducing releases to the environment. Diavik's Operational Phase Contingency Plan describes basic spill cleanup procedures, in case a large spill occurs.
- The Blasting Supervisor checks the blast zone area to ensure that no wildlife (i.e. caribou or bears) is in the danger zone of the blast. If there are, the animals are herded out of the area and, if required, the blast may be delayed until safe to proceed.

### **Country Rock & Till Storage Updated Design Report 2001**

This report outlines the plan for the storage of country rock and till materials from the development and mining of the three kimberlite pipes in Lac de Gras. The updated design follows the decision to separate country rock into three types based on acid generating potential that may produce heavy metal-impacted water. The three types of rock are stored in separate cells that are designed to eliminate the production of unacceptable water quality seepage. The design was updated from the original 1999 Design Report and offers environmental advantages in terms of isolated containment of impacted water.

The procedure for separation of the rock into the three types is based on sulphur analysis of each hole drilled, and the classification of rock is based on average total sulphur concentration. The main feature of the storage concept is to place the Type III rock (with the most potential for acid generation) into "tub" cells and cover them with an impermeable cover before water can saturate the bottom rock and reach the Type III rock.

### **Dust Deposition Monitoring Program and Habitat Assessment 2001**

As part of the environmental monitoring program and commitments outlined in the Environmental Effects Assessment report and Comprehensive Study Report, Diavik has developed a program to measure dust deposition resulting from mining activities. The program goal is to understand dust deposition rates caused by project activities; results are compared with the predictions outlined in the Environmental Effects Report, Climate and Air Quality (1998).



*Field work for the Dust Monitoring Program*

The objectives of annual monitoring for dust deposition are to:

- Measure dust deposition rates at various distances from the mine, using snow samples and dust gauges
- Determine physical and chemical characteristics of dust that may be deposited from mining activities

The sampling stations were established through a transect approach, extending outwards from East Island to Lac de Gras. These stations are permanent and will be used for monitoring during all phases of the project lifecycle. There are 22 snow survey stations that make up four transects on land and on ice (including 3 control stations) near the mine site. The stations (not including controls) ranged from approximately 25 to 2000 metres from mining operations. There were 10 dust gauges (including two controls) placed at various locations on East Island and surrounding islands.

## **Hazardous Materials Management Plan v.9** **Revision awaiting approval from WLWB, submitted March 2006**

Diavik Diamond Mines Inc. (DDMI) requires that the transportation, storage, handling and use of hydrocarbon products, explosive materials, and all other chemicals be conducted safely and efficiently. Prevention, detection, containment, response, and mitigation are the key elements in the management of hazardous materials. Diavik is committed to minimizing the potential for harmful effects on terrestrial and aquatic life and ecosystems that may result from accidental release of harmful substances. The purpose of this document is to outline procedures for the management of hazardous materials.

The Hazardous Materials Management Plan lists types and quantities of hazardous materials on site and describes storage for each class of material. The Plan also describes measures taken to protect the environment such as:

- Purchasing and Inventory Control procedures
- Bermed and/or lined storage facilities for petroleum products
- Proper recycling or disposal of hazardous materials used
- Inspection and monitoring of petroleum products, explosives products, and other hazardous materials stored on site
- Training of personnel that handle hazardous materials



*Members of the ERT at practice*

The Plan also describes plans for closure of the mine and how hazardous materials will be removed from site during closure.

## **Interim Abandonment and Restoration Plan 2001**

The Interim Abandonment and Restoration (A&R) Plan was prepared as per the requirements of Diavik's Class A Water License, and was approved by the MVLWB. The report, along with its companion document titled *Cost Estimates for Interim and Final Restoration Plan, August 2001*, makes up the complete Interim Abandonment and Restoration package. Both reports describe major areas and main closure activities including engineering design, research objectives and planning, as well as revegetation and fish habitat replacement and monitoring.

As far as possible at the time of the Plan being written, it outlines what can be expected in terms of costs of closure at various stages of operations, from early shutdown through to scheduled closure. A large part of A&R Planning is the research and ongoing monitoring that will eventually allow a final Plan to be compiled. At this early stage, research programs are being developed and it will be some time before they will have results, allowing an update to this Plan.

Throughout the development of this A&R Plan and the associated cost estimate, it became clear that combined efforts on projects were possible if progressive reclamation (reclaiming as you go, rather than all at the end) were to be carried out. This may be quite substantial due to the possibility of separating potential acid generating rock in permanent enclosed and capped cells. With the addition of natural permafrost development, it is possible that a near 'walk away' scenario can be achieved at the scheduled end of mine life. Progressive reclamation will not only allow natural plants and wildlife species to establish early on in the mine life but will pro-

vide for several years of monitoring data to be collected prior to mine closure. There may also be an annual reduction in bonding costs that may result if progressive reclamation occurs.

The Abandonment and Restoration Plan will be discussed during Diavik's water license renewal process in 2006.

### **Operational Phase Contingency Plan v.9 Revision awaiting approval from WLWB, submitted March 2006**

The purpose of the Operational Phase Contingency Plan (OPCP) is to provide response procedures for any accidental release (spill) of hazardous or toxic substances, as well as procedures for water management. The OPCP defines the responsibilities of key personnel and the Emergency Response Team when responding to unintentional releases of products to the environment. Contained within this document are the emergency contacts listed for Diavik, any applicable contractors, government agencies, private organizations and nearby sites/operations.

The OPCP provides direction for minimizing impacts to the environment from spills, which include:

- Prevention of spills through proper transport, transfer and storage of hazardous materials
- Regular inspection of equipment and storage areas
- Training and exercises for the Emergency Response Team to ensure they are prepared for all types of material releases
- Current inventory of materials and equipment that would be required in the event of a release

The Plan also includes maps noting sensitive fish and sensitive wildlife areas at the mine site. This is to provide guidance for mitigative measures in case a spill occurs in these locations

### **QA/QC Plan 2003**

Diavik's Quality Assurance (QA) and Quality Control (QC) Plan was granted approval in 2000 by the Department of Indian Affairs and Northern Development (DIAND). This revised document was submitted as required by the Type A Water License. The purpose of the revised QA/QC Plan is to specifically outline the steps, procedures, and equipment that will be used by Diavik personnel to maintain sample integrity and to assess the precision and accuracy of analytical results.

### **Reclamation Research Plan 2002**

This Reclamation Research Plan has been developed as per Diavik's Class A Water License, Part L, Section 3. The objective of the plan is to outline research that will be used to verify closure design plan concepts as outlined in the approved Interim Abandonment and Restoration Plan.

Several research projects have been identified, and a brief description and status of work done on them in 2005 is presented below.

Country Rock Test Piles: The purpose of this study is to determine how much water may be able to filter through the rock pile where interior temperatures could be below the freezing point. The study will also determine the role temperature plays in acid rock drainage, as well as how well lab tests predict results in large scale test piles. In addition, the study is looking at bacteria growth in the rock piles, simulation models, changing of physical conditions in rock piles, and effects of a warmer climate on the behavior of the piles.



*Aerial view of the pads for the test piles*

During 2005, construction of the test piles continued but was ended early due to weather. Samples of waste rock were taken to evaluate bacteria growth in November 2005. Observations were made on the test piles that are currently being constructed, and further work will be carried out in the coming season.

Till Cover Stability: The program will monitor till piles for cracks and settling to check stability of the till and will help plan for till placement at the closure of the mine. Currently, the till stockpile is continuously being added to and subtracted from. Therefore, stability monitoring will start once the pile activity has stopped.

Revegetation Research: This study will find out which substrates are most effective for plant establishment and growth, which soil amendments (changes to the soil) are most effective at improving soil properties and plant growth, and which groups and individual native species are able to grow and survive on different substrates. Test plots were established and soil amendments added in previous years of the study; seeding of some species also took place in the past. In 2005, fertilizer was applied to both spring and fall seeded plots and sewage sludge was applied to select plots as well. Seeds from 4 local species were collected and planted in some of the study blocks as a trial. A vegetation assessment was also conducted in August of 2005.



*Vegetation at the Diavik site*

Field work will start in spring 2006. Data will be downloaded from data loggers and the same fertilizer treatment will be applied once the vegetation is growing. Germination will be checked in late June or early July and seedling establishment will be evaluated in August. If there is enough growth, then the species health, ground cover by species, and plant height will be assessed. Year one data will be analyzed in early 2006 and year two data will be analyzed in fall 2006.

PKC Closure Research: This program will measure various physical properties of fine processed kimberlite (PK) over time to verify closure planning for the PK Pond. In 2005, field studies were carried out that included sampling to analyze density and moisture content of PK material. Thermistors, or temperature sensors, were installed in the PK beach and piezometers (instruments for measuring the height of the water table) were installed in pairs. Lab testing of samples, installation of more instruments, and monitoring along with a geophysics survey are planned for the next phase of the work.

Disposal Alternatives for Treatment Plant Sludge: This study was to find out the chemical and toxicological properties of sludge, to determine if there are any environmental concerns and to

evaluate alternatives for disposal of the sludge. No work was done on this study in 2005, as it was completed in 2004. Conclusions from the final report in 2004 were that different batches of sludge had different levels of ammonia, and that pore water had high concentrations of ammonia. It was not possible to determine why this was occurring. The report recommended that further evaluation and monitoring of water chemistry be done before reconnection of the North Inlet to Lac de Gras. Diavik does this recommended monitoring of water chemistry through monitoring at Surveillance Network Program (SNP) stations. No final decisions have been made as to whether or not to reconnect the North Inlet to Lac de Gras, and ongoing evaluation continues.

Inventory of Closure Materials: This program will develop an inventory of closure materials to identify any shortages or extras which may change the selection of material for closure design. The inventory will be complete in 2006.

The Research Plan includes research design, monitoring schedules and estimated budget amounts required for each program.

**Rock Management Plan 2004  
Submitted to MVLWB September 2004  
Approved**

This document presents the management plan for the identification and separation of potential acid generating rock produced from mining of the A154 and A418 kimberlite pipes. As outlined in the Country Rock and Till Storage Updated Design Report, separation is done to minimize the potential for generating acidic drainage and leaching of metals from the North Country Rock Pile.



*Waste rock is loaded for hauling*

Best management practices for the handling of country rock during operations are presented in this report and are based on blast hole sampling and testing for total sulphur. The rock is classified into three rock types depending on sulphur concentration:

- Type I: considered clean rock with <0.04 percent total sulphur
- Type II: considered intermediate rock with a 0.04 – 0.08 percent total sulphur range and minimal to no potential for acid generation
- Type III: considered potentially acid generating rock with >0.08 percent total sulphur

The sulphur limits were revised from the 2000 Preliminary Plan criteria based on the first 18 months of operation. After those first 18 months, Diavik determined that the mining methods caused increased Type I and Type II rock to be segregated with Type III rock. New classification limits allowed the top 40% (with respect to sulphur content) of waste rock to be segregated. These criteria are still being monitored and may be revised again if necessary.

The sulphur level for each drill hole sample is classified as either Type I, II or III. The rock type is assigned to each location of the drill holes. Trained geologists then overlay the sulphur results over the blast pattern and section off smaller units of each rock type. The mound of blasted rock is then flagged off by rock type to allow it to be loaded and transported to the proper dump area in the waste rock pile. The plan to classify, separate and cover the poten-

tially reactive rock meets the best management practices proposed during the environmental assessment and the water license permitting process.

### **Waste Management Plan v.9**

#### **Revision awaiting approval from WLWB, submitted March 2006**

Diavik is committed to taking all necessary steps to ensure that the collection, storage, transportation and disposal of all wastes generated by the mine are being conducted in a safe, efficient and environmentally compliant manner. The Waste Management Plan outlines the management of waste and a waste minimization program. The main objectives of the plan are to:

- Outline procedures for the proper disposal of wastes
- Minimize potentially harmful effects to the environment
- Comply with the Federal and Northwest Territories legislation

The Plan outlines the different types of waste that are generated on site as well as the proper way to handle/store/dispose of each type in order to minimize environmental impact. The Plan is detailed and includes:

- Storing, incinerating (burning) or land filling of waste
- Details of facilities (including an approved landfill) for dealing with waste
- Training for operators that handle regular and hazardous waste

The Waste Management Plan also includes, as an appendix, a Waste Transfer Area (WTA) Operating Plan. This document outlines daily and weekly inspections of the WTA, guidelines for the soil remediation area at the WTA, and general operating procedures for waste handling.



*Caribou on the tundra*

### **Water Management Plan 2004**

The purpose of Diavik's Water Management Plan is to provide a description of the management and design of water systems at the mine site. The Plan describes existing management systems, and future water management changes that are anticipated. The environmental compliance monitoring program is in accordance with Diavik's Class A Water License. Key objectives of this Plan include:

- Ensuring compliance with water license discharge and monitoring requirements
- Minimizing fresh water use through recycling as much water as possible
- Anticipating and proactively managing water handling issues

Diavik has developed several methods to achieve these objectives:

- System designs are conservative and contain backup plans to lower risks
- All major water flows are monitored and reported through Diavik's Project Information Management System (PIMS)
- A Water Management Committee meets quarterly to review water management performance, identify water management issues, and develop action plans to resolve these issues

## Wildlife Monitoring Program 2002

As per the Environmental Agreement, Diavik developed and put in place a Wildlife Monitoring Program to check the accuracy of the environmental assessment and to determine the effectiveness of actions taken to reduce impacts to wildlife. This program was developed based on information from four years (1995 – 1998) of wildlife baseline studies, community consultation, recommendations developed during the Environmental Assessment, and two years of project activity monitoring. This program takes into consideration wildlife and wildlife habitat-based technical issues raised by the Environmental Monitoring Advisory Board (EMAB) and Environment and Natural Resources (ENR); (previously known as Resources, Wildlife and Economic Development) during early reviews of this program in 2002.

The Wildlife Monitoring Program is a method for observation and fine-tuning of procedures for wildlife and habitat management at the mine site. The Wildlife Monitoring Program is therefore closely linked with Diavik policies and guidelines, management plans and standard operating procedures (SOPs). There are several SOPs in place to protect wildlife and these are evaluated for effectiveness as part of the wildlife monitoring program.

Because reviewers requested it, a full statistical analysis of data collected from baseline through to 2004 in the Lac de Gras area was done by a consultant, to check impact predictions. After review of this analysis, it was agreed by all parties that a similar analysis would not be required for another few years.

The program includes monitoring the following components:

- Vegetation/Wildlife Habitat
- Caribou
- Caribou Advisory
- Caribou Mitigation Effectiveness
- Grizzly Bear
- Wolverine
- Waste Management
- Raptors
- Waterfowl

The Wildlife Monitoring Program is adaptive and can be changed in response to changes and unforeseen circumstances that are identified from monitoring and from new information sources.



# Summary of Submissions

*This section provides brief summaries of all documents submitted to applicable regulatory bodies in 2005.*

*Note: Submissions in the form of plans and programs are listed separately in the previous section entitled "Environmental Plans and Programs".*

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## **A418 Dike Turbidity Monitoring Program Submitted to MVLWB and DFO March 2006, Approved by DFO June 2006**

In order to comply with its fisheries authorization and its Class “A” Water License, Diavik Diamond Mines Inc. (DDMI) was required to do daily monitoring of total suspended solids (TSS) and turbidity during construction of the A418 dike. A company was contracted by Diavik to conduct the Dike Monitoring Program. Data from the program was uploaded daily to an FTP site so that applicable regulators could check data during dike construction activities.

There were monitoring objectives set out by the Department of Fisheries and Oceans Canada (DFO) and the Mackenzie Valley Land and Water Board (MVLWB). These monitoring objectives were:

### **DFO**

1. Determine maximum daily turbidity concentrations and their depths at three pre-determined monitoring locations; and
2. Determine the type (shoal/shoreline, shallow water and deep water) and area (in hectares) of fish habitat affected by potential turbidity plumes produced during dike construction



*Placing the curtain around the  
A418 dike area*

### **MVLWB**

1. Monitor depth integrated turbidity and TSS concentrations at four pre-determined monitoring locations

To meet these objectives, the Dike Monitoring Program used sampling and analytical procedures widely accepted by government regulators and certified laboratories. Quality Assurance (QA) and Quality Control (QC) procedures were also followed to ensure a constant methods and to meet a high standard of data quality.

The report for this program consists of data only; appendices include data from turbidity monitoring, discrete TSS, remote turbidity, plume delineation surveys, relationship between TSS and turbidity, and depth-integrated TSS. Diavik requested that the report be mostly a data summary for future reference and study.

## **A418 Baseline and A154 Year 2 Monitoring Report Submitted to DFO June 2005 Awaiting approval**

This report describes the results of the 2004 dike monitoring study in Lac de Gras, conducted by Diavik. The study addressed conditions related to the construction of the A154 and A418 dikes in Diavik's Fisheries authorization issued by the Department of Fisheries and Oceans (DFO). The goals of the study were:

- To document pre-construction baseline water quality, sediment quality and benthic invertebrates near the future location of the A418 dike
- To sample a new set of control sites for benthic invertebrates and evaluate these control sites for monitoring effects of the A154 and A418 dikes

- To re-sample some sites around the A154 dike for comparisons with the new control sites, to verify the Year 1 monitoring results for the A154 dike

Design of the 2004 study included recommendations made by DFO and the following items:

- 10 sites located on two transects (Lines 6 and 7) going out from the A418 dike. Samples collected at these sites included benthic invertebrates, water quality and sediment quality
- 15 control sites in two new control areas (Control Areas A and B) east of the A154 dike. These sites were sampled for benthic invertebrates, water quality and sediment quality
- Re-sampling 10 sites located on two transects (Lines 4 and 5) going out from the A154 dike. These sites were sampled for benthic invertebrates only

#### A418 Dike – Baseline

Results of baseline water quality surveys near the A418 dike showed that water quality was generally similar along Lines 6 and 7, and in the control areas. Concentrations of total suspended solids (TSS), nutrients, and several metals were slightly higher in the control areas compared to Lines 6 and 7. The data collected in 2004 show that the control areas are suitable for use in future monitoring of dike-related effects.

Sediment particle size varied among the sites and areas sampled. Sand content was highest in Control Area B, highly variable in Control Area A, intermediate at Line 7 and lowest at Line 6. Sediment sand content was weakly related to water depth, with deeper sites having lower sand content. Concentrations of nutrients were similar in all areas. Maximum arsenic, barium and iron concentrations were considerably higher in the control areas than at Lines 6 and 7. However, differences among areas in median concentrations were usually small and concentration ranges overlapped among areas. The sediment quality data also show that the new control sites are suitable for future monitoring.

Benthic invertebrate community structure (the species and numbers of invertebrates) was similar near the A418 dike and in the control areas, although water depth and sediment particle size were found to influence invertebrate abundance (numbers). Total invertebrate abundance was low and variable among sites. Deeper sites along Line 6 had lower total abundances compared to sites in other areas. Richness was less variable than abundance and the range in richness was generally similar all areas. The benthic community at the level of major invertebrate group was variable in all areas except Line 6, which was more even in terms of water depth. The baseline data collected for the A418 dike are suitable for use in future analyses of dike-related effects.

#### A154 Dike – Year 2

Benthic invertebrate data collected before and after construction of the A154 dike suggested a small, local effect of the dike on the benthic invertebrate community. The effect was shown in 2002 as changes in the locations and abundances of aquatic worms and midges, without an effect on total invertebrate numbers or richness. The 2004 data did not provide additional evidence of an effect. Evaluation of dike-related effects in 2004 was complicated by habitat variation among sites and the potential confounding influence of the mine-water discharge from the north inlet.

Analysis of variation among years showed a large difference in the benthic community be-

tween 2000 and later years. A smaller change in richness and abundances of some invertebrate groups was seen between 2002 and 2004. Differences in the benthic community among years could not be explained by any particular reason with certainty, because the 2000 and 2002 samples were processed by different taxonomists (people that identify invertebrates); there were differences in field methods between 2004 and other years; and, the potential effect of the mine-water discharge may have interfered with the detection of dike-related effects.

Statistical comparisons of the 2004 benthic invertebrate data collected at Lines 4 and 5 with control area data showed no difference in total abundance and richness, but found some large differences in other biological variables. Although the differences in community structure between areas were small, these results show that monitoring the effects of the A154 dike at Lines 4 and 5 may be made complicated by the mine-water discharge. Therefore, sampling of transects far from the mine-water discharge is recommended for future assessments of the effects of the A154 dike.

### **A154 Pit Dewatering Plan Submitted to MVLWB July 2005**

This document describes the open pit water collection systems that will be used in the A154 Pit. The pit pumping system is designed to take into account runoff from precipitation events (rain and snow) and spring snowmelt, runoff from storm events, and seepage water. Surface runoff outside the pit, i.e. in the dike area, is collected and directed away from the pits to the dike seepage collection system.



*The A154 Pit*

Within the pit areas, runoff from spring snow melt and summer rain will be collected at sumps in the pit and pumped to the surface. A description is provided for the current water collection system and future changes to it to meet the predicted mine water inflows in the future. In addition, hydrogeological studies are in progress to evaluate the suitability of using vertical pumping wells and/or horizontal drains to stop the groundwater behind the pit wall before it seeps into the pit. A study was undertaken by Golder in 2004 that examined costs and benefits for options that would be installed from the edge of the pit. By contrast, the current studies are focused on evaluating the costs and benefits of options within the pit. The estimated proportion of water captured with these wells or drains is not certain at this time and the use of such dewatering methods will continue to evolve with operational requirements.

### **A154 Dike Annual Inspection and Performance Evaluation Submitted to MVLWB October 2005**

The A154 dike was built to allow the water to be pumped out of the area around the kimberlite pipes A154N and A154S. The dike was built in 2001 and 2002, and the initial dewatering took place from late July to mid September of 2002. An annual inspection and performance evaluation is required and is to be done following the break-up of lake ice in July. This report describes the findings of the third annual report.

The performance of the dike is satisfactory. Piezometric (ground water) levels continue to de-

cline as a result of the drainage of the overburden and rock within the enclosure and the deepening of the mine pit. The spring runoff caused some short term rises in the levels but these have returned to previous values.

The total seepage going to the dike pump stations is well within the design criterion. Deformation of the dike as measured by instruments and survey markers is equal to or less than the values predicted by analyses.

Temperature measurements show satisfactory performance of the thermosyphon groups (these are structures meant to keep the ground cold) but problems with the active freezing system, this time related to refrigerant leaks at island D are noted. The slow but steady recovery of the permafrost conditions on the abutments (where the dike meets the mainland) is noted.

Blast monitoring continues to reveal the influence on pore water pressure but improved blasting controls and the drying of the foundation area has led to a reduction in the peak pressures recorded. Extra instruments have been installed in critical areas and monitoring has indicated that no significant deformation of the dike is occurring.

Several recommendations are given in relation to improvement of drainage, the repair of upstream slope erosion, maintenance of the pump station discharge lines and the installation of survey monuments to assist in explaining the crest cracking on the northern sector of the dike.

### **Ammonia Management Activities—Summary for 2005**

Rather than a single submission, this section provides a brief outline of activities and documents related to ammonia issues up to and including 2005.

Diavik asked that a MVLWB Board member be appointed as a mediator to allow a less formal process with constructive dialogue. Mediation took place in April 2004 with the outcome being a record of agreement and an amended Water License. This gave Diavik the ability to continue to operate by increasing the discharge limit of total ammonia to 20 mg/L. The increase was viewed as temporary (until Sept. 2006) to allow time to complete what were thought as necessary studies and reviews to support the decision, by the MVLWB, of a final total ammonia discharge limit. The temporary limit of 20 mg/L was seen by all to be adequate to protect the aquatic environment by ensuring a non-acutely toxic final effluent and no chronic toxicity in the environment that the water is released to.

An Ammonia Discussion Paper was submitted by Diavik in October 2005. Reviewer comments were received in mid-November and Diavik provided responses to all comments November 21.

The following studies and actions were also undertaken by Diavik as a condition of the amendment. The status of each is based on Diavik's understanding and on activities as of the end of 2005.

*Increase in Rainbow Trout and Daphnia Magna toxicity testing from quarterly to monthly (Part H Item 8).* This has been underway since July 2004 with no measured toxicity response.

*Toxicity Contingency Plan (Part J, Item 5a, 5b).* A final Plan was submitted to MVLWB, approved, and implemented.

*Standard Operating Procedures for pH control to prevent acute toxicity (Part H Items 13 and 14).* Final procedures were submitted to MVLWB, approved, and have been implemented.

*Ammonia Management Investigation (Part H, Item 17,18,19)* These items are complete. The final Terms of Reference (Item 18) were submitted and approved.

*Ammonia Fate Study (Part H, Item 26).* This item has been completed. The final Terms of Reference were submitted and approved. The report on the findings from the study (DDMI November 2005) is in preparation and will be submitted to the MVLWB.

### **Annual Dam Safety Inspection Report – OLDSSF, PKC & Runoff Collection Facility Submitted to MVLWB October 2005**

Diavik hires a company to do an Annual Dam Safety Inspection for the dams of the On-Land Dredged Sediment Storage Facility (OLDSSF), Processed Kimberlite Containment (PKC) Facility and Runoff Collection Facility. Part G of the water license requires that an inspection of the dams be done out by a Geotechnical Engineer in July of each year. The dates of the inspection were July 25-28, 2005.

The results of the 2005 inspection show that the dams are functioning safely and within the limits expected of the design. In particular:

- The dams show no evidence of instability
- With the exception of Pond 14, the dams show no sign of seepage (pond 14 is a temporary pond, designed for a life of one year)
- The dams are being operated with sufficient freeboard (space below the top)
- The report recommends that Diavik continue to do regular inspections and monitoring

### **Aquatic Effects Monitoring Program Report**

This report is normally submitted annually, and contains a summary of results from the program from the previous year. Due to the program and reporting being under review, this report will be submitted at a later date.

### **As-Built Report – PKC (Phase III) Submitted to MVLWB March 2005 Approved**

Diavik hired a company to design and provide field inspections for the construction of the Phase 3 dam raises of the Processed Kimberlite Containment (PKC) Facility. This facility is designed to store the Processed Kimberlite (PK) materials, consisting of coarse and fine PK. The dams that make this facility are designed to be built in phases, initiated with two starter dams at the West and East ends of the PKC valley with a crest elevation of 430.0 m (Phase 1).

These two starter dams were raised in 2003 to crest elevations of 435.0 m.

In 2004, these two dams were raised again to crest elevation of 440.0 m, making up the Phase 3 PKC dam construction. The future raises will be in several steps to form a continuous, approximately 6 km long containment dam, to final estimated crest elevation of 460.0 m.

The fine PK pond is located in a central valley. The coarse PK storage areas are located generally in high ground areas, north and south of the fine PK pond. The coarse PK is trucked into the storage areas, first starting from the north storage area. The fine PK is pumped in a slurry form from the process plant and released, through spigots located on top of the dams and on the north and south spigot benches, into the fine PK pond. Water within the fine PK pond is recycled through a pump barge, located in the centre of the pond, back into the process plant.

This As-Built Report gives a description of the major construction activities, changes, photos showing different construction activities, material testing results and as-built drawings. This report concludes that the Phase 3 construction of the PKC Facility satisfied design requirements.

#### **Blasting Effects Study 2005 Update**

**Submitted to MVLWB March 2006; final report will be submitted to DFO**

Blasting in or near water can negatively affect fish. In Canada, maximum allowable limits exist for blasting and peak particle velocity (PPV) to protect fish and their incubating eggs. A laboratory blast imitation procedure was developed that can measure egg mortality at different PPV exposures.

Because of results from the previous year showing that blasting did not affect the survival of lake trout eggs, the study changed slightly to test (in a lab) what an increased level of blasting would have on the eggs. A blast simulation (imitation) experiment was set up in a lab in Alberta, using rainbow trout eggs during six different stages of their development. Experiment equipment was improved to simulate longer blasts. Results from this work are not ready yet.

#### **Carbon Sequestration in Mine Tailings Update**

**Submitted to MVLWB March 2006**

The Carbon Sequestration in Mine Tailings project is a three-year research project that began in May 2005. The project will look at using PKC material (mine tailings), or waste rock, to sequester (store) carbon dioxide from the atmosphere as a way to counteract emissions of greenhouse gases. The study is being done at Diavik and another mine in Australia.

The project goals are to document and quantify carbon storage already occurring within mine tailings (PK), develop a way to figure out which minerals store carbon so that this can be claimed to offset greenhouse gas emissions, and create a model for predicting storage rate so that it can be sped up. This is being done by sampling of mine waste, experimental analysis and modeling as well as complex technical tests.

In 2005, researchers visited Diavik to get familiar with the mine, take samples of rock and proc-

essed kimberlite tailings, and make observations. Scans were done on the samples to identify minerals, and samples are still being analyzed. In 2006, a larger sampling program will take place and further research will continue on this project.

### **Country Rock Test Pile Annual Update Submitted to MVLWB March 2006**

The purpose of this study is to find out how much water may be able to flow through the rock pile where interior temperatures may be below freezing. The study will also determine the role temperature plays in acid rock drainage, as well as how well lab tests predict results in large scale test piles or experiments. In addition, the study is looking at bacteria growth in the rock piles, simulation models, changing of physical conditions in rock piles, and effects of a warmer climate on the behavior of the piles.

During 2005, construction of the test piles continued but was ended early due to weather. Samples of waste rock were taken to check bacteria growth in November 2005. Observations were made on the test piles that are currently being constructed, and further work will be carried out in the coming season. The project involves the University of Waterloo, University of Alberta, and University of British Columbia, and is related to the Reclamation Research Plan (see p.11)

### **Dust Deposition Monitoring Report 2005 Submitted to MVLWB March 2006**

Air and water quality issues related to dust in the air, resulting from mining activities, were identified by all parties to the Diavik Diamond Mine Environmental Agreement (1998) as being of particular concern. Because of this, they needed to be included in environmental monitoring programs. Since 2001, dust deposition rates have been calculated from samples collected using winter snow surveys as well as from dust deposition gauges (see Dust Deposition Monitoring Program, p. 9).



*Environment staff check  
dust gauges*

The key finding in the 2005 Dust Monitoring Program were:

- Snow survey and dust gauge sampling saw an overall increase in annual dust deposition from 2004 to 2005. This increase was anticipated due to the increased activity on East Island. For example, DDMI began construction of the A418 dike which involved the crushing of large quantities of waste rock and a subsequent increase in haul road traffic, both activities which can be associated with higher levels of dust.
- Dust deposition rates were observed to be greatest near the mining operations and construction activity, and to decrease farther from the mine. Rates were also found to be influenced by nearby activity and prevailing winds.
- Observed dust deposition rates were greater than the predicted rates from environmental effects predictions. The predictions, however, were based on air quality at the time and did not take into account construction periods which increased during the 2005 season. It is expected that dust deposition rates will drop as construction comes to a close and as the focus of operations switches to underground mining.

- Snow water chemistry sampling indicated that Total Phosphorus and Total Zinc were the only two parameters tested to be observed in concentrations which exceeded the maximum allowable concentrations in any one grab sample of water discharged into Lac de Gras. The phosphorus particulates are more than likely originating in the A154 pit as a by-product of blasting.

In accordance with recommendations made by the EMAB, the Dust Monitoring Program will be changed in 2006 to include an extra dust gauge. It is recommended that dust monitoring continue, to further determine the amount and impact of dust emission from mine activities. It is also recommended that control sites for snow surveys be set up. New types of samplers (PM<sup>2.5</sup> and PM<sup>10</sup>) have been purchased and will be set up in 2006.

### **East Island Seepage Report 2005 Submitted to MVLWB March 2006**

Water quality monitoring was conducted at Diavik in 2005 at established seepage, collection pond and groundwater locations around the island. The goal was to keep track of any changes in water chemistry where the upstream physical structures might have had an influence on ground water and/or surface water from precipitation. Water samples were scheduled to be taken from seven Seepage Survey Stations, as well as using water samples collected from thirteen Surveillance Network Program (SNP) stations outlined in Diavik's Type A Water License.

Under natural conditions, water seepage on East Island occurs within the active (or thaw) zone of low lying till areas mainly as surface runoff, usually from May to the beginning of October. Water from these sources is collected in several small streams, which are enclosed by water collection systems (collection ponds). Monitoring has focused on the mouths of these streams and on groundwater in low areas, where any seepage from future mine activities would most likely be detected.

In June, all seepage monitoring stations were visited, with four of them being sampled. As part of the monitoring, field staff traced the source of water feeding the flow. Stations 1645-21, 22, 24, and 25 were being feed by snow melt along the side of the structures as well as the tundra. Stations 1645-20, 23, and 26 had no flow at the time. In July, two stations continued to flow (1645-21 and 25), and the source of water seemed to be from flow through from the structures, since no notable geotechnical issues were identified in the annual geotechnical inspection. All but one station was flowing in August, with the source of water from surface run-off due to the large amounts of rain received that month. September had less rain, but some streams continued to flow.

Ground water stations stayed frozen all summer; no samples were taken. Collection ponds were measured monthly, but limited interpretation of the water chemistry data could be done due to up stream construction work or rock placement within the Type I waste rock pile. Inter-



pretation was limited because these activities cause effects on water chemistry that are not related to seepage.

Water quality within Pond 12 did not meet Diavik's water license limits in 2005; therefore, water was transferred to PKC in spring and fall. The major change in water chemistry was likely due to the increased construction activities within the Pond 12 drainage basin that has increased sediment loads, therefore increasing certain elements during the spring melt.

Two small run-off seeps were noted in 2005. All TSS and pH measurements were below run-off limits. The source of water contributing to the ice lenses within Pond 5 is under investigation in 2006. Results of the investigation will be submitted in the 2006 Seepage Report.

### **Meteorological Report 2005 Submitted to MVLWB March 2006**

Diavik has collected meteorological (weather) data since the 1994 baseline data collection program. The meteorological station measured the following: wind speed, wind direction, precipitation, air temperature, incoming solar radiation, and relative humidity. Manual precipitation stations were also used to measure rain and snow, as well as evaporation. A second weather station was installed in September 2003 to help with evaporation data collection, as well as providing extra weather data. For 2005 the evaporation station was used for most of the data because the older meteorological station was out of service for much of the year.

Climatic conditions at the Diavik site in 2005 showed a maximum ambient air temperatures occurring on July 11<sup>th</sup> at 25.02 °C. Minimum ambient air temperatures occurred on January 13<sup>th</sup> at -43.96 °C. The annual average ambient temperature was -8.70 °C.

Relative humidity averaged 82.4%, with the maximum occurring on October 10<sup>th</sup> at 98.4%. Total precipitation at the site was 315.9 mm for the year, with rain accounting for 36% (or 113 mm), and snow accounted for 64% (or 202.9 mm). Total evaporation during open water season was 192 mm. The prevailing wind direction for 2005 was from the North-Northeast. 69% of the time, wind speed at the Lac de Gras site are between 0 to 5 meters per second. Meteorological monitoring will continue at the Diavik site in 2006.

### **Pond 2, 13 and 14 Design Drawings Submitted to MVLWB April 2005 Approved**

Diavik submitted three design drawings for surface water collection ponds around the A418 construction area and the Type II waste rock dump. These are known as Ponds 2, 13 and 14. This submission consisted strictly of drawings for the Board's approval.

### **Plume Delineation Report Submitted to MVLWB November 2005**

At the Diavik mine site, the North Inlet Water Treatment Plant (NIWTP) treats water from the

mine and discharges it to Lac de Gras through a structure called a diffuser. The discharged effluent from the NIWTP has created a plume, or a mass of water, with a shape and characteristics that are expected to be different during ice-covered and ice-free conditions. As a condition of an amendment to Diavik's water license (to allow an increased discharge limit for ammonia), Diavik was required to complete an Ammonia Fate Study (as per Part K of the water license). This report is the result of that requirement.

The objective of this study was to collect information to outline the size, shape and characteristics of the plume in Lac de Gras from the NIWTP effluent. The specific objectives of the study were to:

- Assess the shape (in all three dimensions) and size of the plume in Lac de Gras
- Determine the extent of the one percent (1%) dilution zone for effluent discharging from the NIWTP
- Compare characteristics of the plume under ice-covered and ice-free conditions
- Assess whether nitrification (bacterial conversion of ammonia to nitrate) was occurring within the plume

The study showed that during both ice-covered and ice-free conditions, the effluent plume appeared to be moving in an east to north-easterly direction, away from the East Island. The shape, location and size of the plume varied a lot between the ice-free and ice-covered seasons—this may be related to the flow of effluent, concentration, lake currents, or the bathymetry (shape) of the lake.

There were some differences in the plume between the ice-free and ice-covered conditions:

- Lower concentrations (more dilution), were seen closer to the discharge point during ice-free conditions compared to the ice-covered season. This was likely due to increased mixing effects from wind-driven lake currents during ice-free conditions.
- Nitrification appeared to be happening within the plume during ice-covered conditions. However, the occurrence of nitrification could not be determined during the ice-free program because almost all concentrations were below detection limits in Lac de Gras. Effluent concentrations of ammonia during ice-free conditions were quite a bit lower compared to ice-covered effluent concentrations
- During periods of lower effluent discharge flows (~14 000 m<sup>3</sup>/day), the plume was located near the bottom and middle of the lake and did not appear to have reached the surface. During conditions of higher effluent discharge (~25 000 m<sup>3</sup>/day) observed during the ice-free survey, the plume was detected at the surface of the lake.

This study is complete and the next step will be to use the results to help with the redesign and interpretation of the AEMP and set effluent quality limits for ammonia.

### **Revegetation Research Annual Update Submitted to MVLWB March 2006**

This study was undertaken by the University of Alberta to determine which types of soils are most effective for plant establishment and growth, which soil amendments (changes) are most effective at improving soil properties and plant establishment, and which groups and individual

native species are able to grow and survive on different substrates at the Diavik site. Test plots were set up and soil amendments added in earlier years of the study; seeding or planting of some species also took place in the past. In 2005, fertilizer was applied to both spring and fall seeded plots and sewage sludge was applied to some plots as well. Seeds from four local species were collected and planted in some of the study blocks as a trial. A vegetation assessment was also conducted in August, within each subplot.

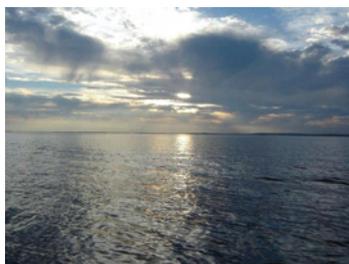
Field work will start in spring 2006. Information about soil temperatures and soil moisture will be downloaded from data loggers and the same fertilizer treatment will be applied once vegetation is growing. Germination will be assessed in late June or early July and seedling growth will be evaluated in August. If there is enough growth to allow it, the species health, ground cover by species, and plant height will be assessed. Year one data will be analyzed in early 2006 and year two data will be analyzed in fall 2006. This work is related to the Reclamation Research Plan (see p.11).

### **Site Water Balance Submitted to MVLWB March 2006**

A computer model has been set up to predict water flows at the Diavik site from 2003 to 2023. The water balance model uses a series of predictions and assumptions, which allow for both long and short term (1-5 year) planning. The model results are less accurate on a yearly basis, because mining and construction schedules change from one year to the next.

This model looks at two main areas - around the North Inlet and around the Processed Kimberlite Containment (PKC) Facility. The water draining to the PKC contains mainly suspended solids, and includes fine PK slurry and treated sewage.

The water balance gives Diavik an idea of the amount and location of water on site at any given time, so that planning can take place for handling and treating water.



*Lac de Gras in early evening*

This report concluded that capacity in the North Inlet and Clarification Pond will be enough to handle the dredging and dewatering of the A418 pit. It also concluded that the PKC facility is a negative sink for water - more water is taken out than put in - so it needs makeup water from Lac de Gras for operations. Options are being considered to minimize the amount of water needed from the lake, instead using mine ground water which is low in suspended solids and will meet the requirements for processing. This document is related to the Water Management Plan (see p.14).

### **Water Intake Study Report Submitted to DFO November 2005 Approved**

Diavik started water intake monitoring as part of a Fisheries Protection program approved by the Department of Fisheries and Oceans Canada (DFO) under Section 30 of the *Fisheries Act*. The program is meant to ensure that the screen on the water intake is protecting fish from being sucked in and trapped at the screen, and to ensure that water is not being drawn in at too fast of a speed. This report outlines the procedures used in the program and states the results

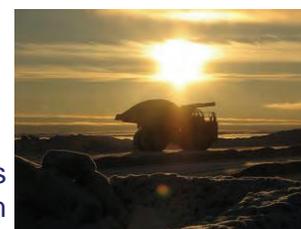
for water intake velocity (speed), fish capture and backwash sample analysis.

Water velocities recorded around the intake are within the range of expected wind driven currents in Lac de Gras and are at or near the lower end of the capability of the instrument used to measure. Fish presence surveys were undertaken in July and August of 2004 in an effort to get data at a time when the potential for fish impingement (being trapped at the intake) was high. The fish captured in July show that fish were feeding in the area 6 to 8 m away from the shoreline. The presence of fish closely coincides with the dates that zooplankton and an increase in green algae were noted in the sand filter analysis.

Backwash collected from for sand filter analysis supports the findings of the velocity-monitoring program. It showed that the lack of fish tissue, scales or bones means that the intake velocities and screen are effective in preventing fish uptake during normal and high flow situations.

### **Water License Annual Report Submitted to MVLWB March 2006**

As a requirement of Diavik's Type A water license, an annual report is to be prepared and submitted. The 2005 report was submitted in March 2006 along with several appendices including updated management plans and updates to studies being undertaken.



*Haul truck at sunset*

The full report contains the results of 2005 activities related to water and waste. These include figures on quantities, sources and uses for water used at the mine site, dewatering activities, water discharged to and from the Processed Kimberlite Containment (PKC) facility, amounts of waste rock moved, and the amount of seepage in the open pit. The report also outlines figures related to sewage effluent. There is a summary of all operational activities and an update on studies related to reclamation (similar to what is contained in this report) that occurred in 2005.

A brief update of work carried out under management plans is given, as is a summary of changes or maintenance done on several facilities such as the PKC. There is also a list of spills reported to government during the year. Many facts and figures of the report have been included throughout this Environmental Agreement Annual Report.

A summary of all 27 sections of the report is not possible in this report, due to space limitations. However, some key figures from 2005 include:

- 973,223 m<sup>3</sup> of fresh water were used for drills, domestic use, processing and dust control
- Over 2.5 million m<sup>3</sup> of water were recycled from the PKC for use in the process plant
- 39 spills (>100L or near water) were reported to the NWT Spill line in 2005; all were cleaned up and most were closed by the DIAND Inspector before the end of the year
- 10.15 million m<sup>3</sup> of rock was moved to the waste rock pile

### **Wildlife Monitoring Report Submitted to Environment and Natural Resources March 2006**

As a requirement of the Environmental Agreement, Diavik conducts a Wildlife Monitoring Pro-

gram (WMP; see p. 15). The objective of the WMP is to collect information that will help in finding out if there are effects on wildlife in the study area and if these effects were accurately predicted in the Environmental Assessment. The WMP also allows the collection of data to decide how effective site-specific mitigation measures are and the need for any changes. This report discusses results collected for the 2005 Wildlife Monitoring Program.

In response to reviewer requests, a full statistical analysis of data collected from baseline through to 2004 was done by a consultant to check against predictions for impacts. That report was included as Appendix A in the 2004 Wildlife Monitoring Report and after review of the analysis, it was agreed by all parties involved that another analysis would not be needed for another few years. The consultant was also contracted to assist in the development of the WMP and has given expertise in data collection methods for most of the wildlife programs to ensure they are similar to BHPB's Wildlife Effects Monitoring Program.

A summary of results of the program is given below.

### **Vegetation/Habitat Loss**

As of December 2005, a total of 8.15 km<sup>2</sup> of habitat has been altered due to mine footprint expansion, with construction beginning in 2000. This represents a total loss of 57.7% of the predicted mine disturbance. Direct habitat loss in 2005 alone was 0.84 km<sup>2</sup>. Heath tundra represents the largest total loss on East Island over the years.



*Caribou during summer*

### **Caribou**

**Habitat Loss** - Habitat loss on East Island is expressed in habitat units (HUs) for caribou summer habitat. A habitat unit is the product of surface area and suitability of the habitat in that area to supply food for caribou and cover for predators. Direct summer habitat loss to date from the mine totaled 1.96 habitat units and overall, total direct losses for all summer habitat suitability classes for caribou are currently below that predicted.

**Zone of Influence** - Weekly aerial surveys were used to collect information on caribou numbers, habitat type associated with the caribou groups, and the main activity of caribou related to distance from the mine site. A total of 24 surveys were done in 2005. In summary, a total of 14 caribou groups have been located within 3 km of the mine site during aerial surveys done from 2002 to 2005. Five groups were observed during the northern migration and 9 during the southern migration. Sample size within 3 km of the mine limits behavior comparisons with caribou located greater than 3 km from the mine, adding to the difficulty of accurately determining a zone of influence.

The results of a statistical analysis that was conducted for the years up to and including 2004 show that an estimated zone of influence is uncertain at this time. One of the reasons for this uncertainty includes the influence of a large lake (Lac de Gras) surrounding the study area, as some studies suggest that caribou are found to avoid water compared to other habitat types.

Observations of caribou behavior within the study area for 2002 - 2005 indicated that 64% of the 231 caribou groups were feeding/resting during the northern migration. In contrast, 55% of the 687 caribou groups were feeding/resting during the southern migration.

**Movement** - A statistical analysis was also conducted on the movement of satellite-collared caribou from 1996-2004, and showed general support for predictions. During the northern migration, most animals tended to travel to the west of East Island over the years. During the southern migration, most animals tended to first travel to the east of Lac de Gras. The number of animals traveling west or east appeared to be related more to the location of the wintering grounds, which can change among years, rather than the phase of development of the mine.

**Mortality** - Mineral development in the Bathurst caribou herd range has caused concerns about increased mortality (death). Mitigation measures have been developed that are designed to reduce the potential for mortality such as wildlife having the “right of way” on all haul roads, stopping of blasts when caribou are within the “safe zone” of the blast, and the caribou traffic advisory system. No project-related caribou mortality or injuries occurred on East Island in 2005.

**Caribou Advisory Monitoring** - The objective of this program is to ensure that workers are aware of the approximate numbers of caribou on or near East Island. This raises general awareness. During 2005, the caribou traffic advisory remained at “No Concern” for 365 days, as caribou numbers on the island did not exceed 100 at any given time. In 2005, a total of 28 caribou were seen on East Island on 20 different occasions from April to September. They were seen alone or in groups of two animals.

**Use of Dust Deposition Areas** - Dust deposition can influence vegetation heartiness, snowmelt rates, and changes in vegetation community structure. As a result, caribou may be attracted to these areas. Road, PKC and quarry/rock pile observations were done twice a week from April to October to determine if caribou were using areas near haul roads, which were chosen to represent the greatest amount of dust deposition. Caribou road surveys were conducted a total of 167 times during 2005. On the four occasions that caribou were seen, two groups were on the road, one group was less than 50 m from the road and one group was 50-200 m from the road. Two of the four groups observed were feeding.

Surveys of the PKC area and quarry/rock piles were also conducted twice per week. There were no observations of caribou within these areas during 2005.

### **Grizzly Bear**

Loss of habitat may result in negative effects on grizzly bears; for that reason, analysis has been done to determine if habitat loss is different from the prediction. Grizzly bear habitat loss on East Island up until December 2005 was 5.86 km<sup>2</sup>, compared to the 8.67 km<sup>2</sup> that was predicted. When added to casual observations recorded on East Island, results from the 2005



grizzly habitat survey gives evidence that suggests grizzly bears continue to be present and keep active home ranges within the Diavik wildlife study area.

No grizzly bear injuries, deaths or relocations happened during 2005. A total of 43 observations of grizzly bears were made on East Island between 4 May and 2 October 2005, on 34 separate days. On 16 of these occasions, bear(s) were not confirmed by Environment staff or else they left the island before any actions to deter them (move them away) was necessary. On six of the 23 occasions where deterrents were used, it was necessary to use a helicopter to deter the bear(s) off of the island.

Habitat surveys did not detect any effect of distance from the mine on the chance of finding grizzly bear sign. This indicates that a zone of influence may not exist within the study area. However, these results are currently based on only four years of data. In addition, all plots are located between 3 and 30 km from the mine. So, a small zone of influence (limited to East Island) or very large zone of influence (greater than the study area) would not be detected.

### Wolverine

Wolverine presence around the Diavik mine site is monitored in three ways: snow track surveys, incidental observations at site, and sightings during caribou aerial surveys. Spring track surveys showed 0.05 wolverine tracks per kilometre, which was lower than in 2003 and 2004. Winter surveys showed 0.11 tracks per kilometre, which was slightly higher than 2004 possibly due to good tracking conditions at the start of the survey.



*Wolverine tracks, with a multi-tool for scale*

All incidental observations of wolverines on East Island during 2005 were recorded by Diavik staff. From 1 January to 31 December 2005, wolverines were observed on 41 separate occasions on East Island, 5 of which required Environment personnel to deter the animals. The number of occurrences in 2005 was quite a bit higher than in 2004; however it is important to note that many of the sightings were of a single animal that had started to live under an accommodation building known as South Camp.

In April 2005, Diavik took part in a study arranged by ENR, designed to monitor wolverine numbers across broad landscapes using genetic analysis. The results of this study will be published in a separate document in 2006.

No injuries, deaths or relocations of wolverine occurred as a result of mining activities on East Island in 2005.

**Waste Management** - Diavik Environment personnel do inspections of the Waste Transfer Area (WTA) and landfill every second day to ensure all waste separation, storage and disposal procedures are being followed to prevent the attraction of wildlife. In 2005, potential wildlife attractants (such as food and oil) were found on 41% of the 172 inspections at the waste transfer area, and 62% of the inspections of the inert landfill. Wildlife was observed on 34% of the inspections of the waste transfer area, and on 10% of the inspections at the landfill. Similar to previous years, foxes were the most often observed wildlife in these two areas, followed by ravens and gulls.

Overall, procedures and mitigation measures currently in place have been quite successful at minimizing wildlife interactions. While foxes, ravens and gulls appear to be visiting the WTA

and landfill areas, these animals are natural scavengers. The fairly low number of observations suggests that these individuals may be attracted to the area, but they are not sustained by the food they may find.

**Raptors** - Habitat loss, sensory disturbance, and impacts to prey populations may influence raptors nesting in the Lac de Gras area. Six known nesting sites in the Diavik wildlife study area were each surveyed twice during 2005. During the spring occupancy survey, three of the six sites were occupied but none of those nests contained eggs. During the productivity survey four nest sites were found occupied but none were productive (unless young are present in a nest, a site is considered unproductive). Productivity and occupancy were within the range recorded in the Diavik wildlife study area since 2000, and were similar to results noted for the Daring Lake control site.

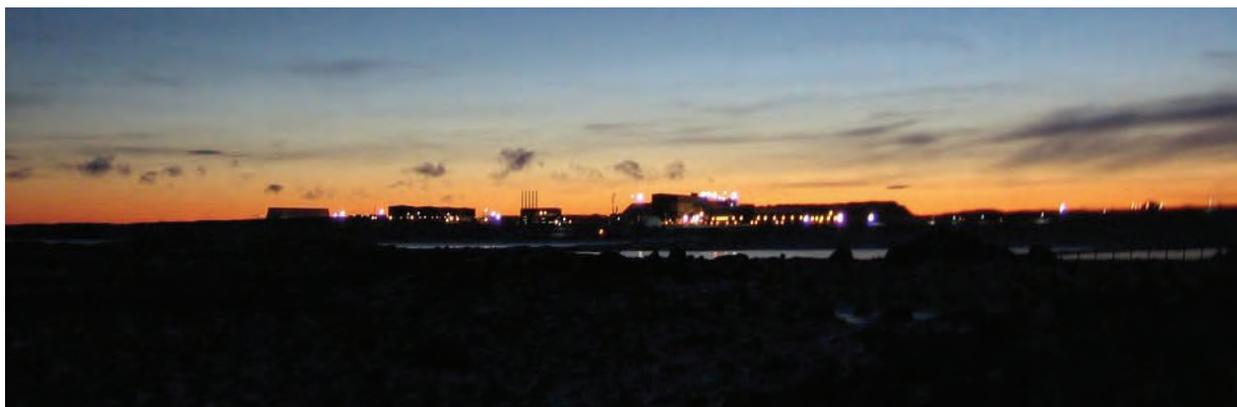
There were no falcon injuries or mortality at the Diavik site during 2005.

**Waterfowl** - In 2005, a total of 0.15 km<sup>2</sup> of shallow and deep waterfowl habitat was lost, mostly as a result of construction of the A418 dike. It was predicted that 3.94 km<sup>2</sup> would be lost as a result of the mine. In total, 2.22 km<sup>2</sup> has been lost up to December 2005. 11 species of shore-bird were recorded during waterfowl surveys that took place during the year.

Disturbance as a result of mine activities appears to be very small with regard to impacts on waterfowl being present at the Diavik mine site. Many of the bird species that were absent from the study area in 2004 were recorded during the 2005 surveys, even though construction activity was quite a bit higher, showing that presence and absence during any given year likely has a high degree of natural variability.

Monitoring surveys conducted on the shallow bays and mine altered water bodies of the Diavik mine site resulted in a total of 3406 birds recorded. This number is up from 2004, possibly due to three new collection ponds being included.

One project-related bird mortality occurred in July 2005. A herring gull was injured when Diavik Pit Operations conducted a blast in the A154 pit. Due to the extent of the injuries, Environment personnel decided it was necessary to euthanize the bird.



# Summary of 2005 Operations

There were a number of construction projects undertaken in 2005 as DDMI advanced construction of the A418 dike, underground feasibility studies, decline to the A154/A418 pipes, and the bulk sample decline to the A21 pipe. This section provides a full summary of operational activities that happened during 2005. The Operations Summary is organized by month.

## JANUARY

Construction on the pad for the underground mine portal began at both the A154/418 and A21 areas.

Construction of the access road to A418 was completed this month.

Tibbitt-Contwoyto Winter Road trucking began on January 26.

All required sampling at the Surveillance Network Program (SNP) stations were conducted, with the exception of 1645-52A, a seepage well that froze in December of 2004. There were no concerns from the Geotechnical Engineers related to this freezing.

Stations 1645-49 (Pit Water) and 1645-52B (Dike Seepage Well) were sampled from the North Inlet Water Treatment Plant (NIWTP) bi-weekly and monthly, respectively, during the month of January. Results for 1645-52B are reported for *information purposes only*, as water from this well is directed to the water treatment plant. Once Diavik is confident in the quality of water from the seepage wells, it will be directed to Lac de Gras. At that time, Diavik will follow the water license sampling schedule and required list of parameters.



*Aerial view of Diavik in winter*

The monthly sample from station 1645-12 at the North Inlet Storage Facility was obtained during the month of January. Also during the month, bi-weekly samples from station 1645-13 were completed in the North Inlet Storage Facility off the North Inlet Reclaim Barge. Additionally, the monthly sample required from station 1645-16 was taken from the Process Kimberlite Containment Facility (PKC), off the PKC Reclaim Barge, with no notable concerns.

Samples were collected at 1645-18, the final effluent sampling point prior to discharge in Lac de Gras, in the NIWTP on a 6-day schedule with no notable concerns. A monthly toxicity sample for this station was obtained and also showed no notable concerns.

Samples were obtained for station 1645-19A, B & C, three stations in Lac de Gras that surround the NIWTP diffuser line. Quarterly samples for sediment quality were also obtained in January.

SNP station 1645-15 was monitored within the Process Plant during the month for percent solids and monthly total volume pumped to the PKC.

Collection ponds, seepage streams and groundwater wells were not sampled in January as they were frozen.

Dust gauges DUST1-8 plus Controls 1 & 2 were collected.

## **FEBRUARY**

Construction to raise the road and barge at the PKC began on 14 February.

All required sampling at SNP stations was conducted, with the exception of 1645-52A, a seepage well that froze in December of 2004. There were no concerns related to this freezing from the Geotechnical Engineers.

Stations 1645-49, 1645-52B, 1645-12, 1645-13, 1645-16, 1645-19A, B, & C and 1645-18 (including monthly toxicity) were all sampled in February with no notable concerns.

SNP station 1645-15 was monitored within the Process Plant during the month for percent solids and monthly total volume pumped to the PKC.

Collection ponds, seepage streams and groundwater wells were not sampled in February as they were frozen.

## **MARCH**

The Environmental Monitoring Advisory Board (EMAB) traveled to site on the winter road. A site tour was also conducted before returning home.



*Environment staff work  
in the lab*

The kitchen at South Camp was re-opened on 4 March to accommodate the increase in staff due to construction of the A418 dike.

Three new fuel tanks were installed for underground operations on 13 March.

On-ice geophysical test programs were initiated for the A418 and A154 pits. These programs continued until early May.

All required sampling at the SNP stations was conducted by Diavik, with the exception of 1645-52A, a seepage well that froze in December of 2004. There were no concerns related to this freezing from the Geotechnical Engineers.

Stations 1645-12, 1645-13, 1645-16, 1645-19A, B & C, 1645-49, 1645-52B and 1645-18 were all sampled as scheduled during March with no notable concerns.

In accordance with requirements outlined in Diavik's water license amendment approved by the MVLWB (30 June 2004), quarterly toxicity samples were obtained from station 1645-18 with no notable concerns.

SNP station 1645-15 was monitored within the Process Plant during the month for percent solids and monthly total volume pumped to the PKC.

The first phase of a study to determine the extent of the plume from the diffuser in Lac de Gras

was conducted. A total of 25 under-ice stations were sampled in March.

Quarterly potable water samples were obtained at various locations around site and results were within the criteria outlined in the Guidelines for Canadian Drinking Water Quality.

Collection ponds, seepage streams and groundwater wells were not sampled in March as they were frozen.

Spring wolverine track count surveys were completed on 30 & 31 March 2006.

Dust gauges DUST1, 2a, 3, 6 & 7 and Control 1 were collected.



*A wolverine on the frozen lake*

## **APRIL**

Construction of the marine pad to be used for A418 dike construction began at the end of this month.

Blasting related to the construction of Pond 14 began at the end of April.

Rock crushing began for materials required to construct the A418 dike and associated infrastructure.

The Tibbitt-Contwoyto Winter Road was closed on April 5, with a total of 7607 loads hauled to various mining and exploration companies.

All required sampling at the SNP stations were conducted, with the exception of 1645-52A, a seepage well that froze in December of 2004. There were no concerns related to this freezing from the Geotechnical Engineers.

Sampling was completed at stations 1645-49, 1645-52B, 1645-12, 1645-13, 1645-16 and 1645-18 (including monthly toxicity), with no notable concerns.

SNP station 1645-15 was monitored within the Process Plant during the month for percent solids and monthly total volume pumped to the PKC.

Collection ponds, seepage streams and groundwater wells were not sampled in April as they were frozen.

SNP station 1645-19A, B, & C was sampled in April. Sediment samples were also collected this month, as per quarterly requirements.

In addition to a further 15 under-ice stations sampled this month as part of Phase 1 of the plume delineation study initiated in March, Phase 2 of the study also began at the end of April.

Snow core water quality and snow quantity surveys were both completed in April.

A study to determine the population of wolverine through hair sampling and DNA analysis was

done together with GNWT Environment & Natural Resources, BHP-Billiton, and De Beers Canada Mining Inc. This program began 6 April and continued until 1 May.

Caribou aerial surveys, in conjunction with BHPB Ekati, began near the end of this month and continued through to 1 October.

Caribou road, PKC and scanning observations started on 14 April and ran until 29 September.

Dust gauges DUST4, 5, 8 and Controls 1 and 2 were collected.



*Ice melts from Lac de Gras*

## **MAY**

Dewatering of the sedimentation and clarification ponds began, in anticipation of increased water levels from summer dredging activities associated with the A418 dike construction.

All required sampling at the SNP stations were done, with the exception of 1645-52A, a seepage well that froze in December of 2004. There were no concerns related to this freezing from the Geotechnical Engineers.

Sampling was completed at stations 1645-52B, 1645-12, 1645-13, 1645-16, 1645-19A, B & C and 1645-18 (including monthly toxicity), with no notable concerns.

Station 1645-49 was missed once in late May due to improper scheduling. This sample was obtained on 1 June.

SNP station 1645-15 was monitored within the Process Plant during the month for percent solids and monthly total volume pumped to the PKC.

Collection ponds were sampled for the first time in 2005 as the spring melt started to accumulate within them (1645-42A & B, 1645-45 to 47 and 1645-67). Pond 12 was not dewatered into Lac de Gras this year due to slightly elevated TSS from construction of the nearby A21 pad.

Groundwater well and seepage surveys began this month as well, but no flow was observed at any station. (Groundwater wells: 1645-28 to 33; Seepage: SSS1645-20 to 26)

Spring sampling for the Aquatic Effects Monitoring Program (AEMP) began on 4 May. All 10 stations were sampled and the program was completed on 6 May.

Phase 2 of the plume delineation study was completed this month. A total of 25 under-ice stations were sampled during this phase of the study.

Spring occupancy surveys were conducted for raptors in conjunction with GNWT-ENR and BHP-Billiton.

Daily observations were undertaken to determine waterfowl presence at the mine site. These observations continued from 17 May – 20 June 2005, after which time, observations were done weekly until mid-October.

## **JUNE**

Underground blasting began at the A418/154 decline in mid-June.

Construction of Pond 14 was completed this month and water quality sampling was begun accordingly.

Dewatering of the sedimentation and clarification ponds continued, in preparation for dredging activities for the A418 dike construction.

All required sampling at the SNP stations were conducted except for 1645-19, suspended due to ice safety concerns, and 1645-13, which was missed late in the month due to improper scheduling. This sample was instead obtained on 1 July. Station 1645-52A, a seepage well that froze in December of 2004, was also not sampled. There were no concerns related to this freezing from the Geotechnical Engineers.

Station 1645-12, 1645-16, 1645-49 and 1645-52B were all sampled, with no notable concerns.

Station 1645-18 was sampled two days late on 7 June, as no flow had been present for two days prior.

Collection ponds 1645-42A & B, 1645-45 to 47 and 1645-67 were sampled.



*Tundra vegetation*

Groundwater well and seepage surveys commenced this month as well, but no flow was observed at any station (Groundwater wells: 1645-28 to 33; Seepage: SSS1645-20 to 26).

In accordance with requirements outlined in Diavik's water license amendment approved by the MVLWB (30 June 2004), quarterly toxicity samples were obtained from station 1645-18 on 27 June with no notable concerns.

Quarterly potable water samples were obtained at various locations around site and results were within the criteria outlined in the Guidelines for Canadian Drinking Water Quality.

Monitoring of the rain gauge and water evaporation pan was started for the season.

Caribou aerial surveys were reduced to half the number of transects in response to the small number of caribou in and around the study areas. This was done for the months of June and July.

Masters students from the University of Alberta returned to site to continue re-vegetation research that began in 2004.

DDMI's internal ISO 14001 EMS audit was conducted from 13-16 June.

## **JULY**

A turbidity curtain was placed around the construction area of the A418 dike. Construction of the dike began this month as well.

All required sampling at SNP stations was conducted by DDMI, with the exception of two missed samples at 1645-18 due to cessation of flow and one sample for 1645-49 which required re-sampling due to improper sampling techniques. Station 1645-52A, a seepage well that froze in December of 2004, was also not sampled. There were no concerns related to this freezing from the Geotechnical Engineers.

Station 1645-12, 1645-13, 1645-16, 1645-52B and 1645-18 (including monthly toxicity) were all regularly sampled with no notable concerns.

Collection ponds 1645-42A, 1645-69 (formerly 1645-42B), 1645-45 to 47, 1645-67 (formerly Pond 1), 1645-68 (Pond 2) and Pond 14 were sampled with no noted concerns. Ponds 10, 11 and 12 were dewatered into the PKC. The clarification and sedimentation ponds were dewatered on a regular basis during the summer and fall of 2005, due to dredging activities associated with A418 dike construction.

Groundwater well and seepage surveys were carried out, but no flow was observed at any station. (Groundwater wells: 1645-28 to 33; Seepage: SSS1645-20 to 26)

Sediment and water quality samples were obtained from stations 1645-19A, B & C, as per the requirements outlined in the water license.



*A water truck is used to control dust on site*

Sampling at stations 1645-70 to 1645-73 began on 10 July with construction of the A418 dike. These stations were mostly sampled to determine daily TSS levels to protect the water quality of Lac de Gras and ensure that the turbidity curtain remained effective throughout construction. Samples were not taken at these stations on 10 July as weather conditions did not permit safe travel for watercraft.



*Participant in the Water Quality Monitoring camp*

The Community-based Monitoring Camp for Water Quality monitoring took place from 26-28 July at a community camp 3 km from the Diavik site, in a small bay on the eastern mainland. Participants from Kugluktuk, Lutsel K'e, the North Slave Metis Alliance, and the Yellowknives Dene were involved with the program. The Tlicho Government was unable to send participants as they were getting ready to implement the Tlicho Agreement at that time.

A fisheries program was conducted along to the A154 dike to determine the presence of small fish around the toe of the dike. This first sampling effort for this program was carried out on 24 & 29 July.

A productivity survey of falcon nest sites was performed, again in conjunction with GNWT-ENR and BHP-Billiton. This summer survey includes the Daring Lake study area in addition to those of Diavik and Ekati.

Surveys conducted to record grizzly bear sign occurred in 18 sedge wetland plots from 3-9 July.

Masters students from the University of Alberta traveled to site to sample lichen communities in

preparation for research on using lichen as bio-indicators for dust distribution and monitoring; this research program is scheduled to continue during 2006.

## **AUGUST**

During the month of August 2005, all required sampling at SNP stations was conducted.

Stations 1645-12, 1645-13, 1645-16, 1645-18, 1645-19, 1645-49 and 1645-52 A&B were all sampled and found to have no notable concerns.

Collection ponds 1645-42A, 1645-69, 1645-45 to 47, 1645-67, 1645-68 and Pond 14 were sampled with no noted concerns. Ponds 4 and 5 were dewatered to the PKC during this month. The clarification and sedimentation ponds were dewatered on a regular basis during the summer and fall of 2005, due to dredging activities associated with A418 dike construction.

Groundwater well and seepage surveys were carried out, but no flow was observed at any station (Groundwater wells: 1645-28 to 33; Seepage: SSS1645-20 to 26).

Sampling at stations 1645-70 to 1645-73 continued with construction of the A418 dike. Samples were not obtained at these stations on 8 August as weather conditions did not permit safe travel for watercraft.

Phase 3 of the plume delineation study was conducted, with 65 open-water stations being sampled from 3-24 August.

Summer sampling began for the Aquatic Effects Monitoring Program (AEMP). A total of 3 stations were sampled for water quality, zooplankton and phytoplankton samples during August.

A fish health study was initiated by the Canadian Rivers Institute on 23 August.

The fisheries program along the A154 dike to determine the presence of small fish around the toe of the dike continued this month with one sampling effort on 6 August.



*Participants in the Fish Palatability study*

The Community-based Monitoring Camp (Fish Palatability) was held from 16-18 August at a community camp established 3 km from the Diavik site, in a small bay on the east mainland. Participants from Kugluktuk, Lutsel K'e, North Slave Metis Alliance, and Yellowknives Dene participated. The Tlicho Government was not able to



*Participants in the Caribou Monitoring workshop inspect a fence*

send participants to this camp, as they were very busy getting ready to implement the Tlicho Agreement. The objective of the study is to enable community members to assess the quality of fish from Lac de Gras over the life of the mine, as required. A Caribou Monitoring workshop was also held from 9-11 August.

Surveys conducted to record grizzly bear sign occurred in 17 riparian shrub plots from 3-5 August.

Dust gauges DUST1-4 were collected.

## **SEPTEMBER**

Underground blasting began at the A21 portal.

To allow for planned extension of the rock piles, the Sedimentation Pond was permanently drained on 13 September, with pumping completed by 16 October. Water from the pond was ultimately treated in the NIWTP.

Construction of Pond 2 started again this month after initial construction was stopped in July due to the presence of ice lenses within the soil.

All required sampling at SNP stations was done.

Samples from stations 1645-12, 1645-13, 1645-16, 1645-18, 1645-49, 1645-52A&B and 1645-19A, B & C were obtained with no noted concerns.

In accordance with requirements outlined in Diavik's water license amendment approved by the MVLWB (30 June 2004), quarterly toxicity samples were obtained from station 1645-18 on 27 September with no notable concerns.

Sampling at stations 1645-70 to 1645-73 continued with construction of the A418 dike. Samples were not taken at these stations on 9, 25 and 28-30 September as weather conditions did not permit safe travel for watercraft.

Collection ponds 1645-69, 1645-45 to 47, 1645-67 and Pond 14 were sampled with no noted concerns. Ponds 1645-42 and 1645-68 were frozen for the September sampling session. Ponds 2, 4, 5, 11 and 12 were dewatered into the PKC. The clarification and sedimentation ponds were dewatered on a regular basis during the summer and fall of 2005, due to dredging activities associated with A418 dike construction.

Groundwater well and seepage surveys were carried out, but no flow was seen at any station (Groundwater wells: 1645-28 to 33; Seepage: SSS1645-20 to 26).

Sampling continued for the Aquatic Effects Monitoring Program (AEMP). A total of 10 stations were sampled from 1-15 September and samples included water quality, sediment quality, benthic invertebrate, zooplankton and phytoplankton samples.

Quarterly potable water samples were obtained at various locations around site and results were within the criteria outlined in the Guidelines for Canadian Drinking Water Quality.

The fish health study initiated in August was completed on 2 September. A fish habitat utilization study was attempted to determine shoal use around the A154 pit. Unfortunately only two transects were completed due to weather conditions and faulty equipment.

Researchers from the University of Alberta were on site to begin seeding for the re-vegetation study related to evaluating the performance of different seedlings and soil amendments for remediation.

Dust gauges DUST5-8 and Controls 1 and 2 were collected; however, the tube at DUST6 was broken.

Monitoring of the snow gauge was initiated for the season.

## **OCTOBER**

Construction of the foundation of the A418 dike was completed and the turbidity curtain was removed from Lac de Gras.

Construction began for a haul road that was planned in Diavik's original mine design. The haul road provides direct access for haul truck traffic to both the rock piles and the Run-of-Mine (ROM) areas. This routing was designed mostly for safety purposes so that haul trucks and light vehicles are not required to use the same road.

Crusher operations ended with completion of the A418 dike.

All required sampling for SNP stations was completed with the exception of 1645-12 due to unsafe conditions. Station 1645-52A, a seepage well that resumed flows during the summer of 2005, was also not sampled as it re-froze. There were no concerns related to this freezing from the Geotechnical Engineers.

SNP stations 1645-13, 1645-16, 1645-18, 1645-49 and 1645-52B were successfully sampled with no notable concerns.

Water quality and quarterly sediment samples were obtained for stations 1645-19A, B & C in October.

Sampling at stations 1645-70 to 1645-73 continued with construction of the A418 dike. Samples were not obtained at these stations on 5, 10 and 12 October as weather conditions did not allow safe travel by watercraft. Sampling of these stations concluded on 15 October, coinciding with completion of the foundation for the A418 dike.

Collection ponds, groundwater wells and seepage surveys were no longer sampled due to freezing conditions at all open water bodies. The clarification and sedimentation ponds were dewatered on a regular basis during the summer and fall of 2005, due to dredging activities associated with A418 dike construction.

Caribou aerial surveys were completed for the year on 1 October.

## **NOVEMBER**

Diavik underwent an external ISO 14001 EMS recertification audit and a Rio Tinto Health, Safety and Environment audit.

All required sampling for SNP stations was completed by DDMI.

Sampling occurred at stations 1645-12, 1645-13, 1645-16, 1645-18 (including monthly toxicity), 1645-19A, B & C, 1645-49 and 1645-52B, with only one notable concern. Sample bottles

from 1645-19C-5 (Dissolved Metals) and 1645-19C-15 (Total Metals) were both received at the off-site laboratory with cracked lids that occurred during transport. Samples were analyzed and results were cross- checked with profile data.

Collection ponds, seepage streams and groundwater wells were not sampled as they were frozen.

## **DECEMBER**

During the month of December 2005, all required sampling for SNP stations were completed by Diavik.

As per water license requirements, an annual sample was taken from the Sewage Treatment Plant (STP) at SNP station 1645-11 with no notable concerns. This water is being reused within the processing plant before being directed to the PKC facility.

Stations 1645-12, 1645-13, 1645-16, 1645-18, 1645-19A, B & C, 1645-49 and 1645-52B were sampled during the month of December, with no notable concerns.

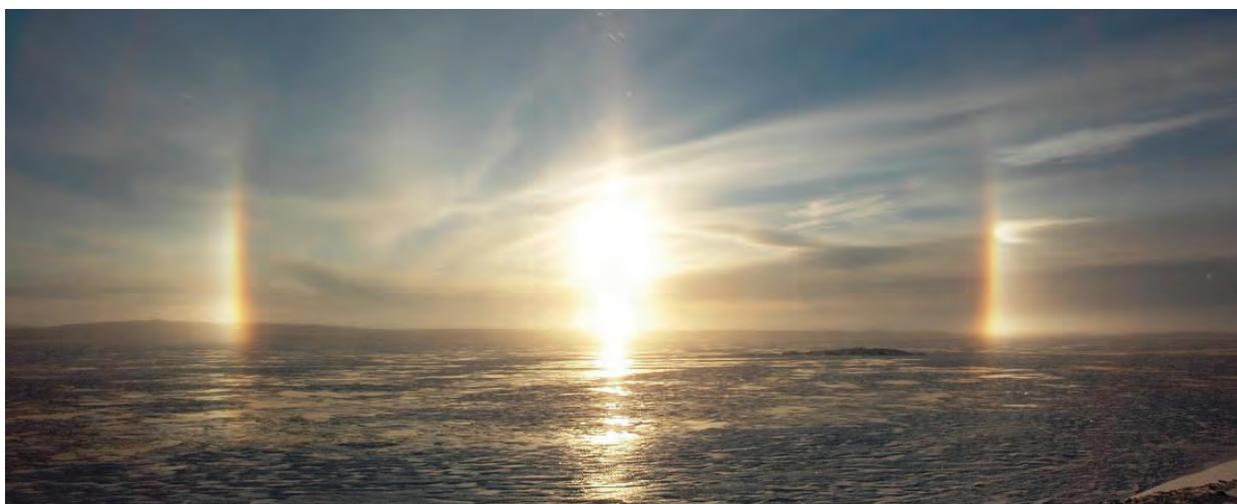
In accordance with requirements outlined in Diavik's water license amendment approved by the MVLWB (30 June 2004), quarterly toxicity samples were obtained from station 1645-18 on 19 December with no notable concerns.

Quarterly potable water samples were obtained at various locations around site and results were within the criteria outlined in the Guidelines for Canadian Drinking Water Quality.

Collection ponds, seepage streams and groundwater wells were not sampled in December as they were frozen.

Wolverine tracking surveys were conducted from 7-12 December.

Dust gauges DUST1-8 plus Controls 1 & 2 were collected.



# Public Concerns

In 2005, there was no direct communication or letters from the public to Diavik expressing concerns with the mine's operation. However, hearings for the renewal of Diavik's water license that occurred late in 2005 did generate public interest and comments. These were anticipated and invited.

The following section notes issues or concerns from the Environmental Monitoring Advisory Board (EMAB) in 2005, and the responses that Diavik provided. In some cases, Diavik's responses to EMAB have not yet been sent and are pending. In some other cases, the issues presented are still open and are not yet resolved.

**January 24**    **Communication:** EMAB acknowledged the receipt of Diavik's workplan for temporary fencing installation and monitoring. EMAB requested a revised workplan that includes elements missing from the original. It was requested that the revised plan include the process for DDMI to do a review/consultation on the draft management plan directly with site visit participants, and also to include a date for completion of a worst case contingency plan.

**DDMI Response:** *DDMI responded to clarify and give the Board a status update. DDMI noted that once Pond 2 was constructed, it would act as a barrier similar to other dams. Holes are also scheduled to be drilled in the spring, for temporary fencing that has already been agreed on. DDMI states that it is their intention to include community representatives in the draft management plan as well as in development of the worst-case contingency plan. It is anticipated that this would happen during the caribou monitoring workshop this fall.*

**April 18**    **Communication:** EMAB requested that Diavik do a presentation on the changes that BHPB is proposing to the aerial caribou surveys that it does in conjunction with Diavik.

**DDMI Response:** *DDMI responded by stating that although they are aware of BHPB's activities, they do not feel it appropriate to make the requested presentation.*

**June 2**    **Communication:** EMAB issued a letter to the Parties to the Agreement, stating that they were prepared to coordinate a 5-year review of the Environmental Agreement.

**DDMI Response:** *DDMI thanked EMAB for offering to coordinate this review, and states support of continually improving effectiveness of the Environmental Agreement. DDMI will wait to hear how they can participate in the assessment.*

**June 2**    **Communication:** It is acknowledged that Diavik plans to present a working draft of the management plan and worst-case contingency plan to participants

of the upcoming Caribou Workshop. EMAB expressed concern that the workshop is not an appropriate place for presenting these documents due to time, different participants, poor venue for group decisions, facilitation and translation will be difficult, and the main focus of the workshop should be on caribou.

EMAB also stresses that, although Diavik plans to do drilling of the holes for temporary fencing in the spring, there is also a commitment to involve site visit participants in selecting the location for the fence. EMAB requests a copy of the revised workplan addressing the above issues.

**DDMI Response:** *DDMI mentioned a recent meeting between themselves, EMAB and GNWT representatives to discuss the upcoming fall caribou workshop. It was noted that part of the agenda for the workshop would include a visit to where the temporary fencing would be located and perhaps even a demonstration. DDMI noted that it is their plan to provide participants with a draft contingency and monitoring plan for discussion and later revision.*

#### June 10

**Communication:** EMAB provided many detailed comments to DDMI on the draft version of the 2004 Environmental Agreement Annual Report (EAAR). EMAB states that although the report is an improvement over the previous year's report, there are still many areas where improvement is needed in order to meet the Agreement requirements. EMAB suggests that in order to clear up differing expectations in areas such as level of detail, there be a workshop between EMAB and DDMI prior to the next annual report. In addition, they support a delay to the submission of the report to allow addressing of these comments.

**DDMI Response:** *DDMI agrees that a workshop should be held to discuss expectations for the next EAAR. DDMI also acknowledges EMAB's support in delaying submission for this report to allow edits and translations. Following the submission of the final report, DDMI also provided EMAB with rationale for why some of EMAB's comments were not addressed at this time.*

#### June 27

**Communication:** EMAB requests that Diavik address each of the revisions and recommendations made in the review of the 2004 AEMP report done by Gartner Lee Ltd. Specific recommendations are outlined prior to each of Diavik's responses below, to make reading easier.

**DDMI Response:** *In a letter to MVLWB, Diavik provided responses to several items requested; this letter response covered the Gartner Lee recommendations that EMAB requested.*

1. The consultant recommend that DDMI add a discussion on the implication of under-ice samples being collected during a period when the NIWTP was not discharging and that statistics at SNP 1645-19 be broken out into discharge and non-discharge periods. *DDMI noted the changes in the effluent discharge in Section 2. This was an unusual shut-down for the NIWTP and not something that is anticipated to be a regular event in the future. DDMI*

*does not believe the recommendation is required for what is likely to be a one time occurrence.*

2. The consultant recommends that the AEM should be a “stand alone” document and should include the water quality predictions made in the EA, raw data from SNP 19 and BHPB S2 and S3. *DDMI will include the EA predictions as a single table in an Appendix to future AEM Reports as the information is referenced regularly and the information is not readily available. DDMI does not believe it necessary to include all the SNP 19 and BHPB raw data. This represents a very large amount of data that is already on the MVLWB Registry and readily available through the MVLWB web page.*

3. The consultant recommends that DDMI clarify discrepancies in some of the summary statistics. *Typographical errors have been noted in the counts reported in the water quality tables. DDMI will make these corrections.*

4. The consultant recommends that DDMI provide details on methods used for evaluating QA/QC results and outliers. A summary table showing all outliers that have been removed should also be included. *DDMI propose to use the following methods for evaluating QA/QC results. The QA/QC results for the parameters utilized in the AEM will be analyzed and any significant results will be listed in a Table that will accompany the QA/QC discussion. A significant result will be defined by: a) any duplicate results where the difference is greater than 20% and the mean of the values is greater than 5 times the analytical detection limit, or b) any blank results where the value is greater than 5 times the analytical detection limit. If these methods are acceptable to the DTC, DDMI will implement this methods in all future AEM Reports. Regarding a method for outliers, as noted in EC response #4 above, DDMI does not have a formal method determining outliers and is seeking recommendations. DDMI will explicitly list, in a Table, any outliers that are removed from the data analysis.*

5. The consultant recommends that DDMI provide details on how the contribution of Ekati versus Diavik will be separated out during the assessment of cumulative effects and that the cumulative effects discussion should be expanded to include benthic invertebrates and sediment. *The 2004 AEM includes a brief discussion on cumulative effects as they relate to changes at the outlet of Lac de Gras which would include any contributions from DDMI and the Ekati operation. The discussion is limited to the parameters that are measured at the outlet; water quality, phytoplankton and zooplankton. It should be noted that Water License requirements around cumulative effects monitoring and assessment (Part K, Item 7j) are not related to combined effects of multiple projects but the combined effects of multiple stressors from Diavik. This cumulative effects monitoring and assessment is inherent in the biological monitoring components of the AEM. The sections on combined effects from Diavik and Ekati were added at the request of reviewers. DDMI does not believe an expanded discussion or analysis of the contribution from Ekati versus Diavik is within the scope of the AEM.*

6. The consultant reiterates the recommendation to separate out periods of NIWTP effluent discharge from non-discharge in the AEM. *DDMI's response is provided above (point # 1).*

7. The consultant recommends that the AEMP data analysis be applied to under-ice and open-water results separately because there is an obvious seasonal trend in parameters such as ammonia (and provide results at 1645-19 as evidence) and there are now 3 years of post baseline data. *EMAB's consultant should be reminded that the 4 step AEMP data analysis method to determine change does not apply to SNP Station 1645-19 as change is expected at a location 60m from the discharge. Results from this station are evaluated against CCME or similar guidelines. DDMI does not believe a seasonal analysis is necessary for ammonia. The seasonality and visual trends in the data were recognized in the report and although the step 1 data analysis did not trigger this parameter to a step 2 analysis, DDMI moved it to a step 2 and step 3 analysis (see page 58).*

8. The consultant asks 1) If DDMI can comment on why the diffuser is not performing as predicted, 2) Will the results of the plume delineation studies be used to optimize diffuser performance, 3) Can DDMI clarify the method used to calculate the monthly average total barium concentration at 1645-19. *1) DDMI suspects that the lower than anticipated dilution factors are related to the diameter of the diffuser ports which have been sized for design flows of 30,000 m<sup>3</sup>/d. When the NIWTP is discharging at volumes less than this initial mixing rates appear to be lower, is not clear if at higher flows the dilution factor would be similar to the predicted level. DDMI does not have sufficient initial mixing results when the NIWTP has been operating for a sustained period of time, with elevated barium concentrations, to confirm this. 2) The plume delineation results will be considered along with current and future 1645-19 results and anticipated future NIWTP discharge volumes to determine if the diffuser needs to be optimized. 3) The monthly average total barium concentrations in Table 3-16 of the AEM were calculated as the mean total barium concentration from combining all results collected for that sampling campaign (i.e. month) at all depths from each specific station (i.e. 1645-19A, B or C).*

9. The consultant recommends that DDMI should incorporate the results of the 2005 plume delineation study into the AEMP program for subsequent years including additional monitoring locations to adequately monitor the impact dues to DDMI activities. *It is DDMI's expectation that the results of the plume delineation special effects study will be used primarily to aid in the interpretation of the AEM results versus being used to drive a change to monitoring locations. The AEM is already heavily weighted towards monitoring within the effluent plume with the intensive sampling at SNP 1645-19.*

10. The consultant reiterates their view that biomass is an inadequate indicator of change in phytoplankton and zooplankton and that each sample should be analyzed for community composition. *DDMI has responded to this view on numerous occasions as has the MVLWB.*

11. The consultant recommends that DDMI develop a robust method to detect changes in sediment quality and incorporate these into future AEM sampling. *In the 2004 AEM Report DDMI recommended evaluating a thinner (2 cm) sediment sample methods as previously recommended by EMAB's consultant. EC has noted concerns with issues of data compatibility and consistency if methods are changed and also recalled the original ecological rationale for the 5 cm. EMAB's consultants also point out that the comparisons proposed by DDMI to evaluate 2 cm vs 5 cm may not be valid. DDMI also understands from subsequent EMAB conversations that their consultant may not have fully understood the physical nature of the lakebed sediments in Lac de Gras and that it may be impractical to apply the suggested approaches. Clearly this is a complex issue that requires further discussion and DDMI requests that this be included as an agenda item for the next DTC meeting.*

12. The consultant recommends that the 2004 AEMP should clarify and provide further detail on how it is determined whether elevated lakebed sediment are due to the operations at Diavik and how to distinguish DDMI effects from cumulative effects. *As suggested by the INAC Inspector at the May 2005 EMAB meeting DDMI will add a summary of the sediment quality sample results, obtained near the NIWTP discharge point as collected in the SNP, in future AEM Reports. This would provide data analogous to the water quality data at 1645-19. Considering these data as part of the evaluation will assist in determining if the NIWTP is the source of any changes to sediment quality.*

13. The consultant recommends that the 2004 AEMP report should provide clarification on why the lead levels in both the near field and far field sediments are elevated above baseline and increasing. *DDMI does not have any additional information or knowledge to explain why the lead levels measured in the near field and far field have increased over time (2001-2004) and are greater than measured in baseline. See also EMAB response #12 regarding distinguishing DDMI effects. Perhaps of note is that in 2004 baseline sediment quality data were collected for the A418 dike monitoring (DFO requirement) using the same methods as is used for the AEM. This program included controls sites east of the mine site, near the mainland. The range of lead concentrations from the control sites was 2.1 to 9.9 ug/g with a sample size of 15. This is equivalent to the range observed in the AEM results.*

14. The consultants recommend that any review of the AEMP trigger values wait until the results of INAC's review of baseline data is complete and the baseline data finalized and acceptable. *DDMI agrees that the trigger review should consider the results of INAC's review and therefore the review should not commence until that review is complete. DDMI understands that the INAC review will be complete in August 2005. It is not clear what EMAB's consultant means by the term "baseline data finalized and acceptable".*

**July 29**

**Communication:** In follow up to earlier discussions, EMAB requests that DDMI install another dust measuring gauge near the community based monitoring camp, southeast of the mine site on the mainland.

**DDMI Response:** DDMI responded to this request by ordering the additional dust gauge. By the time it arrived the ground was frozen, so the gauge will be installed as soon as the ground thaws in spring 2006.

**August 8 Communication:** EMAB responded to DDMI's most recent letter regarding the workplan for temporary caribou fencing. They expressed several concerns as noted below:

- DDMI's letter does not specify how Diavik plans to meet the approved objectives for that camp in addition to these discussions as requested in EMAB's June 2 letter
- Although input from camp participants will be valuable in preparing the draft plans, EMAB has already provided reasons why the camp is not an appropriate place for consultation or decisions on the plans
- Discussions at the camp will not fulfill DDMI's commitment to review the management plan with the Group from the fall 2004 fencing workshop
- DDMI has not yet provided some components of the workplan originally requested by EMAB on January 26, specifically the draft management plan and the process for DDMI to do review/consultation on the plan directly with site visit participants

**DDMI Response:** In October, DDMI wrote back with the following information. A draft contingency / monitoring plan has been worked on; participants as well as a GNWT biologist provided input. To respond to EMAB's concerns:

- DDMI provided updates to participants at the camp on various types of caribou monitoring as well as reviewed caribou procedures
- DDMI disagrees with EMAB and feels that the camp was a good place to discuss the management and contingency plans, and valuable knowledge was gained from participants that had also been at the September workshop
- DDMI agrees that camp discussions will not fulfill the commitment for reviewing the management plan with the earlier group
- The draft management plan will be provided to EMAB soon, as information from the site visit is included. The process for review of the draft management plan with the Working Group will be discussed at a later date
- DDMI appreciates being able to participate in the Caribou Workshop

**September 2 Communication:** After reviewing the final version of the 2004 Environmental Agreement Annual Report, EMAB expressed disappointment that many of the comments they had provided on the draft were not included in the final report. EMAB feels that the report does not fully meet the requirements of section 12.1 of the Environmental Agreement. They suggest that a workshop be set up between EMAB and DDMI to address shared expectations for the next year's report.

**DDMI Response:** DDMI representatives met with EMAB representatives in early 2006 to discuss shared expectations about the 2005 Report.

**September 19 Communication:** EMAB thanked Diavik in advance for an upcoming presentation on involving aboriginal groups in monitoring at the mine. EMAB requests ideas from Diavik as to how to increase aboriginal involvement.

**DDMI Response:** The presentation that was given by Diavik covered these suggestions.

**October 5 Communication:** EMAB requests that DDMI consider allowing a portion of the Community Based Monitoring (CBM) Camp funds to be used to cover costs for EMAB's travel to visit the CBM fish palatability camp in August.

**DDMI Response:** Diavik approved this request.

**October 5 Communication:** EMAB requested that Diavik provide the data that was used to calculate the Aquatic Effects Monitoring Program (AEMP) baseline statistics for phytoplankton, zooplankton, benthic invertebrates, and sediments.

**DDMI Response:** This data was provided as requested.

**October 5 Communication:** MSES Inc. did a review of DDMI's 2004 Wildlife Monitoring Report (WMR) on behalf of EMAB. The following are recommendations from MSES that came out of the report. EMAB requests that Diavik comment on each comment or concern in the report:

- 1. General:** At the local scale, increased samples sizes and data density within the zones of influence (ZOI) are required. Control sites in the sense of before-after-control-impact approach need to be taken more seriously in future data collection (or potentially in analyses of existing data and actual determination of any cause-and-effect relationships). At the regional scale, a modernization of data collection and analysis is essential to allow for an understanding of effects in an area that is much larger than the current study area.
- 2. Vegetation:** We concur with the recommendations on vegetation community monitoring. In particular, more control sites need to be established in all vegetation communities. The increase of monitoring frequency is imperative.
- 3. Caribou:** We think that a higher density of observations needs to be secured, both for behavior and for occurrence within the ZOI. Effects within versus outside of the ZOI have not been explicitly tested. It will not be possible to test them at the current resolution of data.
- 4. Caribou within Zone of Influence:** There are two alternatives to adapt the monitoring program and to find a more adequate resolution of data. Either increase the sampling density within the ZOI or compare to control sites outside. Alternatively, use a much higher number of satellite collars to arrive at a sample size high enough. The required sample size can be estimated through power analyses, but we anticipate that 50 to 100 collars should be sufficient. The decision on whether an increase in collared caribou is acceptable to com-

munities should be reviewed with community members in light of Recommendation. Data from satellite collared animals can be compared between the ZOI and elsewhere.

5. **Caribou in the region:** Again, there are two alternatives. Either the aerial surveys are expanded to a larger region (it is assumed that the transect density would need to be reduced in order to cope with the time required to fly larger transects). Alternatively, a sufficient number of satellite collars would provide a picture on caribou movements and their responses to developments in their entire range. We think that the latter is the preferred option because the program overall would be cheaper, more reliable, and provide more conclusive evidence on regional effects. Based on extensive experience of wildlife biologists in the region, it is assumed that collaring caribou would not harm the animals.
6. **Caribou behavior:** Behavioral observations within the ZOI should continue to increase the power of data that test the effects on behavioral, and hence energetic, changes of caribou that are exposed to the mine. This is not an urgent point, however, as it is unlikely that differences in behavior would be strong enough to warrant concerns of energetic loss in the population based on the Diavik mine alone. Nevertheless, regional effects may accumulate by adding the effects of numerous industrial developments. To gain an understanding of such potential regional effects, it is imperative that such behavioral observations be coordinated and compared among all industry projects in the range of the same caribou herd.
7. **Grizzly:** We concur with the conclusions for monitoring recommendations in the 2004 WMR Section 6.5, namely that there is no apparent reason for changes. *Review of the 2004 WMR MSES Inc. June 2005 Page v*
8. **Wolverine:** We concur with the conclusions for monitoring recommendations in the 2004 WMR Section 7.3, namely that local knowledge should be used and that a better understanding of regional population parameters should be gained by ways of DNA analysis.
9. **Waste management:** Management actions that include, but are not limited to, education of an increasing number of staff at the mine are imperative to further the cause of minimizing or eliminating attractants. In order to understand what the numbers of animals on the waste sites mean, DDMI should entertain the possibility to compare these numbers with random points outside of the ZOI.
10. **Falcons:** We concur with the recommendation in the 2004 WMR Section 9.3 that occupancy surveys need to continue. Consideration should be given to the collection or analysis of data that may relate to nesting success of Peregrines including breeding pair density, physical attributes of nest sites (exposure to weather and predation), and prey abundance. The design of data collection for occupancy and productivity analyses should receive careful review by ENR biologists.
11. **Waterfowl and shorebirds:** In order to draw conclusions about mine effects on bird diversity, if any, it is imperative to apply to control sites the same data collection techniques as are currently employed near the mine. However, workshop participants reviewing the 2004 WMR raised the question whether it is still necessary to monitor waterfowl. We are neutral to that decision as the current monitoring program already showed the potential magnitude of effects

on waterfowl. In absence of a control site the results can be arguably interpreted as the worst case scenario, assuming that a hypothetical control site would not show changes in bird communities over time, while the ones monitored by DDMI did.

**DDMI Response:** *To respond to each recommendation put forth by the consultant for EMAB, DDMI provides the following notes: (numbers correspond to the numbers of recommendations made)*

- 1. Sampling effort within the zone of influence (ZOI) is discussed in items 3 and 6 below. Requirements for control sites are addressed in item 2 below.*
- 2. Both parties agree to DDMI's recommendations relating to an increase in control sites and frequency with which vegetation monitoring is carried out.*
- 3. DDMI proposes implementing a more structured program for caribou scanning observations for the 2006 monitoring program. This program would focus on increasing the number of samples of caribou behaviour within the anticipated ZOI (i.e., within 3 to 7 km from the mine) and at distances up to 20 km from the mine.*
- 4. DDMI understands the basis for MSES's recommendation to omit or alter caribou aerial surveys in favour of increasing the number of caribou collars or the size of the aerial study area, however it should be understood that BHP Billiton (BHPB), in conjunction with the then Department of Resources, Wildlife and Economic Development (now Environment and Natural Resources - ENR) developed the data collection protocol, standards and mechanisms for this aspect of caribou monitoring; presumably with input from other reviewers such as the Independent Monitoring Advisory Board. Based on the October 2001 Caribou Workshop, it was EMAB's recommendation (letter dated 21 January 2002), that DDMI standardize monitoring protocols with BHPB; that is to say that DDMI should conduct aerial surveys. DDMI adopted the aerial survey program based on EMAB and RWED's recommendation. While we are willing to participate in any discussions around changing the monitoring approach, these discussions should be initiated and lead by others, and include communities.*
- 5. See point 4 above.*
- 6. See point 3 above. Additionally, DDMI encourages efforts to coordinate and compare data collected among all industry projects within the range of the Bathurst and Ahiak caribou herds. Communities would also benefit from a regional analysis initiated and conducted by the Territorial government (ENR).*
- 7. Both parties agree that no changes are required for monitoring grizzly bears.*
- 8. Both parties agree that local knowledge should continue to be used, and that DNA analysis should be added to gain a better understanding of regional wolverine population demography. Diavik, in conjunction with BHPB, De Beers Canada Mining and ENR, has agreed to conduct DNA analysis for a period of two years, whereupon all participants will make a collective decision as to the merit of the program. If the study proves effective, a suggested frequency with which to conduct the program will be determined, and recommendations put forth to EMAB accordingly. Diavik also commits to providing a comparison of track densities between transects further from the mine and closest to the mine.*

9. Waste management practices on site have proven effective to date. While some animals are seen at the waste management areas, it is an inherent risk associated with storing waste. Many efforts have been made to limit access to these areas of stored waste through either the use of fencing or strategic location of the waste pile within an active haul area. Given the remote nature of this project, it is logistically necessary to accumulate waste over the course of a year. DDMI does not consider it necessary to monitor the occurrence of wildlife at a control site outside the ZOI, as we acknowledge that the frequency of visits to waste management areas will be higher than that of a control area. Diavik does recognize, however, that there is room for continuous improvement, and will incorporate efforts to improve employee and contractor awareness and reporting.

10. Both parties agree that falcon nest occupancy and success surveys should continue.

11. In relation to comments noted at the EMAB board meeting of 24 May 2005, where it was recommended that DDMI consider removing annual waterfowl monitoring from the existing Wildlife Monitoring Program, MSES stated that they are neutral to this decision. The existing program was established only to determine waterfowl presence at the mine site, and not document spatial differences in species richness and composition. Consequently, the waterfowl study does not explicitly test for mine-related effects as compared to the other wildlife programs carried out by DDMI. Diavik is willing to remove the program or re-evaluate monitoring frequency. However, given that this program is a requirement under the Comprehensive Study Report (CSR), DDMI requests confirmation that Environment Canada's Canadian Wildlife Service and EMAB are in agreement with discontinuing this program.

**December 16 Communication:** EMAB sent Diavik a copy of a review that a consultant did of Diavik's Air Quality Monitoring Program and Lichen Monitoring Program. The consultant presented criticisms as well as recommendations for changes to the program. EMAB requests that Diavik consider these concerns and respond to each of them, as well as provide an indication of how Diavik will meet clause 7.2 of the Environmental Agreement (to have an air Quality Monitoring Program). The consultant states that the current Dust Monitoring Program does not fulfill this requirement.

**DDMI Response:** A response to this letter and request is forthcoming.

# Advanced Technology

During 2005, Diavik investigated the following technologies.

## **Wind Energy**

In 2005, Diavik continued investigations into whether wind is feasible as a source of energy at the Lac de Gras mine site. Wind experts were contracted to do two things – one to analyze the BHPB wind data they collected from their wind station and another to help start the pre-feasibility work. The results from the BHPB data were encouraging – the wind speed is high enough to support a cost-effective turbine setup.

A 50m tower needs to be installed at the Diavik site to confirm the results from the BHPB data, but due to airport regulations, finding the right location has taken longer than planned. It needs to be placed where the turbines will be situated and it can't affect aircraft flight patterns on days where clouds are low.

The pre-feasibility study looked at types of turbines, how to connect them to the power plant, and at what temperature below zero would they need to be shut down. This study will continue in 2006, with more data collection once the tower is put up.

## **Auxiliary Engine Heaters**

During cold temperatures, the haul trucks at the mine site have traditionally been left idling during meal breaks, shift changes, etc in order to keep the engines warm. Research was begun to examine the possibility of using auxiliary heaters to keep the engines warm without having to leave the trucks idling all the time. There are three reasons for this project; reduced fuel consumption, reduced greenhouse gas emissions, and longer engine life related to less idling.



In May 2005, the first of four trial heaters were installed in an 830E haul truck. The other three were installed in November; initial trials were done at the end of the year to determine whether this would be a good way to reduce idling. More trials will be done in 2006, and if this turns out to be feasible it may be used on other trucks such as the smaller haul trucks at the mine site.

## **Water Treatment Plant**

New technologies for treating water at the North Inlet Water Treatment Plant took place. These included technologies known as “Ion Exchange” and “Break-point Chlorination” for treating water. Ion exchange means that some parts of the compounds in water are removed and replaced with others, and break-point chlorination refers to a process where enough chlorine is added to react with all the ammonia. These technologies were presented to the Mackenzie Valley Land and Water Board but were not accepted because the Board wanted more details. These technologies will be discussed more as part of the water license renewal process.

## **Waste Disposal**

Diavik looked into new types of incinerators to burn waste at the mine site. Some newer incinerators have something called a *scrubber* built into them, and scrubbers help to remove harmful substances such as dioxins, furans and mercury from the emissions that the incinerator gives off. This will help improve air quality around the mine site.

# Rolling Effects Summary

This section of the report presents a summary of monitoring data from each year up to the present, to show patterns over the years. The Environmental Assessment predictions that are shown below were chosen to be included in this section because they are the ones that Diavik can (and does) measure each year. This section shows how the mine is affecting the environment compared to predictions from the Environmental Assessment (EA).

Because it is still relatively early in the mine's operational history, many programs are also in their early stages. For this reason, an analysis of environmental effects data is not yet possible; for this same reason, it is difficult to verify the accuracy of the Environmental Assessment. Further years of monitoring are required before conclusions can be drawn. However, graphs are given where practical to show the trends over time. Further details can be found in the full reports that Diavik produces for each topic.

## 1. Climate and Air Quality

### *Will the mine development affect air quality around Lac de Gras?*

*Background: CO<sub>2</sub>e is an abbreviation of 'carbon dioxide equivalent'. CO<sub>2</sub> is not a strong greenhouse gas compared to some others, but because it is produced in such large quantities it greatly exceeds all other gases combined. To make it easier to calculate greenhouse gases, they are generally reported as if they were equivalent to a given volume of CO<sub>2</sub>; this is the CO<sub>2</sub>e referred to below.*

#### **EA Prediction**

- Ambient air quality objectives and occupational health criteria will not be exceeded.
- The mine will be a very minor contributor of greenhouse gases.

#### **Observations**

- In 2005, occupational health sampling showed isolated work areas with instances of results exceeding occupational exposure limits. Based on the results, engineering controls (a dust suppression system, etc) and enforcing the use of personal protective equipment (PPE) have lowered results to below criteria. Monthly sampling will be done, starting in July 2006.
- Total greenhouse gas emissions in 2005 were 152,048 t CO<sub>2</sub>e; see figures on the next page for how this compares to western Canada's emissions and to past years at Diavik.
- As predicted, dust deposits are greater closer to the mine and are less further away from the mine. Snow survey sampling and dust monitoring have shown increases in annual dust deposition since the start of operations. The rate of dust being deposited is affected by activities in the area as well as by wind direction.
- For the first time, overall deposition rates observed during 2005 were more than what was predicted by models in the Environmental Effects Report. The predictions, however, were based on normal air quality at that time that the predictions were made and did they did not consider construction periods which increased during 2005. It is expected that dust will be less as construction slows down and ends. See the Dust Deposition Monitoring Program

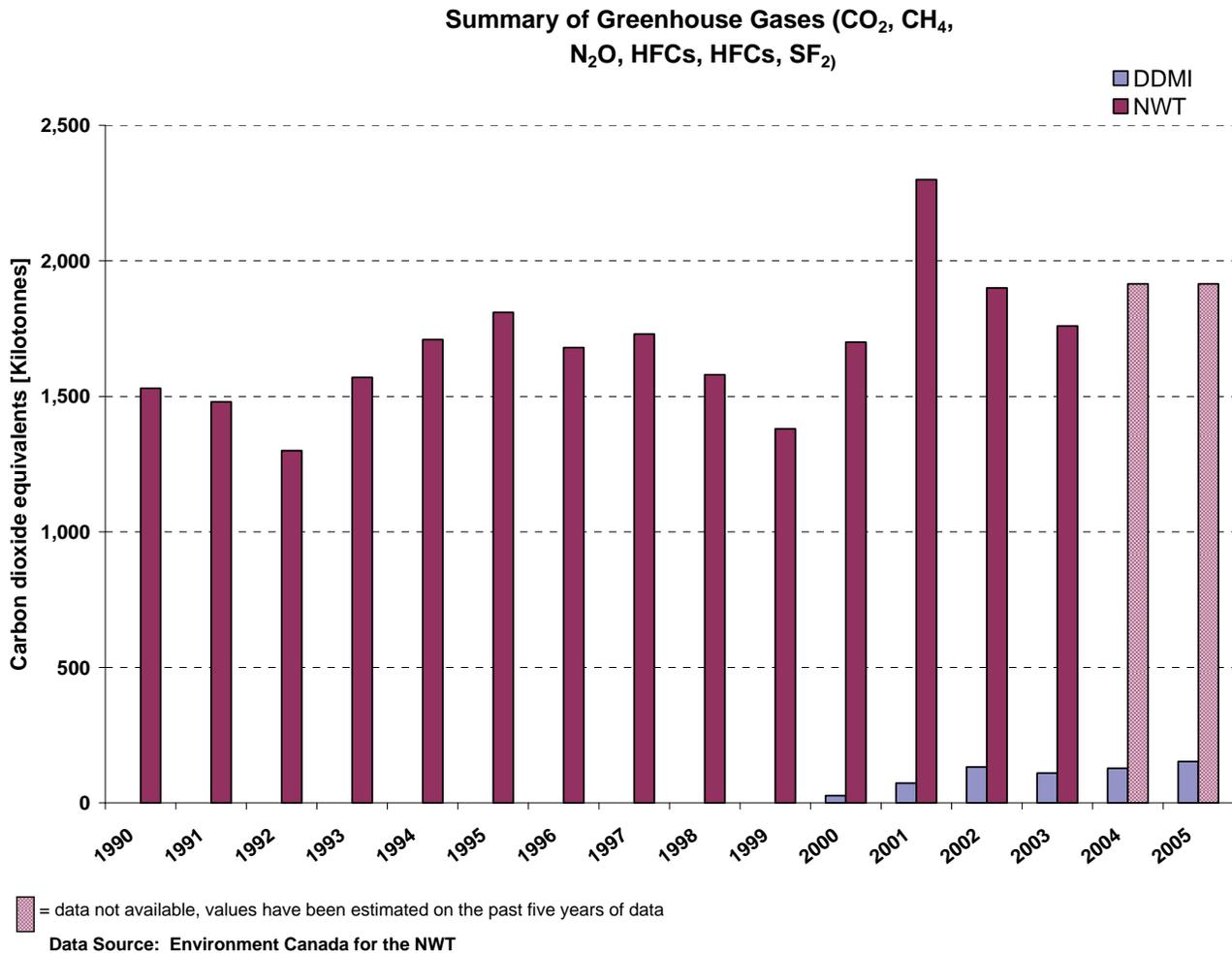
on p.9 for details on this program.

The table below shows Diavik’s emissions compared to other jurisdictions in Western Canada.

Jurisdiction	CO <sub>2</sub> e (in kilotonnes), 2005
Alberta	220,500
BC	63,325
NWT (including Diavik)	1,915
Yukon	489
Diavik	153

*Note: Territorial and Provincial data has been calculated from the 2000 to 2004 data sets, as 2005 data was not yet available.*

The figure below shows Diavik’s greenhouse gas emissions compared to the NWT’s emissions in years past.



## 2. Vegetation and Terrain

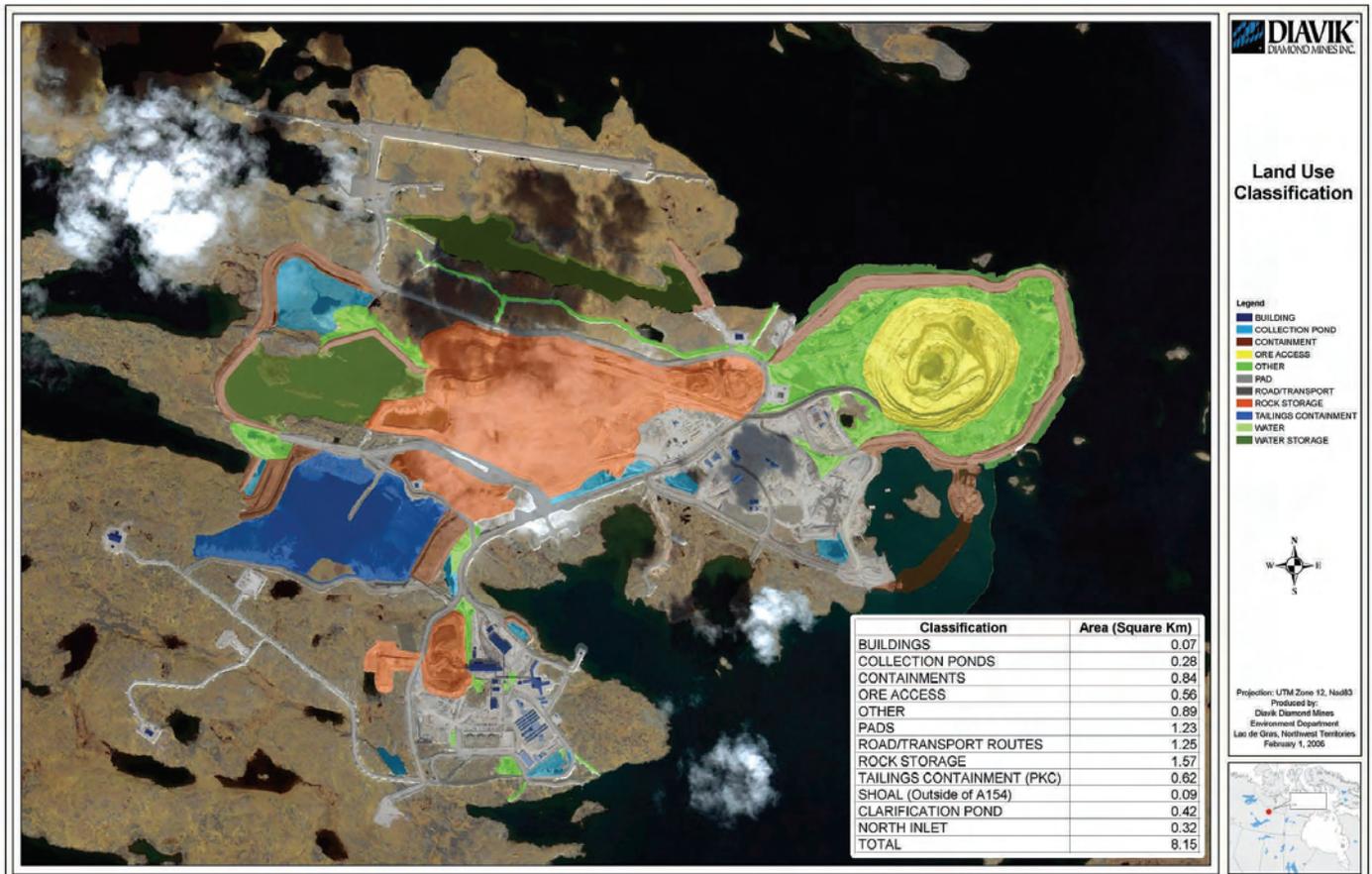
How much vegetation/land cover will be directly affected by the mine development?

### EA Prediction

- Approximately 12.67 km<sup>2</sup> of vegetation/land cover will be lost at full development.
- Slow recovery of vegetation following mine closure.

### Observations

- The direct vegetation/habitat loss in 2005 due to the mine footprint was 0.84 km<sup>2</sup> and total habitat loss to date from mining activities is 8.15 km<sup>2</sup>. This is within the predicted amount of 12.67 km<sup>2</sup>. The map below shows the classification of disturbed land to date at the Diavik site.



How will the vegetation communities outside the mine footprint be changed as a result of mine development?

### EA Prediction

- Localized changes in plant community composition adjacent to mine footprint due to dust

deposition and changes in drainage conditions.

### **Observations**

In 2003, a proposal was received for vegetation studies from the University of Alberta. In 2004, habitat analyses were done on permanent vegetation plots (PVP). There were slightly more species than observed in baseline studies (2001), but overall species noted and percent cover were similar for both years. As recommended in the 2005 Wildlife Monitoring Report, PVP analysis will be done more often resulting in a sampling season for 2006. The number of control sites will also be increased in the 2006 program.

## **3. Wildlife**

### *Will the distribution or abundance of caribou be affected by the mine development?*

#### **EA Predictions**

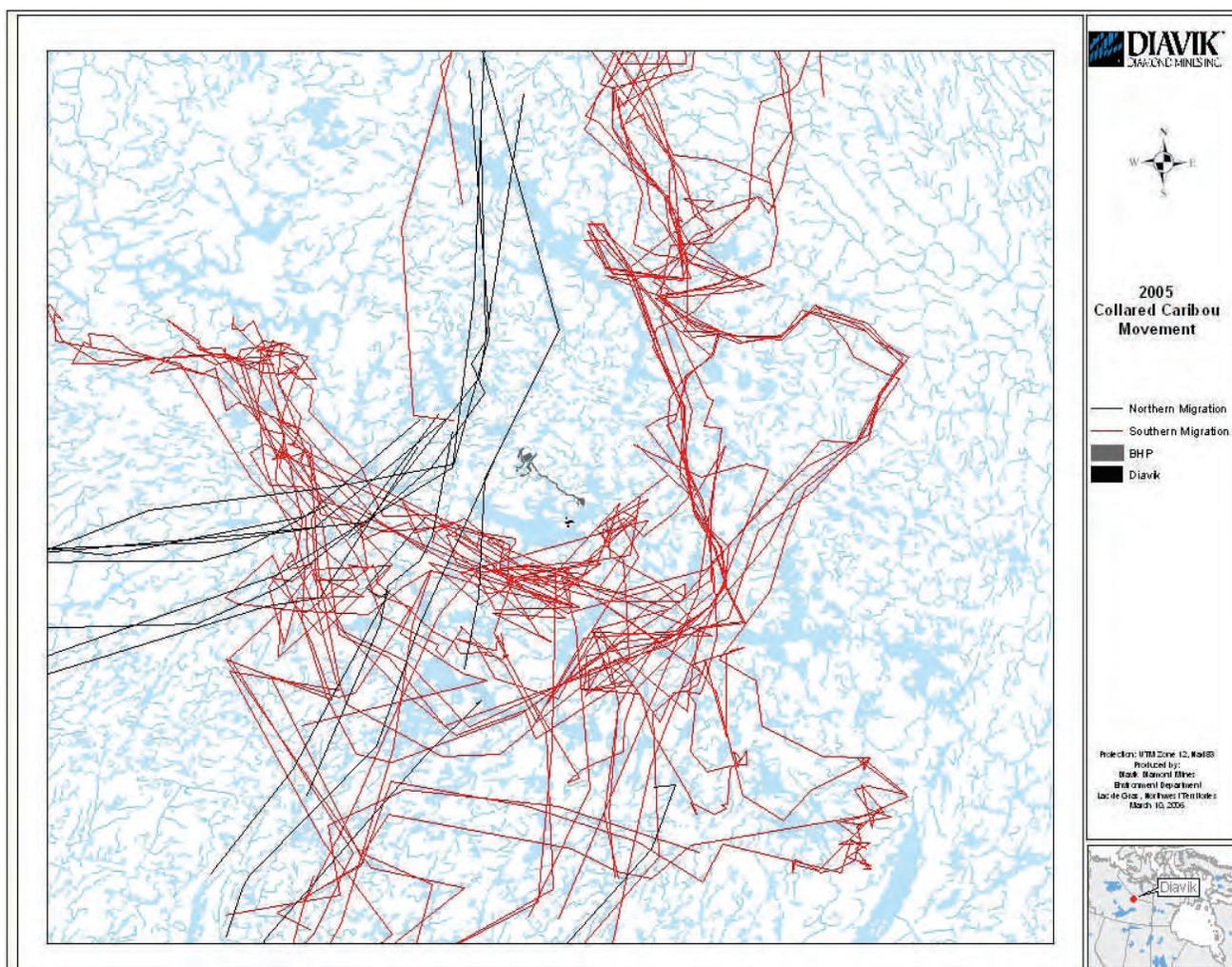
- At full development, direct summer habitat loss from the project is predicted to be 2.97 habitat units (HUs). (A habitat unit is the product of surface area and suitability of the habitat in that area to supply food for caribou and cover for predators)
- The zone of influence from project-related activities would be within 3 to 7 km
- During the northern (spring) migration, caribou would be deflected west of East Island and during the southern migration (fall), caribou would move around the east side of Lac de Gras
- Project-related mortality is expected to be low

#### **2005 Observations**

- Direct summer habitat loss in 2005 from the mine footprint was 0.23 habitat units, which brings the total to date to 1.37 HUs.
- Sample size within 3 km of the mine limits behavioral comparisons with caribou located greater than 3 km from the mine, adding to the difficulty of accurately determining a zone of influence. The results of a statistical analysis that was conducted for the years up to and including 2004 show that an estimated zone of influence is uncertain at this time. One of the reasons for this uncertainty includes the influence of a large lake (Lac de Gras) surrounding the study area, as some studies suggest that caribou are found to avoid water compared to other habitat types.
- A statistical analysis was also done on the movement of satellite-collared caribou from 1996-2004, and supported the EA prediction that caribou would move around the project site. During the northern migration, most animals tended to move to the west of East Island over the years. During the southern migration, most animals tended to first travel to the east of Lac de Gras. The figure on the next page shows movements of collared caribou in 2005, and supports these trends. No caribou mortalities occurred due to the mine operating during 2005. See the Wildlife Monitoring Program (p.15) and Report (p.28) for more details.

#### **Observations from previous years**

- One mortality to caribou occurred due to the mine during 2004.
- The level of caribou advisory monitoring remained at “no concern” (no caribou or fewer than 100 caribou) for all days in 2004, and 2003, and at “no concern” for 362 of 365 days in 2002.



Will the distribution or abundance of grizzly bears be affected by the mine development?

**EA Prediction**

- Approximately 8.7 km<sup>2</sup> of grizzly bear habitat will be lost and there will be some avoidance of the area, but the abundance and distribution of grizzly bears in the regional area will not be affected measurably.
- Bear mortalities due to mine related activities are expected to average 0.12 to 0.24 bears per year over the mine life.

**2000 to 2005 Observations**

The table below shows the grizzly bear habitat that has been lost to date (in square kilometres), which falls within what was predicted.

<i>Predicted area lost</i>	2000	2001	2002	2003	2004	2005	<i>Total to date</i>
8.67	1.25	1.62	0.94	0.42	0.93	0.69	5.84

Grizzly bears are still found in the study area. The calculated mine mortality rate for grizzlies since 2000 is 0.17, which falls within the range predicted (one mortality occurred in 2004, out of the six years).

*Will the distribution or abundance of wolverine be affected by the mine development?*

**EA Prediction**

- The mine is not predicted to cause a measurable shift in the presence of wolverines in the study area.
- Mining related mortalities, if they occur, are not expected to alter wolverine population parameters in the Lac de Gras area.

**2003 to 2005 Observations**

Spring track surveys showed 0.05 wolverine tracks per kilometre, which was lower than in 2003 and 2004. The decrease could be a result of tracking conditions which were poor in 2005. Winter track surveys showed 0.11 tracks per kilometre, which was slightly higher than 2004 - possibly due to good tracking conditions, specifically fresh snow, at the start of the survey.

Since 2000, two wolverines have been relocated and one mortality (in 2001) has occurred at the Diavik mine site.

In April 2005, Diavik participated in a study coordinated by Environment and Natural Resources (ENR) designed to monitor wolverine abundance across broad landscapes using genetic analysis. The results of this study will be published in 2006.

*Will the distribution or abundance of raptors be affected by the mine development?*

**EA Predictions**

- Disturbance from the mine and the associated zone of influence is not predicted to result in measurable impacts to the distribution of raptors in the study area.
- The mine is not predicted to cause a measurable change in raptor presence in the study area.

**2000 to 2005 Observations**

In 2005, productivity was within the range recorded in the Diavik wildlife study area since 2000, as was occupancy. Six known nesting sites in the Diavik wildlife study area were each surveyed twice during 2005. During the spring occupancy survey, three of the six sites were occupied but none of those nests contained eggs. The productivity survey was completed in July, and found four nest sites occupied but none were productive. Occupancy and production in the Diavik wildlife study area during 2005 were found to be similar to that found in the undisturbed area, known as the control site, Daring Lake. The observations made in 2005 are consistent with those made in previous years.

A nesting pair of peregrine falcons has been noted in the A154 pit. Falcons were first confirmed to have established a nest on the west highwall of the pit on 08 May 2005. A map and plans for blasting were provided to wildlife staff with ENR. It was agreed that, given the blast

plans and location of the nest, no actions would be taken to move them as these could possibly have increased the risk of the falcons moving to a more active area of the pit. Instead, Diavik continued to monitor the nest throughout the season. Adult and juvenile falcons were observed near the pit on several occasions.

There were no raptor injuries or mortality at the Diavik site during 2005.

*Will the distribution or abundance of waterfowl be affected by the mine development?*

**EA Prediction**

- At full development, 3.58 km<sup>2</sup> of aquatic habitat will be lost.
- Distribution and abundance of waterfowl is not expected to be measurably affected outside the local area.

**Observations**

In 2005, a total of 0.15 km<sup>2</sup> of shallow and deep waterfowl habitat was lost, primarily as a result of construction of the A418 dike. It was predicted that a total of 3.94 km<sup>2</sup> would be lost as a result of the mine; as of December 2005, 2.22 km<sup>2</sup> has been lost. Waterfowl have been present at the East Island Shallow Bays and are utilizing mine-altered wetlands, particularly the PKC and North Inlet.



*Ice melts from a bay on  
Lac de Gras*

One project-related bird mortality occurred in 2005. A herring gull was injured during a blast and had to be euthanized. In 2002, there was mortality of five red-throated loons during A154 fish salvage.

## **4. Fish and Water**

*What effect will the mine development have on water quality?*

**EA Prediction**

- Water will remain at a high quality for use as drinking water and by aquatic life.
- Localized zones of reduced quality during dike construction.
- Nutrient enrichment likely from the mine water discharge.
- Post-closure runoff expected to influence quality of two inland lakes.

*Note: as the 2005 Aquatic Effects Monitoring Report has not yet been prepared, 2005 data will not be presented here to compare to EA predictions. The following is information from years past. See the Aquatic Effects Monitoring Program on p.8 for details on the program.*

**2004 Observations**

- As with the previous year's results, despite the very close (60m) proximity of SNP Station 19 to the effluent diffuser, open-water and ice-cover water quality results remain within Canadian Council of Ministers for the Environment (CCME) Guidelines for the Protection of Aquatic Life.

- Ice-cover concentrations at SNP Station 19 still tend to be higher and more variable than open-water concentrations. This is likely a result of increased wind driven lake circulation in the open-water, resulting in better initial dilution or mixing.
- Data analysis was conducted following the approved four step process. The results of the first step of the data analysis methods identified that there were changes in the concentrations of six parameters. Total arsenic and total nickel results were compared with original EA predictions (data analysis step 3). Measured changes are within the levels predicted in the environmental assessment and are below levels that would cause environmental effects.
- As with the previous year, the results for several of the parameters indicated a possible change when the actual reason for the positive results was a low baseline statistic. There are also locations (LDG50) or parameters (nitrite at LDG46) where baseline data are not available and so the data analysis is not possible. Finally there are parameters where baseline detection limits have dominated the baseline statistic and could result in changes not being detected. It is therefore recommended that the Diavik Technical Committee, with Diavik, reset trigger values for the step 1 analysis on a parameter-by-parameter basis.

The objective will be to set trigger levels that are good enough to detect change while reducing the number of false positive results.

### 2003 Observations

- Despite the very close (60m) proximity of SNP Station 19 to the effluent diffuser, open-water and ice-cover results remain within CCME Guidelines for the protection of aquatic life.
- Ice-cover concentrations at SNP Station 19 tend to be higher and more variable than open-water concentrations. This is likely a result of increased wind driven lake circulation in the open-water resulting in better initial dilution or mixing.
- Data analysis was conducted following the approved 4 step process. The results of the first step of the data analysis identified specific monitoring locations where there were changes in the concentrations of seven water quality parameters. Of these, only total arsenic could be identified as possibly being caused by the NIWTP effluent (data analysis Step 2). Measured changes in total arsenic are within the levels predicted in the environmental assessment (data analysis Step 3) and are below levels that would cause environmental effects.
- The results for several of the parameters indicated a possible change when the actual reason for the positive results was a low baseline statistic. There are also locations (LDG50) or parameters (nitrite at LDG46) where baseline data are not available and so the data analysis is not possible. It is therefore recommended that in the future the data analysis method be modified so that the baseline references are from the combined mid-field and far field sites instead of each individual monitoring site. This change would reduce the number of false positives results.



*Taking samples for the AEMP program*

### 2002 Observations

- Water quality at all Lac de Gras monitoring locations, including sites immediately adjacent to effluent diffuser remained high.
- Increases from location specific baseline levels were measured for turbidity and suspended solids at 3 mid-field monitoring stations, however all remained within typical baseline val-

ues for the area.

- Predicted nutrient enrichment effects were not realized although phytoplankton biomass was determined to have increased over baseline at one far-field location but not at any mid-field locations.
- No trends or specific concerns were noted for zooplankton, benthic invertebrates and sediment quality, based on two sampling results.
- Snow chemistry results were all below discharge limits.

**Previous Years**

- Localized increases in turbidity, suspended solids and aluminum were measured due to dike construction.
- Water and sediment quality, zooplankton, phytoplankton and benthic invertebrate results were generally consistent with baseline, however some results, particularly benthic invertebrate numbers, showed larger year-to-year variability.

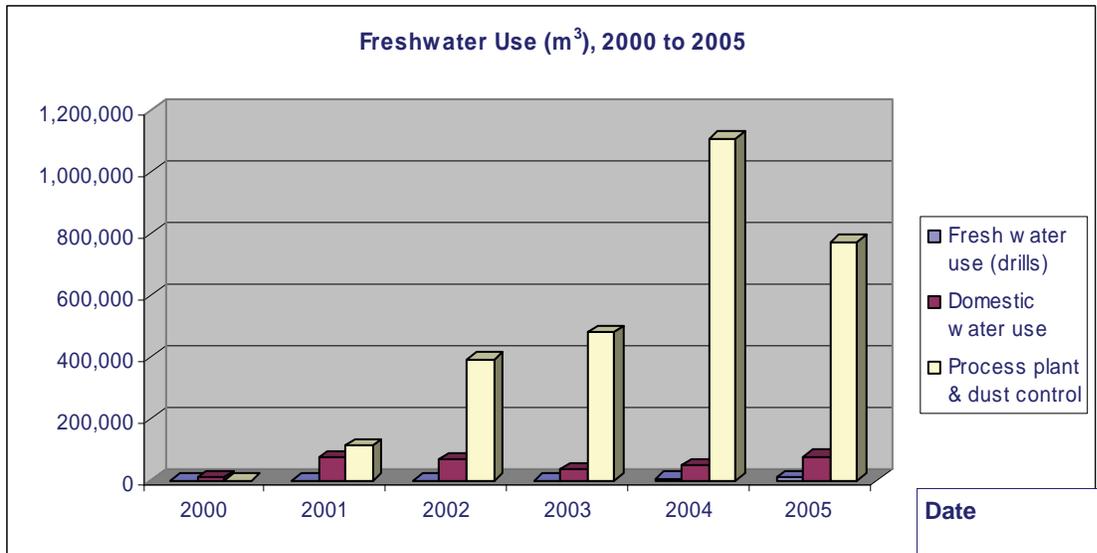
What effect will the mine development have on water quantity?

**EA Prediction**

- Water supply to the mine is not limited and use of the resource will not cause changes in water levels and discharges from Lac de Gras beyond the range of natural variability.

**Observations**

The figure below shows the fresh water used from 2000 to 2005, and what it was used for.



Date	Elevation (m)
Sept. 21, 2004	415.31
April 1, 2005	415.26
June 20, 2005	415.41
Aug. 2, 2005	415.59
Sept. 7, 2005	415.52
Oct. 15, 2005	415.42

The water level of the lake normally fluctuates between level 415.5 m and 416.0 m (from baseline) on an annual basis; the table at the right shows water levels at various dates since 2004. Use of water from Lac de Gras is not causing a significant change in water levels.

What effect will the mine development have on fish?

**EA Prediction**

- On a regional scale the only effect on the fish population of Lac de Gras would be due to angling.
- Local effects due to blasting, suspended and settled sediment from dike construction, increase in metal concentrations around dikes and post-closure runoff.

**Observations**

Since 2000, no fish have been taken by recreational fishing from Lac de Gras by Diavik. From 2003 until present, the fish from Lac de Gras have tasted good according to participants in the community-based monitoring camps that are held during the summers. This continued to be the case in 2005. Metals levels in fish that were caught during these camps were also as expected. Fish habitat utilization studies show that lake trout continue to use both natural and man-made shoals near the A154 dike.

A Blasting Effects Study began in 2003 and has continued; to date, no effects on fish eggs have been seen. The study is still in progress (see p.22 for the Program Update).

Other observations made in past years include:

- Sediment deposition rates measured during the construction of the A154 dike were below levels predicted in the Environmental Assessment.
- In 2002, 2526 fish were salvaged from inside the A-154 dike pool area and released in Lac de Gras. 526 fish were salvaged from the North Inlet and released to Lac de Gras prior to that.



*All Community-Based Monitoring Camp photos courtesy of EMAB*

# Summary of Compliance

The following table provides a summary of requests made by the DIAND Inspector during inspections of the Diavik mine site during 2005. Also listed are the responses or actions that Diavik took for each of the requests. In 2005, Diavik was in compliance with both the Land Lease and the Water License.

Inspection Date	Action Items Requested	Response
January 26	Provide November/December spill summaries	<i>These summaries were provided in the next SNP report sent to Inspector.</i>
	Provide stamped engineered drawings for new fuel tank storage facility in North Camp	<i>The drawings were provided to the Inspector in January.</i>
	Update Hazardous Materials Management Plan (HMMP) and Contingency Plan (OPCP) to include sulfuric acid dosing system & storage	<i>The HMMP and OSCP were updated to include this system.</i>
	Keep an eye on frozen seepage well along the A154 dike & ensure contingencies such as extra lengths of piping and pumping capacity are in place in case the well needs to be pumped out	<i>Regular inspections along the A154 dike were conducted by Diavik's geotechnical engineers.</i>
February 23	To prevent the wind transport of Ammonium Nitrate (AN) prill, ensure the AN hopper building overhead doors are closed when active offloading is not taking place	<i>During the winter road season, regular inspections were carried out to ensure that the overhead doors to the building were closed.</i>
March 14	Ensure the volume of liquid sewage deposited in the Sewage Sludge cell is minimized, and the cell provides proper containment to prevent flow through waste transfer area	<i>The volume of liquid sewage sludge was decreased by using a filter press. A till berm was placed in front of the cell to prevent flow through the waste transfer area.</i>
April 13	No Action Item requests	
May 18	Small amounts of Magnafloc have spilled inside Cold Storage Building #4. It is requested that DDMI cleanup these spills and secure the Magnafloc remaining in new, competent containers.	<i>Spills of Magnafloc were cleaned up, and any damaged bags were transferred into Super Sacs for containment and to prevent future spills.</i>
	While the lube storage containment in the A418 construction area is under construction, it is requested that the hydrocarbons stored in the construction area be moved to a common location for inventory/monitoring.	<i>The old hydrocarbon containment facility (used in A154 dike construction) was used, and all liquid hydrocarbons were placed in it.</i>

Summary of Compliance (continued)

Inspection Date	Action Items Requested	Response
May 18 (cont'd)	Ensure that any new types, quantities or locations of hazardous materials brought to site this winter road season are documented in the updated Hazardous Materials Management Plan.	<i>As this plan had already been submitted by the time this request was made, the updates will be included in the spring 2006 update to the Plan.</i>
	If there are any new types of materials (as above) please provide the current MSDS sheet to the Inspector.	<i>New MSDS sheets were provided to the Inspector for new substances.</i>
	DDMI to further investigate the cause of repeated spillage at the Envirotank adjacent to the Emulsion Plant, and report back on actions that will be taken to ensure spills are minimized in the future at this tank. As well, the tank should be cleaned so that future fuel handling concerns can easily be identified.	<i>The cause of the spillage was investigated. It was determined to be due to lack of signage on the Envirotank; signage was placed on the tank with instructions regarding proper filling.</i>
	P40 diesel in the seven 25000 L double-walled Envirotanks in the boneyard to be used on a priority basis, as the tanks and associated refueling area are outside of a lined containment area.	<i>As per the Inspector's request, this diesel was used as soon as possible or transferred to larger tanks.</i>
June 22	Ensure that fuel truck drivers continue to closely monitor refueling at the Envirotank located at the east side of the North Inlet. To further minimize risk of spills, it is requested that once this year's dike construction is finished, the tank either be pumped empty, or be removed until it is needed in spring 2006.	<i>Weekly inspections of the area showed no spillage at or near the tank. The tank has been removed, as the crushing operation for the A418 dike completed.</i>
	To more effectively manage contaminated soils DDMI is to provide more detail in the Waste Transfer Area Operating Plan regarding how the land farm will be managed (detail on how partially remediated soils will be separated from newly dumped soils, what standards the soils will be remediated to, when water will be removed from the sump and a schedule for the turning of the soils.)	<i>Additional information will be built into the spring 2006 revision to the Waste Transfer Area Operating Plan.</i>
	As per the approved 2004 DDMI Waste Management Plan, plastic containers originally containing hazardous materials must be drained before being sent off-site for disposal. They are not approved for disposal within the inert landfill or for incineration. DDMI to set up a system to drain / store these buckets for backhaul, and immediately cease the land filling or incineration of these buckets	<i>DDMI will investigate options for either on-site disposal and/or off-site disposal of these products.</i>

Summary of Compliance (continued)

Inspection Date	Action Items Requested	Response
June 22 (cont'd)	DDMI to ensure that all persons on site are well aware and compliant with the waste management systems in place.	Waste Management toolbox meetings were carried out during the year. There is also a mandatory site orientation that all DDMI employees and contractors must attend which covers waste management.
	DDMI to ensure that all persons on site are well aware and compliant with the waste management systems in place.	<i>Waste Management toolbox meetings were carried out during the year. There is also a mandatory site orientation that DDMI employees/contractors must attend which covers this</i>
July 13 & 26	DDMI is to pump the crusher pad seepage area dry as planned, continue to ensure that the area remains dry and determine the source of the water as there is a possibility that it could be flowing directly from the crushing operation reclaim.	<i>The crusher pad seepage area was pumped dry. Pond 14 was kept dry to prevent any seepage from the pond. DDMI investigated but could not verify that the seepage was from the pond.</i>
	DDMI is to submit an as-built drawing of the new fuel tank facility at the main tank farm to the Inspector when construction is completed.	<i>As-built drawings will be supplied to the Inspector in 2006 when the piping for the 4th tank is completed.</i>
Sept. 13 & Oct. 19	During a previous inspection, the Inspector requested that the tank be emptied or removed from the North Inlet when it was no longer needed. The Diavik Environment Manager indicated that the tank is scheduled to be removed from this location.	<i>The tank was removed in late October, once the crushing operation was completed.</i>
Dec. 21	It is requested that the drums of gasoline be removed from the A418 dike if they are no longer needed for dike construction.	<i>The drums were removed from the A418 dike in early January.</i>
	Forward the as-built plans for Pond 2 to the Inspector when they are finalized.	<i>As-builts will be supplied to the Inspector as soon as the rip-rap has been placed in the interior of the Pond.</i>
	Request for periodic updates as to the origin of water seeping into Pond 5 as new information is available.	A response letter was sent to the Inspector with several potential sources, and a note that monitoring programs have been implemented to isolate the cause of the seepage.



**Table 1: Environmental Monitoring Programs 2005**

Program	Purpose of the Monitoring	Key 2005 Activities	Key Results
<b>Dust Monitoring</b>	Determine if environmental assessment predictions are accurate. To inform management when dust levels require management response.	Ongoing notification to Operations for dust suppression. Summer and winter dust sampling to determine extent of dust dispersion related to operations activities.	Dust suppression using water is effective for reducing dispersal of dust during non-freezing periods. Dust deposition rates are higher close to operational activities and were higher than EA predictions for 2005.
<b>Meteorological Monitoring</b>	Measure/detect meteorological trends. Determine influences on site water balance. Provide design and construction information to operations.	Measured: • horizontal wind speed and direction • ambient temperature • relative humidity • precipitation – rain and snow • incoming solar radiation • evaporation rate	On going collection of site-specific data including evaporation data.
<b>Water Quantity</b>	Measure limits, sources and purpose of water consumption as established in water license.	All water used for consumption and operations is metered. PKC facility levels monitored. All make-up water measured. Completed an updated mine site water balance.	Freshwater obtained from Lac de Gras for domestic water use for the main complex, south construction camps, maintenance shops, process plant, dust control around the site and other associated infrastructure and totaled 973,223 m <sup>3</sup> .
<b>Water Quality Compliance</b>	Monitor effluent limits as required by water license.	Collected and analyzed samples in compliance with the water license at required SNP locations.	Results of monitoring are consistent with baseline data and compliant with water license requirements.
<b>Aquatic Effects</b>	Collection of information to determine the short and long-term effects in the aquatic environment resulting from the project.	Samples collected at AEMP sites for water quality, phytoplankton biomass, zooplankton biomass, and sediment chemistry.	AEMP report to follow with results for 2005.
<b>Wildlife</b>	Determine if predictions in environmental assessment are accurate. Assess the effectiveness of mitigation strategies.	Caribou monitoring for: abundance and distribution, as well as: • Raptor and waterfowl monitoring • Wolverine track surveys and DNA study • Grizzly Bear habitat plot surveys for presence	There were sightings of 28 caribou on the Island at 20 different times during 2005. Movements of caribou with radio collars showed that they tend to move around the Island rather than across it, which was predicted. Raptors and waterfowl are still present and using habitat in the area of the mine. Completed the first year of a 2 year population estimate for wolverines using DNA from hair samples. Winter and spring track surveys show wolverines are still in the area. Grizzlies are still found in the area, and mortality rate is within what was predicted.
<b>Wildlife Habitat (Vegetation loss)</b>	Determine if environmental assessment predictions (linked to wildlife program) are accurate. Determine extent of loss of vegetation/habitat.	Survey extent of mine footprint related to vegetation loss. Vegetation plots were surveyed for population change and density.	Total vegetation/habitat loss in 2005 was 0.84 km <sup>2</sup> , bringing the total lost to date to 8.15 km <sup>2</sup> . This is within EA predictions (12.67km <sup>2</sup> ).
<b>Fisheries</b>	Fisheries authorization requirement. Establish additional baseline information. Initiate long-term monitoring programs and identify control sites. Test monitoring methodology. Test modeling predictions.	Fish Palatability program conducted in conjunction with EMAB, as part of a Community-Based Monitoring Camp.  Year 3 of the Blasting Effects study was completed at the University of Alberta.  A418 Dike Construction Monitoring Program was completed  Fish Habitat Utilization study done	Fish from Lac de Gras continue to taste good, as reported by community participants.  Blasting Effects study switched to a lab experiment with a Blast Simulator, as previous year's activities for this study showed no effect from blasting on survival of eggs. Study is ongoing.  A418 Dike Monitoring included surveillance monitoring and plume delineation during A418 dike construction  Water intake structure is effective in shielding fish from intake during high and low flows.
<b>Re-vegetation Test Plots</b>	To establish research programs related to reclamation research. Information gathered from these programs will be used for closure.	Test plots were completed. Area was scarified; soil amendments added: organic sludge, 50/50 mixture of PK, lake bottom till, and scraped top soil.	No results yet at this stage. Field work will recommence in 2006.
<b>Country Rock Test Piles</b>		Constructed the second of four loading platforms to be constructed, with the installation of a geotextile liner and a seepage collection system. Rock placement was not performed on either of the pads due to issues related to installation of vertical sensors.	No results yet at this stage. Further construction and testing to continue in 2006.

**Table 2: Adaptive Environmental Management**

	Performance/Compliance	Adaptive Management	Mitigation Measures	Effectiveness of Measures Taken
<b>Waste</b>	Minimal waste management issues. Maintained dump site for inert waste materials.	<ul style="list-style-type: none"> <li>All domestic and office wastes are incinerated in waste transfer area</li> </ul>	<ul style="list-style-type: none"> <li>All employees are provided orientation on proper waste management</li> <li>Color-coded garbage bins for non-food waste around site</li> </ul>	During Inspector's visits in 2005, there were no concerns raised with food waste or other solid waste-related issues at the landfill or the waste transfer area. Awareness sessions for employees/contractors are ongoing to emphasize proper waste separation / disposal.
<b>Water</b>	All effluent treated before discharge to Lac de Gras, or recycled. Ammonia levels in pit water increasing but still within water license limits.	<ul style="list-style-type: none"> <li>Effluent from sewage treatment plant being discharged into closed PKC system</li> <li>PKC water recycled within the Process Plant</li> </ul>	<ul style="list-style-type: none"> <li>Followed water management procedures within the A154 pit. Reduced water contact with blast rock</li> </ul>	Ammonia levels in 2005 were well below the license limit of 20 mg/L.
<b>Hazardous Materials</b>	No significant spills or non-compliance issues occurred.	<ul style="list-style-type: none"> <li>All spills are reported, recorded and cleaned up.</li> <li>Contaminated soils are placed in the lined, waste transfer area for remediation, large aggregate placed within Type III waste rock pile</li> </ul>	<ul style="list-style-type: none"> <li>Orientation and specific training for employees and contractors handling hazardous materials</li> <li>All employees and contractors require WHMIS training</li> </ul>	In general, the trend in spill frequencies has declined since 2003. Direct comparisons and numbers from the last three years are difficult due to changes in regulatory reporting requirements.
<b>Wildlife</b>	No wildlife-related compliance issues.	<ul style="list-style-type: none"> <li>Herding of caribou away from airstrip</li> <li>Deflection of bears away from the mine site</li> </ul>	<ul style="list-style-type: none"> <li>Orientation and environmental awareness training</li> <li>Caribou advisory updated daily</li> <li>Waste inspections conducted regularly</li> <li>Waste management system in place</li> </ul>	There were no wildlife-related compliance issues or incidents in 2005.
<b>Dust</b>	Isolated higher deposition levels due to construction activities (A418 dike construction)	<ul style="list-style-type: none"> <li>Lessons learned from the A154 dike construction program were considered with the addition of a 100% wet circuit within the crushing facility.</li> </ul>	<ul style="list-style-type: none"> <li>Dust suppression using water during non-freezing periods, in crusher area and on haul roads</li> </ul>	Dust produced by the crusher in 2005 was less than was produced during the previous dike construction period (as noted by WCB Mines Inspector).
<b>Emissions</b>	Performance as anticipated.	<ul style="list-style-type: none"> <li>Waste oil transported off site and recycled</li> <li>Recovered heat from generators recycled to heat maintenance &amp; accommodation complexes and the Process Plant</li> <li>Optimization of fuel used by the 4.2MW generators</li> </ul>	<ul style="list-style-type: none"> <li>Use of low sulphur fuels</li> <li>Boiler optimization program</li> <li>Initiative to install auxiliary engine heaters in large trucks to reduce idle time was researched and trials began</li> </ul>	In 2005, half of a million liters of diesel less than forecasted were used.