



2006 Environmental Agreement Annual Report



June 2007

EXECUTIVE SUMMARY

Diavik writes this report every year to give an update to the communities and to the parties to the Environmental Agreement. Article 12 of the Agreement states that the report must be written, and it outlines what must be included. Each year, Diavik is also supposed to meet with the people in the communities around the mine, to talk about this report and what it says.

Diavik and the Environmental Monitoring Advisory Board (EMAB)

The *Environmental Agreement* is a document that was written and signed on March 8th, 2000. It is made up of several parts which the responsibilities of Diavik, Aboriginal governments, and the federal and territorial governments. More importantly, it is an agreement between everyone about what Diavik must do while operating the mine so that the environment is protected. It also says that an advisory board needed to be formed - this is why EMAB was created and is a board that is separate from Diavik or the other groups that signed the Agreement.

EMAB, as a Board, is made up of one representative from each of the parties that are part of the Agreement. The box at the bottom of the page lists all of these parties. The Board has several duties - some of them include reviewing Diavik's environmental plans, reports and programs and making recommendations in many different areas related to the environment, community participation, traditional knowledge, and other topics. The Board always tries to work with communities so that they can give Diavik good advice about environmental monitoring and programs.

Part 12 of the Agreement says that Diavik must write an annual report about what has happened at the mine related to the Environment, and so every year, Diavik prepares this Environmental Agreement Annual 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 summary of Inspectors' reports.

The Diavik Diamond Mine and the Environment

The diamonds that Diavik mines for are found in kimberlite pipes underground, just off the shores of East Island in Lac de Gras. Lac de Gras is a 60 kilometer long lake and is about 300 kilometers northeast of Yellowknife, NWT. The lake freezes up in October, and thaws in late June or early July every year. It empties into the Coppermine River.

In the area around the Diavik mine site there are grizzly bears, wolves, wolverines, red foxes, arctic hares, arctic ground squirrels, red-backed voles, brown lemmings and rock ptarmigan. The Bathurst caribou herd travels through this area as well - some of the herd comes through in the spring and fall during migration.

Background...

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.

Large dikes are built in the lake, and the water inside them is drained so that the diamonds beneath that part of the lake bed can be mined. The first dike (called A154) was completed and mining started in late 2002, and construction of the second (A418) dike was started in the summer of 2005 and completed in 2006. The water was drained from the second dike at the very end of the year. The dikes are numbered to match up with the names of the kimberlite pipes inside them.

2006 was the fourth year that Diavik was in operation. Right now, Diavik is using an open pit mine to get at the diamonds, which are found in dark-colored rock called kimberlite. Later on, if studies show it is worth it, Diavik will switch to underground mining. Trucks run day and night taking the kimberlite rock to the processing plant, where it is crushed and the diamonds are separated using x-rays.

Diavik is like a small community - there is a main camp with accommodations, dining rooms, offices, water and sewage treatment plants, a waste facility, maintenance shops, a power plant and an airstrip. A 350 kilometer ice road is built every winter so that supplies can be brought up to all of the diamond mines in the region. Fuel, cement, building materials, trucks, equipment, camp supplies, and other items are brought up every year.

Adaptive Management and Mitigation

Diavik uses something called Adaptive Management to help improve environmental performance. Adaptive management means that we use our past experiences to improve how we manage the environment in the future - we do an activity or a program, and then we check how well it works for us. Then, we might *adapt* or change the way we do it in the future.

There is a table at the end of this report (Table 2) that shows many 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 summary of how we do adaptive management (or how we change our management of these areas based on our experiences). An example is how we switched to using clear plastic bags for waste in the accommodations and office areas. This allows staff to see the contents of bags before disposing of them, and to identify areas where there are problems with proper waste disposal. The table also describes mitigation (what we do to reduce environmental effects from each element). An example of this would be how we ordered a new dust suppressant (a chemical that works differently than water to reduce the amount of dust) to try next year. This would reduce the amount of dust around the mine site, which falls on humans, wildlife, the lake, and plants.

Notes

The Environmental Agreement defines "Environment" as the components of the Earth, and includes:

- (a) land, water and air, including all layers of the atmosphere,*
- (b) All organic and inorganic matter and living organisms, and*
- (c) The interacting natural systems that include components referred to in paragraphs (a) and (b)*

2006 Environmental Agreement Annual Report



Environmental Management System (EMS)

For almost four years now, Diavik has been working under a system called an Environmental Management System (or EMS). This system is certified to a standard called ISO 14001, which is recognized around the world. An EMS gives a company like Diavik a way to help with reducing the environmental impact of a mine. Almost every activity at the mine (building the dikes, hauling rock, running a power plant, even flying in and out of the mine) has some kind of impact on the environment, so we want to minimize that impact where we can.

The system includes procedures for our operations, environmental plans and programs like the ones listed later in this report, and tools like communication plans and environmental records that we keep. It is simply an organized way to make sure we are showing 'continual improvement' - this is what an EMS is built on. In order to keep the certification to the ISO 14001 standard, Diavik's EMS has to be audited every year. In 2006 we passed an internal audit and also an external audit. External audits are when a third party (people that have nothing to do with Diavik) check our system, and in December 2006 they found that our EMS is still working well for us and still meets the ISO 14001 standard.

Monitoring Programs

The main part of this report has details on Diavik's plans and programs that we use to check how healthy the environment around the mine. Below is a short summary of results from 2006 monitoring that Diavik did in each area.

Wildlife

Under the Environmental Agreement, Diavik conducts a Wildlife Monitoring Program. This program was created to collect information about habitat, birds and animals in the area to see if they are affected by the mine. Here are some general notes about 2006:

- During 2006, the area of vegetation and habitat lost due to the mine was 0.71 square kilometers. This was within the expected amount from the Environmental Assessment.
- The habitat loss for caribou was within the expected amount in 2006, and no caribou died or were injured near the mine during the year. Diavik will keep doing aerial caribou surveys but is looking at possible changes to improve the program in 2007. In 2006, no caribou were seen within 3 km of the mine during aerial surveys.
- In 2006, the grizzly bear habitat lost was also within the predicted amount, and no bears were killed, injured, or relocated during the year. Bears were reported to Environment staff 21 times (33 different bears were recorded for these reports), 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. The number of bears reported was lower than in 2005.
- Wolverines were still on East Island in 2006 and no wolverines died, were injured or moved because of mining during the year. Diavik will keep monitoring wolverine tracks in the snow but has made some recommendations for changing the program in 2007. During 2006, 31 reports of sightings were made to Environment staff, but many of these were the same animal being sighted at different times. Wire fencing, mesh or other material will be used around the bottom of south camp, where practical, to prevent wolverine access underneath the camp.
- During 2006, one gyrfalcon and two peregrine falcon nests were productive within the study area. The pair of peregrine falcons that made a nest on the high wall of the A154 pit in 2005 returned in 2006. No peregrine falcons died because of mine operation in 2006.

- Compared to the Environmental Assessment predictions, the waterfowl habitat loss was within the expected amount for 2006. 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 - especially the North Inlet.
- Waste inspections continued in 2006. Food and food packaging were found during many inspections at the Waste Transfer Area and the inert landfill.

Dust

Environment department staff continued to monitor dust around the mine site in 2006, like in other years. Snow surveys are done 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. Dust particles are also collected and checked 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 decrease in annual dust deposition from 2005 to 2006 - this is different than last year, when it increased from 2004. The rate of dust being deposited was affected by activities in the area as well as by wind direction.

Overall deposition rates observed during 2006 were still quite a bit 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 (such as building the A418 dike) which occurred during 2005 and 2006. It is still expected that dust will be less as construction slows down and ends. Dust monitoring will continue in 2007.

Snow water chemistry sampling results showed that all things that were tested for were well below the maximums allowed in samples from water discharged into Lac de Gras.

Aquatic Effects

Diavik continued to do the Aquatic Effects Monitoring Program (AEMP) in 2006. This was the fifth year of aquatic effects monitoring, and it is required for Diavik's water license.

Because the AEMP is being reviewed at the present time, Diavik submitted a summary of all data for the 2006 program instead of a full AEMP report. This is what was requested by the Wek'èezhii Land and Water Board.

Fish

During July 2006, Diavik again funded a Fish Palatability and Texture Study held by EMAB at Lac de Gras. This camp takes place to gather information about whether mining activities on Lac de Gras are affecting the texture and taste of fish in the lake. 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, cooked and tasted the fish, and fish was also sent out for scientific testing.

24 lake trout were caught during the three days, and four of these were cleaned, cooked and tasted. All community participants agreed that the fish from Lac de Gras continue to taste good. The scientific testing results were the same as the results from previous years - the fish

from Lac de Gras that were sent for analysis were healthy.

Reports Written by Diavik

During 2006, Diavik sent many reports and operating plans in to regulators such as the Wek'èezhii 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 was considered more at the public hearings in November 2006.

Operations Activities

During 2006, Diavik had production of about 9.8 million carats of diamonds compared to about 8.3 million in 2005.

Diavik began the year with a very short winter road season - the road to the mine closed very early because of a warm spring. This meant that many of the supplies needed for mining, construction of the new A418 dike, and fuel did not make it to the mine. To make up for this, the world's largest helicopter and several very large aircraft were used to fly these supplies in to the mine during the rest of the year. As a result, mining stayed on track and the dike was completed on schedule.

Diavik's water license will expire in August of 2007, and hearings began towards the end of 2006 for the renewal of the license. The Wek'èezhii Land and Water Board is now in charge of Diavik's water license.

In the fall of 2006, the A418 dike was completed and sealed off from the rest of Lac de Gras. The fish inside were removed and put back in the lake on the other side, and the water was then drained from inside the dike so that work could begin for open pit mining. This is exactly the same as what was done for the first (A154) dike.

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, but the December survey had to be cancelled part way through due to poor snow conditions. As in other years, aerial surveys and ground observations were done for caribou in the area from spring to fall. Sampling for the Aquatic Effects Monitoring Program was done in

spring and in late summer. 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 for Water Quality Monitoring, Dust Monitoring and Fish Palatability and Texture.

Declines, or tunnels were built during the year so that crews could reach underground to the A154, A418 and A21 kimberlite pipes. Diavik needs to be able to take samples of the bottoms of the kimberlite in different parts of these pipes to figure out if it will make sense to try and mine them from underground when they get as far as they can with open pit mining. By the end of the fall, crews had reached the kimberlite in the A418 pipe and by the end of the year they had reached the A21 kimberlite pipe.

Public Concerns

Diavik did not receive any specific communication or concerns from the public during 2006, related to the operation of 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. In addition, the technical hearings related to Diavik's water license renewal process were a forum for participants to exchange information and give feedback related to the water license for the mine.

Technology

During 2006, Diavik continued investigating new technology to use at the mine site. Using wind as a source of energy was something that continued to be looked into, as it was in 2004 and 2005. A wind tower will be put up in the next year as a result of this study. Also, more 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. This will reduce the amount of fuel we burn and also reduce air emissions. These heaters were put into several trucks in 2006. More research was done to look at new incinerators for burning waste, and these were ordered in early 2007. Diavik continues to investigate different ways to treat water at the North Inlet Water Treatment Plant as well.

Environmental Monitoring Compared to Predictions

Towards the end of this report, there is a section called the Rolling Effects Summary. This part of the report talks about how the environmental monitoring compares to the predictions that were made for things like wildlife, vegetation, climate, fish and water. It looks at results from 2006 and past years compared to the original predictions.

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 2006 (similar to 2005 results but lower than 2005) was higher than in past years and higher than predicted. It is, however, important to note that the original predictions did not take into account extra activities such as the construction of the A418 dike that took place during the past two years. As noted last year, dust levels are expected to return to lower levels in the coming years as these kinds of activities decrease.

Compliance

In 2006, Diavik was in compliance with the Land Lease and the Water License. A few times during the year, an Inspector from the Department of Indian Affairs and Northern Development

(DIAND) visited Diavik to do inspections. Later in this report there is a table with a summary of issues that were raised by the Inspector during inspections, and a list of the actions that Diavik took to correct any problems that were noted. Some of the issues that were raised were related to the Inspector requesting Diavik to complete actions (such as ensuring waste is incinerated promptly, or ensuring that drill holes are cleaned up immediately rather than waiting until the end of a season).

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 2006, 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



List of Acronyms

(Abbreviations that are found in this report)

AEMP	Aquatic Effects Monitoring Program
AN	Ammonium Nitrate
ARD	Acid Rock Drainage
BHPB	BHP Billiton
CCME	Canadian Council of Ministers of the Environment
DIAND	Department of Indian Affairs and Northern Development
DDMI	Diavik Diamond Mines Inc.
EA	Environmental Agreement or Environmental Assessment
EAAR	Environmental Agreement Annual Report
EMAB	Environmental Monitoring Advisory Board
EMS	Environmental Management System
ENR	Environment and Natural Resources
GNWT	Government of the Northwest Territories
HU	Habitat Unit
INAC	Indian and Northern Affairs Canada
ISO	International Standards Organization
MVLWB	Mackenzie Valley Land and Water Board
NIWTP	North Inlet Water Treatment Plant
PK	Processed Kimberlite
PKC	Processed Kimberlite Containment
PPE	Personal Protective Equipment
PVP	Permanent Vegetation Plot
SNP	Surveillance Network Program
SOP	Standard Operating Procedure
TSS	Total Suspended Solids
WHMIS	Workplace Hazardous Materials Information System
WLWB	Wek'èezhii Land and Water Board
WTA	Waste Transfer Area
ZOI	Zone of Influence



Translations of the Executive Summary

1. Chipewyan
2. Dogrib
3. Inuinnaqtun

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)

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

Diavik and the Environmental Agreement

The Diavik Diamond Mine Inc. has now been operating for a couple of years and protecting the environment around the mine continues to be a high priority along with safety and sustainable development. Back before the mine began operating, in March of 2000, the Environmental Agreement was signed by several Parties. This agreement was written and agreed to with the intention of ensuring that Diavik minimizes the environmental impacts caused by mining for diamonds in the remote location at Lac de Gras, NWT.

The Agreement contains several clauses, called Articles, that outline the responsibilities of Diavik, Aboriginal governments, and the federal and territorial governments. The agreement outlines Diavik's environmental protection commitments, it talks about security requirements to make sure that Diavik reclaims or cleans up the area around the mine at the end, and it says that Diavik must be open and clear about plans and activities when dealing with the communities that are affected by the mine's operations.

The Environmental Monitoring Advisory Board (EMAB) was created as a result of the Environmental Agreement. EMAB is a board that is separate from Diavik or the other Parties that signed the Agreement, and has one representative that sits from each of the parties that signed the Environmental Agreement. The purpose of the Board is to work with the communities near the mine site, and to give Diavik input, feedback and advice on environmental matters. EMAB also watches and evaluates Diavik's activities that relate to the environment - recommending changes when the Board feels it is appropriate. As you might have read earlier, the Environmental Agreement defines the 'Environment' as the components of the Earth, and includes: the land, water and air, including all layers of the atmosphere, all organic and inorganic matter and living organisms, and the interacting natural systems that include those components.

One of the sections of the Environmental Agreement (Article 12) states that Diavik must write this Environmental Agreement Annual Report each year, to give an update to EMAB and the communities - and it outlines the parts of the report that must be included. This report gives an update on operations, environmental plans and programs, submissions, public concerns, new technologies that Diavik is investigating, compliance with the water license and land lease, monitoring activities and sampling results that are important to the communities and EMAB. This report has, in summary form, all the sections required by the Environmental Agreement.

Regional Environment

The mine is located on an island in Lac de Gras, a large lake that is approximately 300 kilometers northeast of Yellowknife, Northwest Territories. Lac de Gras is roughly 60 kilometers long and drains into the Coppermine River all the way north to the Arctic Ocean.

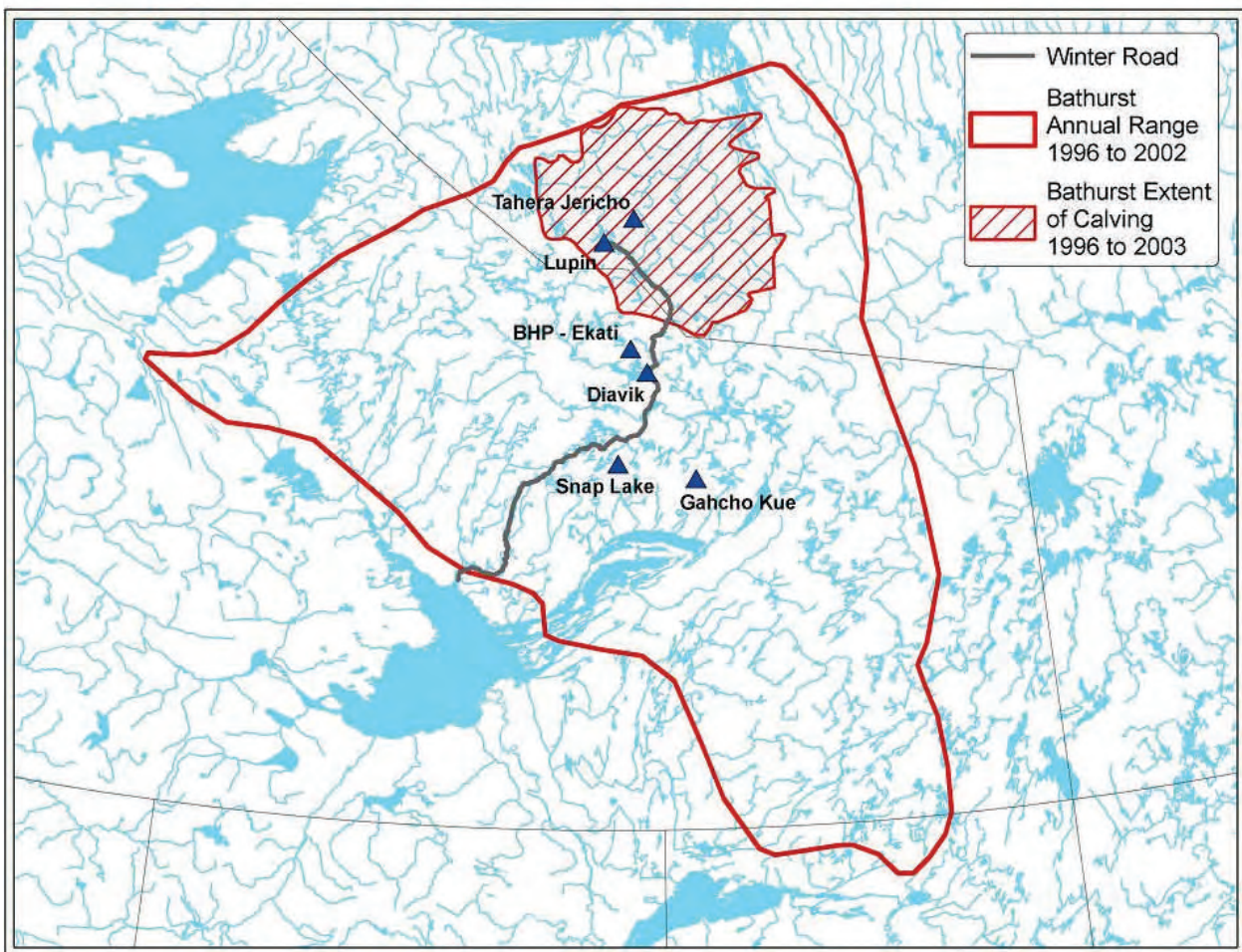
Profile

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 mine.

Lac de Gras and East Island

Since Lac de Gras is located in such a northerly environment, the climate affects how well plants and animals (fish, bugs, and vegetation) grow in the lake. Everything tends to grow a little slower because of ice being on the lake for most of the year, less daylight, low natural concentrations of nutrients, and colder water. Despite these conditions, many fish such as lake trout, cisco, round whitefish, arctic grayling, burbot, longnose sucker and slimy sculpin make their home in the lake.

Although there are many mammal and bird species in the region, only a few species live on East Island (the island on Lac de Gras where the mine has been built) all year round. These include wolverine, red fox, arctic hare, arctic ground squirrel, red-backed vole, brown lemmings and rock ptarmigan. During spring and fall, some caribou from the Bathurst herd migrate through the area and the map below shows the range of the herd compared to where Diavik is.



Caribou sometimes cross the ice of Lac de Gras during their migration periods. Many bird species stop at the island during spring and fall migrations, and many species of waterfowl, shorebirds and songbirds nest on East Island during the summer. Grizzly bears, wolves and wolverines have large home ranges and also visit East Island occasionally.

In the region where Diavik is located, there isn't a large amount of snow or rain during the year

and the climate is cool. Snow makes up the larger part of what does fall for precipitation. The table at right shows the average monthly temperatures at the mine site during 2006.

The Year in Review

Rough diamond production for Diavik in 2006 was 9.8 million carats, despite setbacks related to a short winter road season. The first quarter of the year saw very warm temperatures for the time of year, and this resulted in the winter road closing much earlier than expected. This added to the challenge of the road being opened later than normal, and as a result far fewer loads than planned made it up to the mines. Diavik made plans to deal with the shortages of fuel, equipment and other supplies in order to stay on track for production in 2006. During the first quarter, work crews started anchoring the new A418 dike to the bedrock below the lake and sealing off.

During the second and third quarter, an airlift program took place - this involved using the world's largest helicopter (the Russian Mi-26) as well as the Russian Antonov AN-12 aircraft, along with Hercules aircraft. These flights worked around the clock to bring fuel, a 500 tonne shovel that had to be cut into pieces to be flown up, cement and bentonite for the A418 dike, and explosives to the mine site. An initiative to conserve fuel also began this quarter and work on the A418 dike continued with the pouring of concrete cut-off walls. Water license renewal sessions began, as Diavik's water license will expire in August 2007. A revised Aquatic Effects Monitoring Program was also submitted.

The A418 dike was completed and made watertight in September 2006. Over 900 fish were removed from the area inside the new dike (and returned to the lake on the other side) and in early October, the water from inside the dike was pumped out. About three quarters was clean, clear water and was pumped into the lake on the outside of the dike. The rest (silty water with sediments that had been stirred up in it) was allowed to settle out and was treated to remove solids before being returned to the lake.

Declines (tunnels) were worked on during the year, in order to determine how feasible it would be to do underground mining for the A154, A418 and A21 kimberlite pipes. By the end of the third quarter, crews had reached the kimberlite in the A418 pipe and by the end of the fourth quarter they had reached the A21 kimberlite pipe. Crews also began to remove overburden (till) in order to start mining the A418 pipe. By the end of the year, many candidates had graduated from two separate waves of the Aboriginal Leadership Development program. Public hearings took place in November for Diavik's water license renewal under the Wek'èezhii Land and Water Board. The Board made a work plan to finalize Diavik's Ammonia Management Plan and Aquatic Effects Monitoring Plan.

As in past years of operations, fresh water was withdrawn from Lac de Gras for many uses including the main and south camp accommodations complexes, south construction areas, maintenance shops, process plant, dust control around the mine site and other infrastructure such as drills. The total amount of fresh water used is shown in the table below, and was under the 1.28 million cubic metre limit set out in Diavik's water license.

Average Monthly Temperature at Diavik in 2006	
January	-25.1
February	-22.7
March	-16.8
April	-11.1
May	1.4
June	11.0
July	12.4
August	12.3
September	5.7
October	-4.0
November	-20.1
December	-18.1

Freshwater Use 2006 (m³)			
Drills	Domestic Water Use	Process Plant and Dust Control	Total
2,528	99,076	1,073,046	1,174,650

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 moved on the island in 2006.

Quantity and Types of Materials Moved in 2006 (million m³)			
Month	Type I	Type II	Type III
January	0.29	0.12	0.25
February	0.28	0.06	0.24
March	0.45	0.03	0.24
April	0.32	0.03	0.32
May	0.28	0.12	0.25
June	0.33	0.17	0.22
July	0.43	0.18	0.16
August	0.41	0.09	0.32
September	0.54	0.09	0.22
October	0.47	0.14	0.24
November	0.35	0.06	0.23
December	0.36	0.07	0.44
Total	4.51	1.16	3.13

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.

Diavik's Environmental Management System (EMS) was audited in December 2006. This audit occurs every year by an independent organization, to check if the system still meets the internationally-recognized ISO 14001:2004 standard. The EMS was first certified in 2004. The EMS and the ISO 14001:2004 standard are based on the idea of continual improvement, and this theme is the foundation for Diavik's environmental objectives, targets, plans, programs and procedures. Next year, in 2007, the EMS will undergo a whole new process - the whole system will have to be audited (rather than just a sample) in order to become recertified. This happens every third year, and a much more thorough audit will be done.

The figure below shows a time line of the Diavik's mine plan, which shows mining activities planned for the next several years.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
A154 Open-Pit	█	█	█	█	█														
A418 Open-Pit				█	█	█	█	█											
A154/A418 Underground					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

Note: A21 pending further resource evaluation
 * mine schedule subject to change due to market conditions, further resource evaluation, continued mine planning, etc.



**Minister's
Comments**

In September 2006 Diavik received comments from the Indian and Northern Affairs Canada (INAC) Minister regarding last year's (2005) Environmental Agreement Annual Report. The Environmental Agreement states that the Minister must comment on whether the report is satisfactory or not. The Minister indicated that INAC is satisfied with the 2005 report, and no concerns were raised by the GNWT, EMAB, or the Parties. (A letter from the INAC Director of Renewable Resources and the Environment in June 2006 provided some comments last year's draft report. It was too late to incorporate these comments into the last report, but every effort has been made to incorporate them into this one)

Diavik Site Layout



Environmental Plans & Programs

This section contains a brief outline of each of the various plans and programs that Diavik follows, related to the environment. Many of these have not changed since last year. The outlines are meant 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 2006 operations.

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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 was carried out to allow the mining of the A418 kimberlite pipe. It was 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.

This document outlines the environmental construction management plans that were 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 provided performance measurement.

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

The A418 dike was 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 was constructed of rockfill from mining and crushing operations. The dike was built in the wet and, due to the short summer season, some of the work was carried out in cold weather conditions. For these reasons the A418 dike construction had some unusual challenges, which required 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
Submitted to MVLWB; approved in July 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.

The AEMP is currently being revised as part of the water license renewal process that Diavik is undertaking.

Blasting and Explosives Management Plan v.6 Revision awaiting approval from WLWB, submitted March 2007

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).

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 meters 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.10 Revision awaiting approval from WLWB, submitted March 2007

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

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

Interim Closure and Reclamation Plan Submitted to WLWB September 2006

As part of Diavik's water license renewal process, the *Interim Closure and Reclamation Plan* was submitted to the Wek'èezhìi Land and Water Board for review. The plan was completely revised and was written to meet the requirements of Diavik's water license, and is the first update since the original plan submitted in 2001. Included in this document are:

- A brief project history and summary of permit and authorization requirements relating to closure and reclamation
- Background to closure and reclamation planning at the Diavik Diamond Mine
- Site-specific closure and reclamation standards and objectives
- A description of baseline environmental conditions at the mine site
- A description of the mine facilities
- Proposed interim shutdown measures
- Started, completed and proposed progressive reclamation plans
- Proposed permanent closure and reclamation plans
- A description of the expected post-closure environment and land use
- An updated Reclamation Monitoring and Maintenance Plan
- An updated closure and reclamation schedule

It should be noted that the Diavik water license uses the term "Abandonment and Restoration" in reference to the requirements for closure of the mine including progressive reclamation. In contrast, the current Mine Site Reclamation Guidelines for the Northwest Territories uses the term "Closure and Reclamation". While Diavik assumes these terms to be the same with respect to closure planning for the mine, "Closure and Reclamation" has been used throughout the document to keep everything consistent.

Operational Phase Contingency Plan v.10 Revision awaiting approval from WLWB, submitted March 2007

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 response materials and equipment that would be required in the event of a release

This revised version includes updated quantities and types of hazardous materials stored on site, and a section on contingencies for the underground part of the mine operation. The Plan also includes maps noting sensitive fish and sensitive wildlife areas at the mine site, 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 were identified, and a short description and recent work done on them in 2006 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.

In 2006, two of the three piles were completed and the third pile was 90% completed. Instruments for all piles were put together and installed in 2006. See the Submission Summary section (p. 20) for more detail on this project.

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. Field work started in spring 2006 and information about soil temperatures and soil moisture was downloaded from data loggers. Vegetation was assessed between July 17 and 24, 2006. More detail on early conclusions from this research can be found in the 'Summary of Submissions' section of this report.

PKC Closure Research: This program measures the different physical properties of fine processed kimberlite (PK) over time, to help with closure planning for the PK pond. In 2006, monitoring of thermistors (which are temperature sensors) and piezometers (instruments for measuring the height of the water table) continued. Also, four new thermistors were installed for further monitoring purposes. A geophysics survey is planned but will not be done until the PK is frozen solid.

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.

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

Waste Management Plan v.10

Submitted March 2007, revision awaiting approval from WLWB

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. This has not changed considerably from the last version of the plan.

Water Management Plan 2006

Submitted to the WLWB March 2007

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 use of fresh water through maximizing use of recycled water; and
- 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

This new revision to the plan includes water management strategies for the four key areas of water management at the Diavik site, including mining, site services, process and construction. The plan covers management, monitoring and control of water within each of these areas.

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 2006.

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 Dewatering Program Report Submitted to WLWB Dec 2006



Water quantity and quality monitoring was conducted at the Diavik Diamond Mine site in 2006, as per requirements identified in the Type A Water License #N7L2-1645 for dike dewatering. From 4 to 15 September 2006, water from inside the A418 dike was discharged directly to Lac de Gras as part of the dewatering program for Diavik's next open pit. During the 2006 dewatering program, five (5) pumps were used on two separate barges, referred to as the north (2 pumps) and south (3 pumps) barges. Approximately 2.3 million cubic meters of water was drained from within the dike, with 1,762,436 cubic meters discharged directly to Lac de Gras. The remain-

ing water, 558,002 cubic meters, was transferred to the on-land Clarification Pond. Any remaining water within the pit at the end of the dewatering program (3 November 2006) was transferred to the North Inlet via the dike seepage wells and/or the pit water pumping system.

Water quality conditions within the A418 pool changed during pumping, as predicted. A slight increase in total metals, major ions, nutrients, total suspended solids and turbidity was noted; however, during the period of discharge to Lac de Gras, all values were well within the limits outlined in the water license.

During dewatering, no signs of erosion were reported at the discharge point. A flexi-float system was successfully used to spread out the waters' energy prior to entering Lac de Gras.

A154 Dike Annual Inspection and Performance Evaluation Submitted to WLWB December 2006

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 fourth annual report.

The performance of the dike is satisfactory. Piezometric (ground water) levels continue to decline 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. Some fluctuations are noted in the vicinity of the dike pump stations DPS-1 and DPS-2 due to problems with automated pump control. The seepage going to the dike pump stations is within the design criterion but routine monitoring is not possible given the current pump operation problems.

Deformation of the dike as measured by the instruments and survey markers is equal to or less than the values that were predicted.

Temperature measurements show satisfactory performance of the thermosyphon groups. (Thermosyphons help to keep the ground cold within the dikes) The slow but steady recovery of the permafrost conditions on the abutments (where the dike joins the mainland) is noted but small local warming trends have been observed in two areas.

As blasting for the mine takes place only at the bottom of the pit, the distances to the various

parts of the dike have increased and little or no influence is detected. Blast monitoring no longer takes place on a regular basis. Any slashing of the pit walls on the upper benches would be enough reason to re-start monitoring, at least for those blasts.

**AEMP 2005 Data Compilation
Submitted in Dec 2006 To WLWB**

An annual report for the Aquatic Effects Monitoring Program (AEMP) was not submitted in 2006, due to review of the program. The Wek'èezhìi Land and Water Board had requested a data compilation report (summary of data) from the AEMP; Diavik submitted this to the Board in December 2006.



**Draft Ammonia Management Plan
Submitted to WLWB October 2006**

As part of the mediation agreement that resulted from Diavik's application to amend the effluent quality criteria in their water license, Diavik agreed to prepare and implement this Ammonia Management Plan. The Plan contains background information on ammonia management, EA predictions, site conditions, an overview of ammonia and aquatic effects, and ammonia management options. It also covers Diavik's recommendation for the water license effluent quality criteria for ammonia, how ammonia management performance will be evaluated, and specific details of ammonia management techniques among other things.

The two specific objectives of the Ammonia Management Plan, as outlined in the Plan, include:

1. To ensure that explosives are used and water is managed in such a way that ammonia losses do not result in a change to the trophic status of Lac de Gras or adverse environmental effects
2. To continually work towards achieving the lowest practical ammonia levels in the mine waters and final effluent discharge.

**Ammonium Nitrate (AN) Loss Mechanism Investigation
Submitted to WLWB Dec 2006**

Diavik requested that Golder Associates Ltd. (Golder) help with identifying how ammonium nitrate (AN) is lost from the blasting operation. The goal is to investigate how AN is potentially lost during blasting, in order to assess the contribution to ammonia in the mine water system. The first phase of the study provided a baseline of data that will be used to evaluate the benefits of changes made to the mining operation. The purpose of the second phase of the project was to evaluate three potential options for reducing AN loss that were identified through the first phase.

The first phase of the project involved the collection and analysis of blasting and water quality data in order to determine how ammonia enters the mine water system and also to create a baseline data set for comparison with results from future trials designed to reduce AN loss. The second phase of the project involved doing a series of monitored trials with changes made to the drilling and blasting process. The results of these trials have been compared to the base-

line data to determine if the trials reduced AN losses and produced satisfactory blast results.

The baseline data collection and trials of controlling AN loss options were carried out from July 12, 2006 to October 20, 2006. This report provides the findings and recommendations for the project. It includes the basic blast parameters used by Diavik, details of the design for the field studies, summary of the results of the baseline data collection, description of options for reducing AN loss that were identified during baseline data collection, details of field trials designed to evaluate the options as well as conclusions and recommendations from the project.

There are too many conclusions (13) and recommendations (6) to include here, but the full report can be referred to for further details. However, Diavik did accept and implement all of the recommendations that the report made, including actions such as updating Standard Operating procedures, increasing training related to blasting, changing the emulsion mix ratio for blasting, and other changes that will reduce the AN lost during blasts.

Annual Dam Safety Inspection Report Submitted to WLWB August 2006

Diavik hired Golder Associates Ltd. 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 June 19-21, 2006.

The results of the 2006 inspection show that the dams are stable. Pond 13 has minor seepage at one location. Pond 2 had seepage likely related to melting of ice in a bedrock fracture. The seepage from either pond does not put the dams at risk. Recommendations include:

- Regular inspections and monitoring should continue
- PK deposition within the PK facility should continue to minimize the time that the pond is in direct contact with the dams, to minimize warming of the dam foundation
- The spillway on the Clarification Pond should be repaired
- A plan to clean up the seepage area at Pond 2 should be developed and implemented before the pond is in full operation
- The damaged liner in Pond 1 should be repaired
- A recommendation from 2005 should be followed - broken thermistors should be repaired or replaced at the East and West PKC dams.

Blasting Effects Study 2006 Update Submitted to WLWB March 2007

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 two years ago 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 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.

The results of this lab testing showed that exposure of rainbow trout eggs to simulated blasts much stronger than what were found in the field, did show increased mortality of the eggs. Results of this study show that the current guidelines for blasting provide plenty of protection for spawning beds.

Carbon Sequestration in Mine Tailings Update

Submitted to WLWB March 2007

The Carbon Sequestration in Mine Tailings project is a three-year research project that began in May 2005. The project looks 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 August 2006, researchers visited Diavik to collect more samples, and make observations. The work summary for 2006 is very technical and should be referred to for further information, as it is difficult to summarize in this report. One of the findings, however, is that the research team will investigate the possibility that the sewage stream could also act as a carbon storage area as well as the mine waste rock. This project will continue in 2007.

Country Rock Test Pile Annual Update

Submitted to WLWB March 2007

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.

The 2006 test pile construction season was very productive. Two of the three piles with instruments in them were completed, and the third pile was completed to about 90%. All instruments for all piles were put together and installed in 2006. Instruments within the pile were put together by stringing the main instrument lines through flexible PVC pipe. The total volume of material placed on the piles in 2006 was 294,980 m³.

Dust Deposition Monitoring Report 2006

Submitted to WLWB March 2007

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 as a 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 and from dust deposition gauges (see Dust Deposition Monitoring Program, p. 10).

The key findings reported in the 2006 Dust Monitoring Program Report were:

- Snow survey sampling saw an overall decrease in annual dust deposition from 2005 to 2006 for most locations, with the exception of five stations next to the airport and A418 construction activities.
- Dust gauge sampling saw a decrease in annual depositional rates from 2005 to 2006 as well, with the exception being Dust 01 adjacent to the airport.
- Dustfall deposition rates were observed to be greatest near the mine and construction activity, and to decrease as distance from the mine was increased. Deposition rates were also found to be influenced by localized activity and prevailing wind.
- Observed dustfall deposition rates greatly exceeded the predicted rates from environmental effects modeling.
- Snow water chemistry sampling showed that all parameters monitored were well below maximum concentrations allowed in any one grab sample of water discharged into Lac de Gras.

Recommendations from the report include evaluating the frequency of dust gauge collection - it may be increased to allow a greater confidence in the data and to minimize loss associated with damaged collectors. Diavik will also be evaluating potential snow survey sites that will extend south of the island and will capture the future A21 open pit.

Diavik is still evaluating how practical it is to use the new minivol air samplers. If field tests show that the sampler will work well in arctic conditions, they will be included in the 2007 program. Diavik will also be building a permanent air quality monitoring station.

East Island Seepage Report 2006 Submitted to WLWB March 2007

Water quality monitoring was done at the Diavik project site in 2006 at established seepage, collection pond and groundwater locations around the island. The objective was to document 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 eight Seepage Survey Stations, as well as utilizing water samples collected from thirteen Surveillance Network Program (SNP) stations specified in the Diavik Diamond Mine (DDMI) Type A Water License #N7L2-1645.

Under natural conditions, water seepage on the east island occurs within the active or thaw zone of low lying till areas predominantly as surface runoff, typically from May through to the beginning of October. Water from these sources is collect in a series of small streams, which are enclosed by Diavik water collection systems (Collection Ponds). Monitoring efforts have focused on the mouths of these streams and on groundwater in topographic lows, where any seepage from future mine components would most likely be detected.

Seepage water quality monitoring began during the spring freshet of 2006 and continued until freeze-up. Groundwater monitoring was limited to observations of water levels in wells, as insufficient groundwater was available for water quality analysis, indicating a lack of seepage.

None of the eight seepage-monitoring locations showed any signs of seepage during the

spring freshet to the fall freeze. Therefore, all of the upstream collection ponds captured both run-off from the spring freshet, plus any precipitation during summer and fall. In 2006, all eight collection ponds were influenced by up stream construction activities, or rock placement within the rock piles.

Meteorological Report 2006 Submitted to MVLWB March 2007

Diavik has collected meteorological data since the 1994 base-line data collection program. The meteorological station measures the following: wind speed, wind-direction, precipitation, ambient 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 aid in evaporation data collection, as well as providing supplementary weather data. For the year of 2006 the evaporation station was used for the majority of data as the older meteorological station was out of service for a portion of the year while being recalibrated and reprogrammed for more efficient and reliable operation.



Climatic conditions at the Diavik mine site for 2006 had a maximum ambient air temperature on June 14th of 25.8 °C. Minimum ambient air temperature occurred on February 25th at -39.8 °C. The annual average ambient temperature was -6.2 °C (this was up from -8.70 °C in 2005).

Relative humidity averaged 77.9%, with the maximum occurring on June 29th at 98.7%. Total precipitation at the project site was 413.2 mm, with rain accounting for 45.6% or 188.6 mm, and snow accounted for 54.4% or 224.6 mm. The winds were recorded from the Meteorological station from August 16th to December 31st. The prevailing winds are mostly from the north and east. There was an overall average wind speed of 4.75 m/s (including calm periods) with a maximum wind speed of 19.16 m/s during this time. The winds were calm for 10.3% of the time.

Meteorological monitoring will continue at Diavik in 2007.

North Inlet East Dike - Annual Inspection and Performance Evaluation Submitted to WLWB December 2006

The North Inlet East Dike was built to create an enclosure within the North Inlet for use as temporary storage during the initial dewatering of the pit areas and during mine operations until the water is treated for release to Lac de Gras, as well as a possible deposition area for the sediments dredged from the foundations of the A418 and A21 dikes. The dike was built in 2001 and 2002. An annual inspection and performance evaluation is required and this report constitutes the findings of the fourth annual report.

The performance of the dike is satisfactory based on observations during the drawdown period in 2002 and a visual inspection done in 2006. Cracking along the centerline was noticed in the spring of 2003. The cracks reappeared in later years. The lake side slope is subject to greater wave attack than the inlet side but only minor adverse effects have been observed.

Thermistors (temperature sensors) have been installed in the dike and the foundation to monitor the conditions in the area of the existing cut-off and on the abutments (where the dike joins

land) for future reference in case the dike is ever raised. The instruments show frozen ground on the abutments but 0C° beneath the foundation that was part of the lakebed. This confirms that the cut-off was indeed necessary in this area.

Revegetation Research Annual Update Submitted to WLWB March 2007

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 best at improving soil properties and plant establishment, and which local species are able to survive on different substrates at the Diavik site. Test plots were set up and soil amendments added in earlier years of the study; planting of some species also took place in the past. Fertilizer and sewage sludge was applied to some plots and seeds from four local species were collected and planted in some of the study blocks as a trial.

Field work started in spring 2006 and information about soil temperatures and soil moisture was downloaded from data loggers. Vegetation was assessed between July 17 and 24, 2006. This work is related to the Reclamation Research Plan (see p.12). Data on the study so far was analyzed and some early conclusions are:

- Raised levels of some metals in processed kimberlite (PK) have not prevented plants from getting established.
- Mixtures of 25/75 PK:till (based on volume) and 50/50 PK:till are better for plant growth compared to glacial till and PK alone.
- Adding sewage sludge and topsoil results in better plant establishment and growth compared to adding inorganic fertilizer or nothing, regardless of soil.
- Spring (June) seeded plots have greater plant growth and larger plants than fall (September) seeded plots.
- Three plant species (*Festuca saximontana* (northern fescue), *Poa glauca* (glaucous bluegrass) and *Agropyron violaceum* (broadglumed wheatgrass)) had the highest plant densities in all trials compared to other species that were seeded.

In 2007, new research plots will be created just east of the current research site and the research will build on preliminary results. The research team will continue to monitor the plots that were established in 2004, focusing on the build-up of soil organic matter, growth and survival of local shrubs, grasses, and other types of vegetation; seed production; reproduction of vegetation; and spread of plants from where they first established.

Shoal Habitat Report 2005

Submitted to DFO August 2006; comments have been submitted to Diavik

Note - this report was for the 2005 study, but was submitted in 2006. The report for 2006 work will be submitted in 2007.

As stated in the Authorization for Works or Undertakings Affecting Fish and Fish Habitat, Diavik Diamond Mines Inc. (DDMI) was responsible for doing a Fish and Fish Habitat Utilization Study before any dike construction. To meet the requirements outlined in the Fisheries Authorization, Diavik has been doing a yearly Shoal Habitat Utilization Survey.

Shoal surveys for 2005 were conducted on September 15, 2005 and October 2, 2005 on 3

transects. There are eight existing transects which are located east of the A154 dike. Each transect was surveyed twice by boat based on previously mapped shoals. In addition to the surveys, angling was used in an attempt to: 1) check the data and 2) to capture, tag, and obtain life history information from fish using the shoals.

Weather and equipment problems caused by the cold weather resulted in the 2005 survey being suspended for the year. Weather was a major safety concern due to the winter weather that appeared at the scheduled time for the survey.

Site Water Balance Submitted to WLWB March 2007

A computer model was set up to predict water flows at the Diavik site from 2003 to 2023. The water balance model uses 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 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.

The results of this document are very similar to last year's. This water balance concluded that capacity in the North Inlet will be enough to handle the Clarification pond dewatering with good scheduling and monitoring of open pit and underground water flows. 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 still 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 License Annual Report Submitted to WLWB March 2007

As a requirement of Diavik's Type A water license, an annual report is prepared and submitted. The 2006 report was submitted in March 2007 along with several appendices which included updated management plans and updates to studies being undertaken. Every year, the report provides information on activities related to water and waste including tables and figures on amounts, 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 and underground and numbers related to sewage. There is a summary of all operational activities and an update on studies related to reclamation (both similar to what is contained in this report) that occurred in 2006.

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

Annual Report. It is too difficult to summarize all 27 sections of the Water License Annual Report in this report, because of the amount of detail and figures. However, some of the highlights are presented below.

- 1,174,650 m³ of fresh water were used for drills, domestic use, processing and dust control
- Over 2.5 million m³ of water were recycled from the PKC for use in the process plant
- 52 spills (greater than 100L or near water) were reported to the NWT Spill line in 2006; all were cleaned up and most were closed by the Inspector before the end of the year
- 8.8 million m³ of rock (including Type 1, 2 and 3) was moved to the waste rock pile during 2006

Wildlife Monitoring Report

Submitted to Environment and Natural Resources March 2007

As a requirement of the Environmental Agreement, Diavik conducts a Wildlife Monitoring Program (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 for the 2006 Wildlife Monitoring Program.

A summary of results of the program is given below.

Vegetation/Habitat Loss

As of December 2006, a total of 8.86 km² of habitat has been altered due to mine footprint expansion, with construction beginning in 2000. This represents a total loss of 69.9% of the predicted mine disturbance. Direct habitat loss in 2006 was 0.71 km². Heath tundra represents the largest cumulative loss on East Island over the years, and represents the largest predicted vegetation habitat type loss due to mining activities.

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 is 2.12 habitat units. Overall, total direct losses for all summer habitat for caribou are currently below what was predicted in the environmental effects report.

Zone of Influence - 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. From May 1 to June 24, 2006, (northern migration) five aerial surveys were completed. However, BHPB has adopted new study designs and protocols for caribou aerial surveys, which currently excludes surveys during the northern migration period. In addition, the size of the study area, distance between transects, and timing of surveys also changed for the southern migration period. Because of their changes, Diavik modified the previous study area to continue to get information on caribou distribution and behaviour around the mine site during the 2006 southern migration. The western boundary of the previous study area was extended 4 km, and the western and eastern boundaries were included as survey transects. A total of 12 transects, spaced 4 km apart, were then flown once per week from July 1 to November 11, when weather permitted.

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 2006 (none in 2006). Five of the groups were observed during the northern migration and 9 during the southern migration. Small 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.

Observations of caribou behavior within the study area for 2002 - 2006 indicated that 61% of the caribou groups were feeding/resting during the northern migration. In contrast, 59% of the groups were feeding/resting during the southern migration.

The low number of caribou traveling through the study area during the past three to four years has limited the opportunity to study caribou behaviour on the ground through scanning observations. During 2003, 2004, and 2005, ground observations of caribou behaviour were successfully completed for 12, 14, and 5 caribou groups, respectively, including five control groups within the Diavik study area. No caribou scanning observations were recorded in 2006. Diavik acknowledges that more effort must be put into making ground-based behavioural observations of caribou at various distances from the mine site.



Movement - The number of caribou observed within the Diavik wildlife study area was higher during baseline (1996 to 1997) than from 2000 through 2006, especially during the southern migration. However, data from 2002 to 2006 (aerial surveys) show relatively constant numbers, with the exception of 2004 when approximately twice the number of animals were recorded. Relative to 2002 through 2004, the timing of the first caribou sighted in the study area during the southern migration decreased by approximately two to three weeks in 2005 and 2006.

Golder completed an analysis of caribou data from 1998 through 2004 within the regional study area for the Diavik and Ekati mines. The results showed that the estimated Zone of Influence around the Diavik mine ranged from 22 km to 26 km for the northern and southern migration periods. In response to this information, Diavik is proposing a new study area (56 km wide x 50 km long) for caribou monitoring, which is over twice as large as the previous study area and there would be 30% coverage of the new study area. Data collection methods would be the same as previous methods. However, through the process of adaptive monitoring and management, the timing and number of surveys completed likely will be improved. Any changes will be discussed with the Environmental Monitoring Advisory Board and other stakeholders. For example, the number of calves and cows in a group could be recorded during the southern migration. Information on calf:cow ratios will provide regional estimates of calf recruitment rate, which can be combined with recruitment rates from other regions on the Bathurst range to better understand this important herd characteristic.

Mortality - Mineral development in the Bathurst caribou herd range has caused concerns about increased caribou 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 2006.

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 2006, 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. When small numbers of caribou were seen in areas near haul roads, an announcement was made on radio Channel 7 to notify all users of the haul road of their presence and location.

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 on 38 occasions between 1 May and 5 October 2006. No caribou were observed during any of the surveys.

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 2006 was 6.31 km², compared to the 8.67 km² that was predicted. Results from 2006 grizzly habitat surveys suggest that 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 2006. A total of 21 observations of grizzly bears (33 bears in total) were made on East Island between 16 May and 6 October 2006, on 20 separate days. On eight occasions, deterrents (pen launched bear bangers and 12 gauge cracker shells) were used to protect people or property. Of these eight occasions, it was necessary to use a helicopter three times to deter the bears.



During the aerial caribou surveys for 2006, eight grizzly bears were observed, five of which were within the Diavik wildlife study area. Of the three others, two were in the BHP-Billiton wildlife monitoring area, while the other was just outside the southern boundary of the Diavik wildlife study area.

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 five years of data. Also, all plots are 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. For next year, impact predictions relating to the Zone of Influence will be more fully tested through a full analysis of regional grizzly bear data.

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 0.03 wolverine tracks per kilometer, which was lower than in 2003, 2004 and 2005. Winter surveys did not provide any data, because poor conditions (bare ice, exposed tundra, and extreme temperatures) caused the survey to be stopped part way through.

There were 31 incidental observations of wolverines on East Island during 2006. This was down from the previous year, when a wolverine took up residence under the south camp buildings and contributed greatly to the 41 observations made in 2005. The majority of animals recorded this year appeared to be passing through or around the site. Deterrent actions were used to move wolverines away from site developments on two occasions in 2006. An additional nine wolverines were observed during the weekly aerial caribou surveys conducted in 2006.

In April 2005, Diavik took part in a study arranged by ENR, designed to monitor wolverine numbers across broad landscapes using genetic analysis. In April 2006, Diavik again participated in the wolverine DNA study, fulfilling our two year commitment to this program. No further sample collection will occur until such time as the analysis and recommendations are discussed and agreed upon.

No injuries, deaths or relocations of wolverine occurred as a result of mining activities on East Island in 2006. One project-related incident involving wolverine occurred in 2006. A wolverine was found trapped inside an open, empty oil tote at the Waste Transfer Area on 3 March. Environment personnel responded immediately and were successful in safely freeing the wolverine from the tote. The wolverine did not appear to have sustained any injuries in the incident, and measures were immediately taken to prevent future similar occurrences.

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 2006, potential wildlife attractants (such as food and oil) were found at the Waste Transfer Area on 37.9% of the 174 inspections. Food packaging and food waste were the most commonly observed attractants, with findings during 13% and 18% percent of all inspections, respectively.

Attractants were found on 69.5% of 174 inspections of the inert landfill. Again, food packaging was the most commonly found attractant, having been observed during 36% of all inspections. The occurrences of oil products and containers, and oil-contaminated waste were still higher than previous years. While these values did not exceed those of food packaging, this is the second year where observations of oil wastes exceeded that for food in the landfill.

Wildlife was observed on 33.9% of the inspections of the waste transfer area, and on 8.6% 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.

The continued presence of attractants in the inert landfill indicates a need for additional environmental awareness sessions. Environment personnel will continue to provide the workforce with information on consequences of improper waste management, such as human safety issues related to carnivore problems. Regular inspections (every second day) at the WTA and landfill will continue, as this has been successful in the quick discovery and resolution of potential concerns. Diavik Environment is working to start a better waste tracking system with our waste management contractor, some parts of which have already begun. Diavik is also investigating the possibility of installing a gate at the landfill to further reduce opportunities for uncontrolled dumping.

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 2006. During the spring occupancy survey, three of the six sites were occupied - two of them had incubating females so eggs could not be counted

and one was occupied but no eggs were observed. During the productivity survey, four nest sites were found occupied and two of these were productive (young were present in a nest). Productivity was within the range recorded in the Diavik wildlife study area since 2000. During 2006, a total of 7 chicks were recorded, making this the most successful year for chick production recorded since data collection began in 2000. Occupancy and production in the Diavik wildlife study area during 2006 were found to be similar to that found in the undisturbed Daring Lake area. There were no falcon injuries or mortality at the Diavik site during 2006.

Waterfowl - In 2006, a total of 0.28 km² of shallow and deep water habitat was lost, mostly as a result of construction of the A418 dike. It was originally predicted that 3.94 km² would be lost as a result of the mine. In total, 2.51 km² has been lost up to December 2006. 12 species of shorebird were recorded during waterfowl surveys that took place during the year.

Disturbance as a result of mine activities appears to be very minimal with regards to impacts on waterfowl presence at the Diavik mine site. Four species of diving ducks (common merganser, lesser scaup, Pacific loon, and yellow billed loon), and one species of shorebird (spotted sandpiper) identified in 2006 had not been recorded during past surveys. The American wigeon, a dabbling duck, and the long billed dowitcher, a shorebird, were both identified as present in 2006 following four year absences.

Monitoring surveys conducted on the shallow bays and mine altered water bodies of the Diavik mine site resulted in a total of 3041 birds recorded including all passerines, birds of prey and seabirds. The west and east shallow bays accounted for 31% and 28% of all observations, respectively, while all mine-altered water bodies combined accounted for the remaining 41% of observations. While the total numbers are down slightly from 2005 when 3406 birds were recorded, the distribution amongst the locations is similar.

In 2006, there were 11 avian mortalities between 6 April and 24 December. Six of these incidents involved rock ptarmigan which had been killed by inadvertently flying into closed overhead doors, or moving vehicles. On one occasion a duck was killed when it flew into an oncoming haul truck. Two ravens were found dead on site, one of which was found to have succumbed to starvation as a result of a blockage of ingested plastic, the other was believed to have been killed from a fall from its nest. A red throated loon died when it became entangled in gill nets during the 2006 A418 fishout. A lapland longspur was found dead, but the cause was unknown.



Summary of 2006 Operations

There were a number of construction projects done in 2006 as Diavik started construction of the A418 dike and pit, and continued with underground feasibility studies. A summary of operations and construction projects completed or started is provided below, along with environmental program activities. The Operations Summary is organized by month. A map with the Surveillance Network Program (SNP) stations is provided at the start, for reference.



JANUARY:

A418 and A21 on-ice drill programs began this month, along with a magnetotelluric (MT) survey in the A21 area that ran from 4-25 January. An MT survey uses electromagnetic fields generated within the earth due to world-wide lightning strikes to provide information about the type and layout of rock under the lake.

The A154 northwest wall depressurization program was conducted during this month. The purpose of this program was to increase the safety of the dike wall by reducing the water pressure flowing through the rock.

During the month of January 2006, all required sampling for Surveillance Network Program

(SNP) stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of January. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Discharge into Lac de Gras was ongoing and station 1645-18 was sampled during the month. No notable concerns were noted with the toxicity samples tested.

Sampling at station 1645-19 at the North Inlet Water Treatment Plant (NIWTP) diffuser line was completed in January. All analytes were within the expected range for the profile. Quarterly sediment results were also taken with no concerns noted.

Station 1645-49 (Pit Water) and Station 1645-52 (Dike Seepage Wells) was also sampled during the month. 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.

FEBRUARY:

The winter road opened on 6 February 2006.

There was a fire this month at one of the on-ice drills within the A21 sampling area.

During February, all required sampling for SNP stations was completed.



Station 1645-12 at the North Inlet Storage Facility was sampled during the month of February. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Discharge into Lac de Gras was ongoing and station 1645-18 was sampled during the month of February. No notable concerns were noted with the toxicity samples tested.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in February. All analytes were within the expectable ranges.

Station 1645-49 (Pit Water) was sampled during the month of February. Station 1645-52 (Dike Seepage Wells) was sampled during the month of February.

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:

There was a drill fire at an on-ice drill within the A418 dike in March 2006.

The winter road closed on 27 March 2007.

Quick Fact...

The total number of loads, north and south, for all companies using the winter road equaled 7310 (or 184,376 tonnes). Diavik alone transported 2096 loads (or 55,784 tonnes).

Construction began to create a lined collection pond, referred to as Pond 13.

During the month of March 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of March. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Discharge into Lac de Gras was ongoing and station 1645-18 was sampled during the month of March. No notable concerns were noted with the toxicity samples tested.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in March. All analytes were within the expectable ranges for the profile.

Station 1645-49 (Pit Water) and Station 1645-52 (Dike Seepage Wells) were sampled during the month. 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 March as they were frozen.

A wolverine tracking survey was completed with the assistance of a community member from Kugluktuk.

Dust Gauge collection for Diavik's dust monitoring program occurred this month.

APRIL:

During April, water flow occurred from the underground workings in the A154 pipe.

Rock fill placement for construction of Pond 2 began this month.

Seasonal work on the waste rock test piles began.

During the month of April 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of April. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the PKC off of the PKC Reclaim Barge.

Discharge into Lac de Gras was ongoing and station 1645-18 was sampled during the month of April. Results for some parameters were elevated during the period from 14-24 April 2006. During this time, the North Inlet Water Treatment Plant experienced a high sludge bed, which was extracted down over the course of the following 10 days. Additionally, a flocculant column was plugged on 19 April 2006, and may also have contributed to the slight increase in some parameters. Overall, each parameter remained below the maximum average concentration.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in April, including quarterly sediment samples.

Station 1645-49 (Pit Water) was sampled during the month of April. Stations 1645-52A & B both had frozen lines, so no samples were obtained during April.

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.



Snow core and snow accumulation programs were completed.

Caribou fencing was put up by the west dam of the PKC prior to the migration moving through.

The A418 on-ice drill program was completed.

Wolverine hair-snagging program was conducted with the assistance of community members from Kugluktuk.

Spring sampling (under ice) was conducted for the Aquatic Effects Monitoring Program (AEMP).

MAY:

Upgrades to the North Inlet Water Treatment Plant were done from 1-8 May. The purpose of these upgrades was to increase treatment capacity in the plant to 45,000 cubic meters per day.

A new helipad was constructed near Pond 2 to support the planned airlift developed to respond to the short winter road season experienced in 2006.

The airlift program began with the arrival of the MI-26 helicopter to site on 17 May. The Antonov-12 aircraft began daily freight flights on 20 May.

Diavik's approved landfill was moved within the old quarry site within the waste rock pile.

Pond 13 construction was completed.

Collection pond dewatering to the PKC facility began this month.

PKC barge and access road were raised due to increase in water depths within the PKC. The PKC dam raise also began the first week of May.

The A-21 small batch sample drill program was completed.

During the month of May 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of May. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the PKC off of the PKC Reclaim Barge.

Discharge into Lac de Gras was re-directed to the North Inlet Storage Facility from 01 – 08 May during treatment plant upgrades. Sampling at station 1645-18 resumed on 9 May. On this day, results for two parameters were slightly elevated, likely due to resuming flow after plant upgrades were complete. Overall, each parameter remained at or below the maximum average concentration, and a subsequent sample obtained six days later showed a decrease in the concentration of each of these parameters.

Sampling at station 1645-19 at the NIWTP diffuser line was not completed in May due to unsafe ice conditions that persisted the entire month.

Station 1645-49 (Pit Water) was sampled in May. Stations 1645-52A & B both showed no flow, so no samples were obtained during May.

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 sampled in May as thaw had occurred.

Weekly caribou aerial surveys began at the beginning of this month.

During May, daily waterfowl observations began for the spring migration.

Checking and sampling of collection ponds, seepage streams and groundwater wells began this month.



JUNE:

The MI-26 helicopter portion of the airlift program concluded with the last flight on 1 June.

Demolition of the Old Batch plant began mid-to-late June.

The A21 underground decline hit water on 18 June.

The first day of open water on Lac de Gras was 20 June 2006.

Esker farming (top soil stripping) started this month.

Construction of Pond 2 was completed this month.

During the month of June 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18. On 18 June, alarms sounded at the plant, indicating an issue with the flocculant cone. The problem was addressed and the plant re-started. However, alarms sounded again on the morning of 19 June, indicating that the cone was plugged. The plant was shut down, the problem was fixed and flow to Lac de Gras restored. Immediately prior to the second shut down, a sample was obtained for 1645-18, resulting in elevated metal & TSS levels.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in June.

Station 1645-49 (Pit Water) was sampled during the month of June. A sample from station 1645-52B was obtained during June.

Samples from stations 1645-48 were obtained at the Clarification Pond and submitted for approval for the purpose of dewatering the pond to Lac de Gras.

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 sampled in June.

Caribou fencing was removed from the west dam of the PKC, to accommodate the PKC Dam raise.

The University of Alberta vegetation seeding program was started.

Raptor surveys were conducted in June to determine nest occupancy.

JULY:

Hercules aircraft began transporting fuel to site 17 July. Fuel loads continued into the New Year, concluding on 9 January 2007.

The Antonov-12 concluded its portion of the airlift program on 26 July.

Golder & Associates began collecting water samples in the A154 pit as part of an ammonia monitoring program.

Demolition of the Old Batch finished mid-July.

During the month of July 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled. Station 1645-13 was sam-

Average Camp numbers
during 2006

Main Camp - 310 people

South Camp - 406 people

Total - 716 people

July 1, 2006 was the busiest combined day (both camps) with 892 occupants - there were 328 people at the Main Camp and 564 people at South Camp.

pled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in July, including sediment samples.

Station 1645-49 (Pit Water) was sampled during the month of July. A sample from stations 1645-52A and 1645-52B was obtained during the month.

Samples from stations 1645-48 were obtained at the Clarification Pond and submitted for approval for the purpose of dewatering the pond to Lac de Gras.

Samples were obtained at stations 1645-40A-E within the A418 dike for approval purposes related to dewatering the dike to Lac de Gras.

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 sampled in July.

DDMI's vegetation plot surveys began in July, as did Phase 1 of the A418 fish-out.

Sedge wetland plots were surveyed for signs of grizzly habitat utilization, and raptor surveys were conducted in July to determine nest productivity.

The Community-Based Monitoring Camps took place in July and included a Water Quality Camp (11-14 July), Dust monitoring Camp (14-16 July) and Fish Palatability Camp (26-28 July).

Dust Gauge collection for the dust monitoring program took place this month.



AUGUST:

Dewatering of the clarification pond to Lac de Gras began on 7 August.

Initial commissioning of the A418 Dike Dewatering to Lac de Gras began 27 August.

During the month of August, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of August. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of

the PKC Reclaim Barge.

Sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in August.

Station 1645-49 (Pit Water) was sampled during the month. A sample from station 1645-52A was also obtained. Station 1645-52B had no flow during August.

Daily samples from stations 1645-48 were obtained at the Clarification Pond and analyzed for pH, TSS, turbidity and total phosphorous for the purpose of dewatering the pond to Lac de Gras.

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 sampled in August.

A418 and A154 spoke monitoring programs were started this month.

Diavik's vegetation plot surveys were concluded in August, and Phase 1 of the A418 Fish-out was completed.

Fall sampling (open water) was conducted for the Aquatic Effects Monitoring Program (AEMP).

Riparian plots were surveyed for signs of grizzly habitat use.

Representatives of the Environmental Monitoring Advisory Board (EMAB) visited mine site this month.

The internal ISO 14001 audit of Diavik's Environmental Management System was conducted 28-31 August.

SEPTEMBER:

The A418 underground decline hit water on 5 September.

A21 underground decline reached the kimberlite face on 26 September.

Esker farming halted mid-month.

Peep sampling portion of A418 and A154 spoke monitoring programs were conducted. The A418 and A154 spoke monitoring program was completed.

Dewatering of the A418 Dike to Lac de Gras commenced September 4 to 16. Dewatering of the A418 Dike switched to the Clarification Pond.

During the month of September 2006, all required sampling for SNP stations was completed.

Station 1645-12 at the North Inlet Storage Facility was sampled during the month of September, with the exception of the DDMI LAB sample for TSS. Fortunately the internal sample was



a QA/QC Lab split, so the other half of the sample went to ALS Laboratories for TSS analysis. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18 and sampling at station 1645-19 at the NIWTP diffuser line was completed in September.

Station 1645-49 (Pit Water) was sampled during the month of September. A sample from station 1645-52A was obtained during September. Station 1645-52B had no flow during September.

Daily samples from stations 1645-48 were obtained at the Clarification Pond and analyzed for pH, TSS, turbidity and total phosphorous for the purpose of dewatering the pond to Lac de Gras.

Daily samples for 1645-40 N&S were taken.

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 sampled in September.



The University of Alberta vegetation seeding program was completed.

Shoal Habitat Utilization surveys were conducted early in September.

The entire second phase of the A418 fish-out program was completed.

Collection ponds, seepage streams and groundwater well sampling was concluded as freeze-up occurred.

Dust Monitoring gauge 'Dust 09' was deployed.

OCTOBER:

Golder & Associates concluded its ammonia monitoring program in the A154 pit.

The A418 underground decline reached the Kimberlite face on 5 October.

The raise of the PKC barge and access road was completed, and the PKC Dam raise, to elevation 445m, was also completed.

Pond 2 spillway construction began late October.

Dewatering of the clarification pond to Lac de Gras ceased on 11 October.

Collection pond dewatering to the Processed Kimberlite Containment (PKC) facility finished this month.

During the month of October, all required sampling for SNP stations was completed.

Station 1645-12 was sampled during the month, with no notable issues.

Station 1645-13 at the North Inlet Storage Facility was sampled during the month of October, with the exception of the DDMI LAB sample for TSS and turbidity. Fortunately, it was an internal QA/QC Lab split so the other half of the sample went to ALS for this analysis. Station 1645-13 was sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge and sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18.

Sampling at station 1645-19 and quarterly sediments at the NIWTP diffuser line was completed in October. Sediment samples from station 1645-19 A were extracted during the month.

Station 1645-49 (Pit Water) was sampled during the month of October. A sample from station 1645-52A was also obtained. Station 1645-52B had no flow during October.

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 October due to freeze up.

During October, weekly waterfowl observations were concluded as freeze-up occurred.

NOVEMBER:

Freeze up of Lac de Gras occurred 5 November 2006.

Dewatering of the A418 dike was completed during the month.

Pond 2 spillway construction finished late November.

During the month of November 2006, all required sampling for SNP stations was completed.

Station 1645-12 was sampled during the month, with no notable issues.

Station 1645-13 at the North Inlet Storage Facility was sampled during the month of November. This station is sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge and sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in November.



Station 1645-49 (Pit Water) was sampled during the month of November. Stations 1645-52A and 1645-52B had no flow during the month.

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 November due to freeze up.

Weekly caribou aerial surveys were concluded midway through the month.

DECEMBER:

Pre-stripping of the A418 Dike began this month.

The external ISO 14001 audit of Diavik's Environmental Management System took place 12-14 December.

The first blast in the A418 Dike occurred 16 December.

A418 underground bulk sample analysis was conducted 16 December.

During the month of December 2006, all required sampling for SNP stations was completed.

Station 1645-13 at the North Inlet Storage Facility was sampled during the month of November. This station is sampled bi-weekly in the North Inlet Storage Facility off the North Inlet Reclaim Barge.

Station 1645-16 was sampled in the Processed Kimberlite Containment Facility (PKC) off of the PKC Reclaim Barge.

Sampling of the discharge from the North Inlet Water Treatment Plant occurred at station 1645-18.

Sampling at station 1645-19 at the NIWTP diffuser line was completed in December.

Station 1645-49 (Pit Water) was sampled during the month of December. Stations 1645-52A and 1645-52B had no flow during December.

Station 1645-12 was sampled during the month, with no notable issues.

Collection ponds, seepage streams and groundwater wells were not sampled in December due to freeze up.

Progress on the Underground Declines by the end of 2006:

Facts...

A21 underground decline – 1501 meters*

A154 underground decline – 1883 meters*

A418 underground decline – 1258 meters*

**Distances measured from the mouth of the portals.*

Public Concerns

In 2006, there was no direct communication or letters sent from the public to Diavik expressing concerns with the mine's operation. However, public interest and comments related to Diavik's water license renewal process were noted during various gatherings related to the process. These were anticipated and invited.

Below is a summary of issues or concerns that came from the Environmental Monitoring Advisory Board (EMAB) in 2006, and the responses that Diavik provided to the issues.

February 10 Communication: EMAB proposed that future Aquatic Effects Monitoring Program (AEMP) reports include water quality data that is collected by participants in the Water Quality Monitoring Camp. This would allow the data to be reviewed and compared to other stations. It was also requested that benthic and sediment data be considered as well.

***DDMI Response:** Diavik responded to confirm that the intent is to include this data in the new 2006 AEMP that is being changed. It was also noted that this new data will need to have quality controls to make sure it meets the new AEMP criteria.*

March 23 Communication: EMAB wrote to thank Diavik for meeting with EMAB to discuss expectations and comments for the 2005 Environmental Agreement Annual Report (EAAR). A CD was included with a table containing a summary of the points discussed and agreed upon for improvements to the EAAR.

***DDMI Response:** DDMI incorporated as many of these recommendations as possible in the draft version of the EAAR, which was submitted for comments in May 2006.*

June 14 Communication: A letter was submitted from EMAB to Diavik, recognizing that proposals have been approved for Community-Based Monitoring (CBM) Camps at a value of \$169,727.25. It is noted that Diavik will fund up to \$150,000 and EMAB will make up the difference. EMAB requested that payments be provided by Diavik as per the CBM camp guidelines.

***DDMI Response:** DDMI responded with a new calculation, as EMAB had inadvertently calculated the payment schedule based on the larger dollar amount, rather than the \$150,000. Diavik indicated that payments would be coming to EMAB shortly.*

June 19 Communication: EMAB had received the draft version of Diavik's Environmental Agreement Annual Report (EAAR) and sent it to Board members for comments. This letter contained a few more opportunities for improving the report but recognized that meeting earlier in the year was of benefit for improving the report in general.

DDMI Response: Diavik incorporated the suggestions contained in the letter from EMAB, when writing the final version of the 2005 EAAR .

- June 10** **Communication:** A request was sent to Diavik to follow up on outstanding requests and commitments that had not yet been addressed. They included:
- (a) request for Diavik to use CBM water quality data in the AEMP report
 - (b) Diavik's response to concerns raised about EMAB's expert review of Diavik's air quality/dust monitoring program and lichen study methodology
 - (c) request for Diavik's draft management plan for fencing

DDMI Response: Diavik responded to the concerns as follows:

- (a) See the "DDMI response" under the Feb. 10th EMAB letter above
- (b) On June 26, Diavik wrote a 6 page letter response which, due to length, can not all be summarized here. Diavik responded to each of the 26 comments made by EMAB's consultant concerning the air quality and dust monitoring, as well as the lichen study.
- (c) Diavik sent a letter (June 27) with a Standard Operating Procedure (SOP) to be followed when deploying the caribou fence near the PKC.

- August 31** **Communication:** EMAB thanked Diavik for the letter and SOP that was submitted in June, related to Caribou Fencing. EMAB notes that they are still waiting for a workplan from Diavik with dates for completion of drafts of a worst-case contingency plan and a management plan, as well as a consultation proposal. EMAB invites Diavik to attend an upcoming meeting in October to present plans for completing this work.

DDMI Response: Diavik does not have a management plan and instead refers to the SOP that was submitted in June.

- August 31** **Communication:** EMAB sent an original letter (April 6) and two follow-up letters (June 20 and Aug 31) stating that they had reviewed the report on the 2005 Community Based Monitoring Camp - Caribou Monitoring Workshop and requesting that Diavik respond to the recommendations. EMAB stated their support of the recommendation for Aboriginal involvement in caribou monitoring, in particular:

- (1) That a small two person camp be set up where the caribou are, and that Aboriginal people could use this camp, perhaps conduct Diavik's caribou scans, walk the land and watch caribou for extended periods of time.
- (2) That an Aboriginal person be at the Diavik site with the sole job of monitoring caribou and reporting to communities
- (3) That anyone passing through the area that sees a caribou should report what they see to one central agency.
- (4) That DDMI should initiate consultation directly with the Aboriginal Parties to the EA regarding implementation of recommendations #1-3 in a way that meets the spirit and intent of the EA.

EMAB requests (in the last letter) that Diavik respond to this request in order to meet clause 4.3 of the Environmental Agreement.

DDMI Response: *Diavik replied and apologized for the delay in responding, as the request came at a very busy time. To start with, Diavik gave six examples of how they support the clauses of the Environmental Agreement related to involving Aboriginal Peoples in environmental monitoring and technical training at the mine. Diavik then gave responses to each of the four recommendations from above that EMAB had requested they consider:*

(1) Diavik has determined that the small caribou monitoring camp is not appropriate for at least the following reasons:

- the caribou scans are being done adequately and with opportunities for training of Aboriginal people*
- Safety risks to workers would be increased*
- Diavik is not aware of other NWT mines that must comply with this type of request*

(2) Diavik has determined that the small caribou monitoring camp is not appropriate for at least the following reasons:

- Monitoring and reporting to communities is in the job descriptions of Diavik employees and contractors. This couldn't be a full time position, as caribou are in the area seasonally.*
- An additional position would not be cost effective due to duplication*
- Diavik is not aware of other NWT mines that must comply with this type of request*
- There are about 200 Aboriginal people from the communities employed by Diavik that can provide observations of caribou activity.*

(3) Diavik supports this recommendation and encourages all parties to report caribou information to Environment and Natural Resources (ENR).

(4) Diavik does not support the recommendation for consultation, as they do not support the recommendations for the reasons above.

Sept. 6

Communication: EMAB wrote to thank Diavik for correspondence which identified issues with the Community Based Monitoring camps. EMAB wished to meet with Diavik and continue to work on these issues to ensure future operation of the camp program.

DDMI Response: *Diavik (Environment and Safety representatives) made plans with EMAB to carry out a risk assessment for the camps.*

Sept. 20

Communication: EMAB wrote to thank Diavik for the recent meeting where the safety of participants in the Community Based Monitoring Camps was discussed. It is EMAB's understanding that the next step will be to identify 3 or 4 participants from EMAB and Diavik to do a team-based risk assessment so that planning can continue for safe continuation of the camps in 2007. EMAB requests that funding for EMAB participation come out of remaining funds in the

CBM camp program.

DDMI Response: *The risk assessment was carried out with representatives from EMAB and Diavik. Several issues were raised that will need to be resolved prior to next year's camps. Diavik agreed that funding for EMAB participation can come out of funds in the CBM camp program.*

Nov. 6

Communication: EMAB referred to Diavik's plan to work cooperatively with Environment and Natural Resources and Environment Canada on air quality monitoring, as well as the review that SENES Consultants did for EMAB. EMAB made three recommendations:

- (1) If Diavik is to keep using non-standard methods for dust monitoring, they need to show that they can keep the same accuracy as standard methods.
- (2) Diavik should clearly state (in their Dust Monitoring reports) whether dustfall is within levels that were originally predicted
- (3) Diavik should proceed with the air quality monitoring program it is proposing. Diavik should also state which pollutants that it will include in the program and should try to coordinate monitoring with the Ekati mine so that data can be compared.

DDMI Response: *Diavik requested that Golder Associates do a review of the appropriateness of the dustfall collection devices (traps) that are used in the program. Golder provided a letter to Diavik in early 2007 with their opinion, which was that "the sampling hardware deployed at DDMI for dustfall collection is appropriate for use at the Lac de Gras facility. It is also our opinion that the differences between the DDMI devices and those specified in both ASTM (2004) and Alberta Government (1993) are not significant enough to limit the establishment of a long-term dustfall trend at the Lac de Gras mine. Furthermore, changing the collection design "mid-stream" will lead to more uncertainty and inconsistency in the long-term record". This letter was attached to the 2006 Dust monitoring Report that was submitted with Diavik's Annual Water License Report. (This report also now states clearly whether dust is within levels originally predicted.) Diavik is purchasing a new Air Quality Station that will be similar to what Environment Canada and the GNWT are using in Yellowknife.*

Nov. 14

Communication: EMAB recognizes that Diavik is eager to resolve issues surrounding the Aquatic Effects Monitoring Program (AEMP) that were discussed in recent water license renewal hearings. EMAB looks forward to a draft Terms of Reference document that can be reviewed by all parties before the new AEMP is developed. Diavik should consider EMAB's Schedule 23, which shows many areas that Diavik should consider when developing the Terms of Reference. EMAB also requests that Diavik provide a plan for meeting the commitment (in the Environmental Agreement) to involve Aboriginal People in the design of the AEMP.

DDMI Response: *The draft Terms of Reference was supplied by the WLWB, and Diavik organized a workshop in the first quarter of 2007.*

Advanced Technology

During 2006, Diavik continued investigations into the following technologies.

Wind Energy

In 2004, Diavik had started investigating whether the wind could be used as a source of energy at the Lac de Gras mine site. Wind experts began work that continued in 2005, and in 2006 a wind tower was put up - however, it had to be taken down due to Nav Canada requirements. Later in 2006, changes were made at the Diavik airstrip that will allow the tower to be put up without interfering with air traffic. Activities in 2006 included getting ready to put the tower and instruments together. The current plan is to have the tower put up in early 2007, and begin collecting local wind conditions over the next year. This will provide a start to determining how we can use this power.

Haul Truck 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 done on using heaters to keep the engines warm without having to leave the trucks idling all the time.

In 2006, more trials were done. Using diesel-fired coolant heaters to keep the engine coolant and driver's cab warm when the engines weren't running burns four liters of fuel per hour, compared to idling which burns 40 to 60 liters per hour. It allows trucks to be shut down between 0 and -20 degrees Celsius. As a result of the project, Diavik is using the heaters for large 218-tonne and smaller 90-tonne haul trucks. - this will have the potential to save over one million liters of fuel each year. Greenhouse gas emissions would also be reduced.

Water Treatment Plant

In 2006, investigations were ongoing for new technologies for treating water at the North Inlet Water Treatment Plant. Technologies such as Snow Guns, Biological Treatment, and Air stripping were researched and will continue to be investigated.

Waste Disposal

Diavik had previously investigated new types of incinerators to burn waste at the mine site. The new 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. These incinerators were researched in 2006, and ordered in early 2007. Also in 2007, a new permanent waste management facility will be built at the mine site and will house these new units.



Rolling Effects Summary

This section of the report gives a summary of monitoring information and data from each year up to the present. These monitoring points are called measured indicators, which are compared to indicators that were described in the Environmental Assessment as predicted indicators that would either stay the same over time or would change over time to pre-calculated predicted levels. In some cases these indicators can be leading indicators or lagging indicators, depending on how Diavik is performing to these predictions.

Graphs and figures or tables 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?

EA Prediction

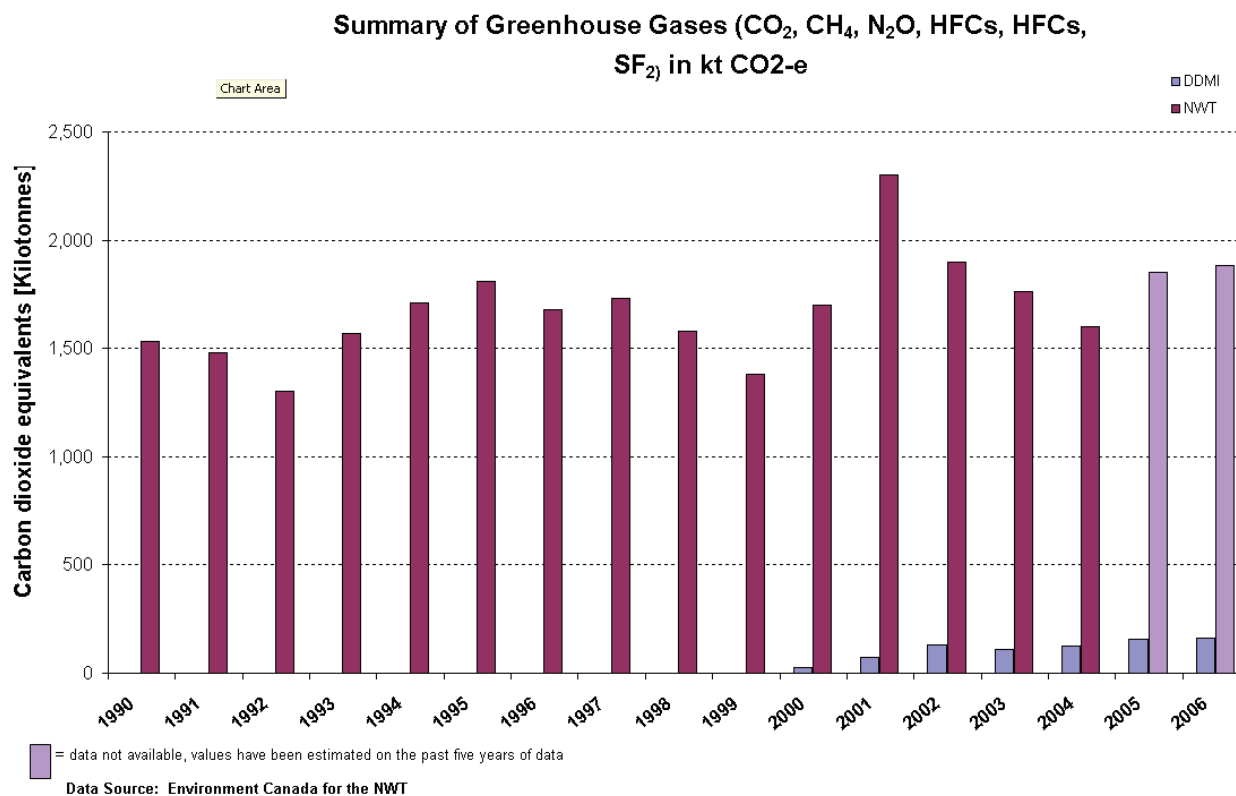
- Ambient air quality objectives and occupational health criteria will not be exceeded.
- The mine will be a very minor contributor of greenhouse gases.

Background...

“CO₂e” is an abbreviation of ‘carbon dioxide equivalent’. CO₂ 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 CO₂; this is the CO₂e referred to below.

Observations

- In 2006, testing was done to check levels of dust, silica, welding and metal fumes, and diesel particulate. There were some results that showed levels of silica and welding fumes in some work areas exceeded the occupational health criteria. Some other results (for diesel exhaust) were inconclusive and more monitoring will be done in 2007. Instances where results were above criteria were controlled by proper PPE use, specifically respiratory protection. Engineering controls are also being put into place with the redesign and building of our welding bay, as well as, dust suppression system upgrades in our crusher area.
- Total greenhouse gas emissions from Diavik in 2006 were 159,423 t CO₂e. See that graph on the next page for Diavik’s figures compared to the NWT.
- As predicted, dust deposits are greater closer to the mine and are less further away from the mine. The rate of dust being deposited is affected by activities in the area as well as by wind direction.
- For the second year, overall deposition rates observed during 2006 were more than what was predicted by models in the Environmental Effects Report. They were, however, lower than 2005 levels. The predictions were based on normal air quality at that time that the predictions were made and did not consider construction periods which increased during 2005/06. It is expected that dust will be less as construction slows down and ends. See the Dust Deposition Monitoring Program on p.10 for details on this program.



2. Vegetation and Terrain

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

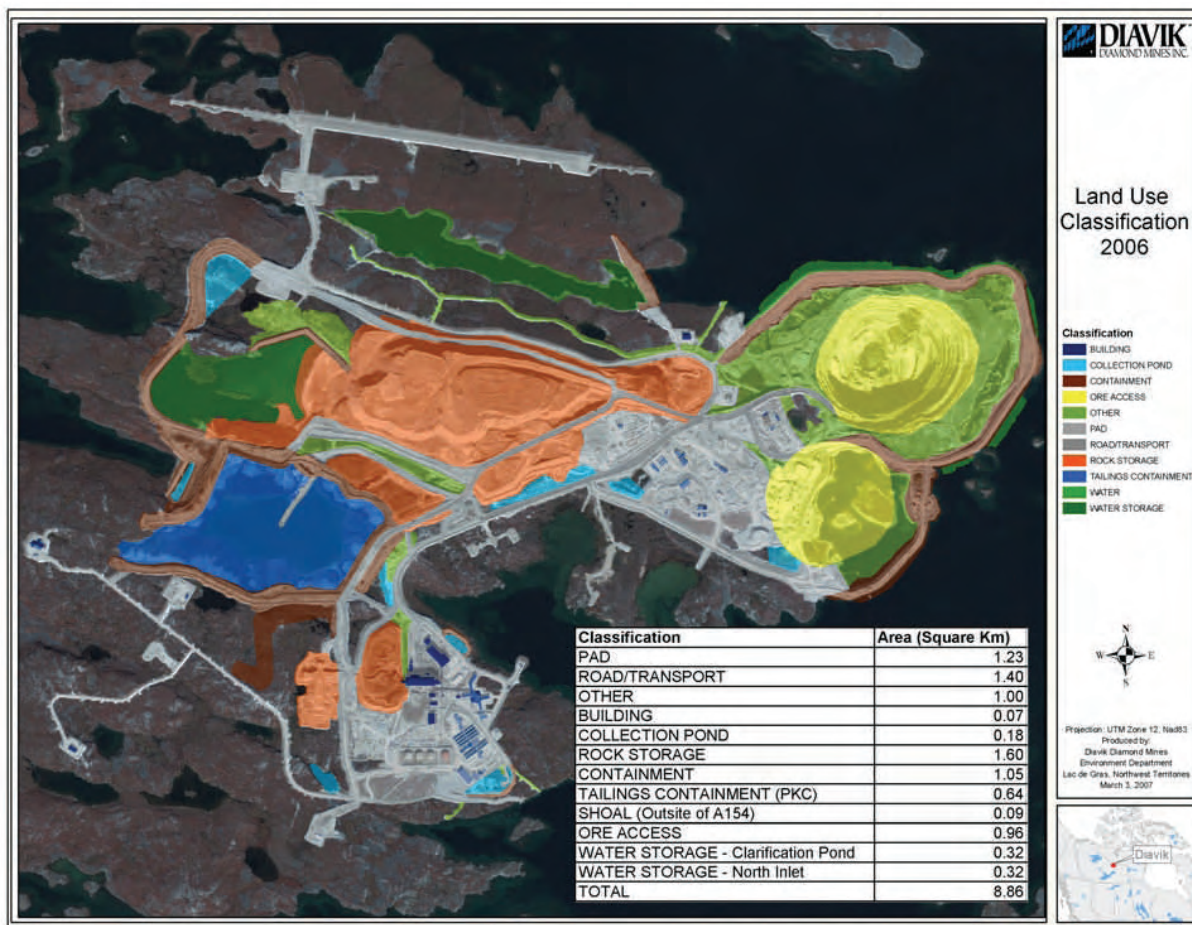
EA Prediction

- Approximately 12.67 km² of vegetation/land cover will be lost at full development.
- Slow recovery of vegetation following mine closure.

Observations

- The direct vegetation/habitat loss in 2006 due to the mine footprint was 0.71 km² and total habitat loss to date from mining activities is 8.86 km². This is within the predicted amount of 12.67 km². The map below shows the classification of disturbed land to date at the Diavik site. The table below shows the habitat lost to date (note - this shows a running total).

<i>Predicted vegetation habitat loss(km²)</i>	Up to 2001	2002	2003	2004	2005	2006
12.67	3.12	5.88	6.32	7.30	8.15	8.86



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 2001, ten Permanent Vegetation Plots (PVPs) were established by Diavik for analyzing habitat. In 2004, the University of Alberta assessed the data collection and made recommendations - including monitoring every two years, permanent marking of plots, and adding reference plots and plots in specific vegetation communities to balance the monitoring design. Most recommendations were accepted by Diavik and implemented for the 2006 assessment.

Plots were assessed 18 – 21 July 2006. In summary, There were no statistically significant differences in vegetation and ground cover between the mine and reference permanent vegetation plots. Species composition was similar between mine and reference plots for each of the three plant communities assessed. Vegetation and ground cover in heath tundra and tussock-

hummock communities on the mine site has not changed significantly between 2001 and 2006.

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 (ZOI) 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

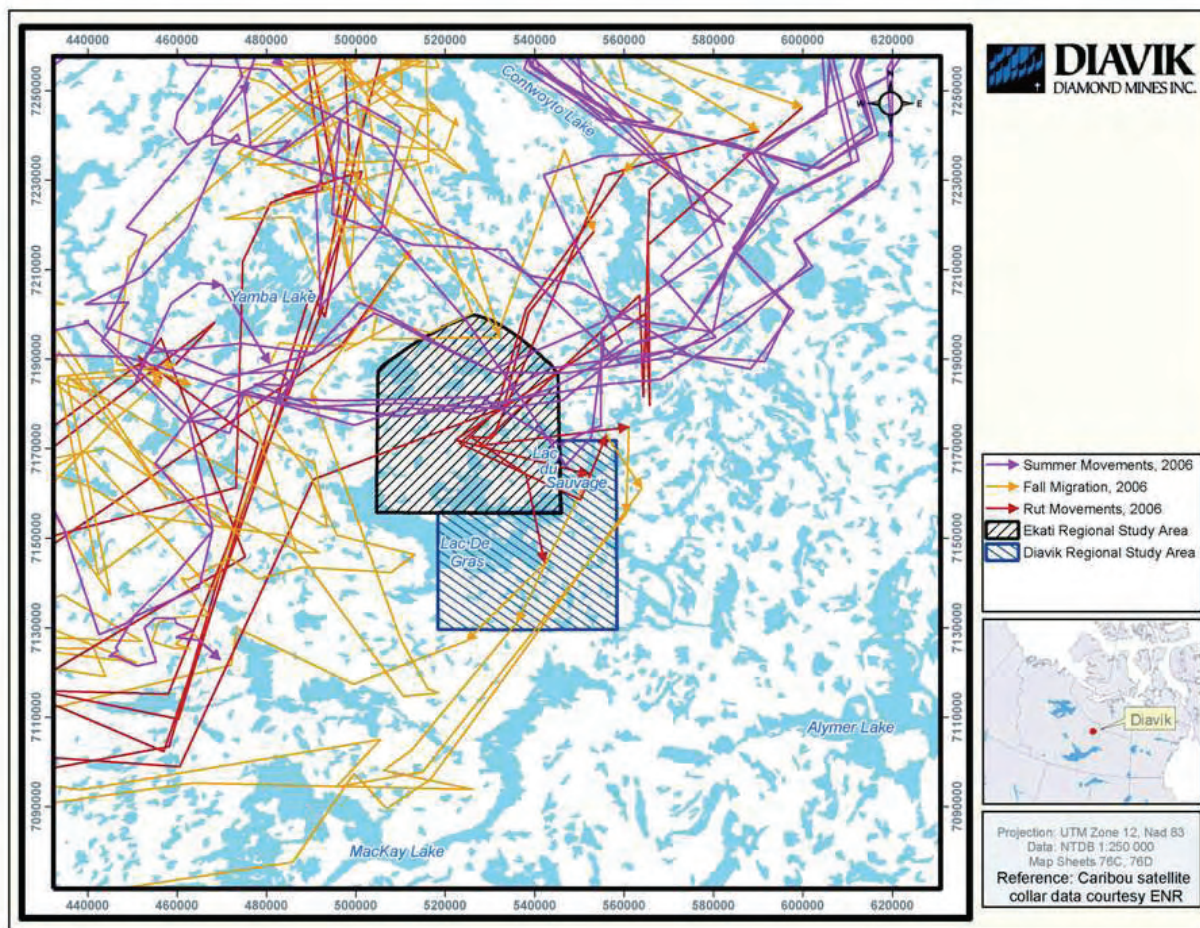
Observations

- Direct summer habitat loss in 2006 from the mine footprint was 0.15 habitat units, which brings the total to date to 2.12 HUs (see the table below). This is below the loss that was predicted.

<i>Predicted caribou habitat loss (HUs)</i>	2000	2001	2002	2003	2004	2005	2006	<i>Total lost to date</i>
2.97	0.39	0.59	0.28	0.15	0.32	0.23	0.15	2.12

- 14 caribou groups have been located within 3 km of the mine site during aerial surveys from 2002 through 2006. Five groups were observed during the northern migration and nine during the southern migration. The small number of groups observed within 3 km of the mine prevents statistical comparisons of point observations of caribou behaviour with groups greater than 3 km from the mine. For next year's 2008 Wildlife report, impact predictions relating to the zone of influence will be more fully tested through a full analysis of regional caribou data.
- The figure below shows movements of collared caribou in 2006. Results from 2006 caribou data showed a relationship between the distribution of caribou observed in the study area and the movement of satellite-collared animals. This information supports the prediction that caribou would travel east of the mine site during the southern migration. Data from satellite-collared caribou suggested that females in the Bathurst herd traveled east of the study during the 2006 northern migration.
- No caribou mortalities occurred due to the mine operating during 2006.

See the Wildlife Monitoring Report (p.25) 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 2006, 2005, 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 km² 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.

Observations

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

<i>Predicted grizzly habitat loss(km²)</i>	2000	2001	2002	2003	2004	2005	2006	<i>Total lost to date</i>
8.67	1.25	1.62	0.94	0.42	0.93	0.69	0.43	6.31

Grizzly bears are still found in the study area. The calculated mine mortality rate for grizzlies since 2000 is 0.14, which falls within the range predicted (one mortality occurred in 2004, out of the seven years). The range of mortality rates predicted is 0.12 to 0.24 bears per year.

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.

Observations

Spring track surveys showed an index of 0.03 wolverine signs (tracks and scat) per kilometer, which was lower than in 2003, 2004 and 2005. Snow conditions were good compared to the previous year, when poor conditions may have caused lower results. Winter track surveys had to be cancelled part way through in December, due to very poor and unsafe weather conditions.

Results from wolverine snow tracking surveys, aerial caribou observation and on-site incidental wolverine observations in 2006 provide evidence to suggest wolverine continue to be present and maintain active home ranges within the DDML wildlife study area. No mine-related wolverine mortality occurred in 2006.

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

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

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.

Observations

Six raptor nesting sites were each surveyed during 2006 - there was a spring occupancy survey conducted on June 5 and a productivity survey on July 24. During the spring survey, three of the sites were occupied. During the productivity survey, four sites were found occupied and two of these were productive. Productivity was similar to what had been recorded in the wildlife study area since 2000. During 2006, a 7 chicks were found at these sites, which made this the most successful year for production since data collection began in 2000.

Not included in the monitoring data above is a nesting pair of peregrine falcons in the A154 pit. Falcons were first confirmed to have nested on the west highwall of the pit in 2005. After discussing with ENR, no action was taken due to the risk of the peregrines moving to a higher risk area. Due to the location of the nest, it was unsafe to view the nest from above and difficult to see into the nest from below. Environment staff usually monitored the nest using binoculars or a spotting scope.

There were no raptor injuries or mortalities at the Diavik site during 2006.

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

EA Prediction

- At full development, 3.58 km² of aquatic habitat will be lost.
- The mine is not predicted to cause a measurable change in waterfowl presence in the study area.

Observations

By the end of 2006, a total of 2.51 km² of shallow and deep water habitat had been lost due to mine development since the beginning. Of this total, 0.28 km² was lost in 2006 - mostly as a result of construction of the A418 dike. The total is still below what was originally predicted.

Disturbance due to mine operation seems to be minimal with regards to impacts on waterfowl presence at the mine site. Four species of diving ducks and one species of shorebird identified in 2006 had not been recorded during past years. Some other species were identified as present in 2006 after four year absences. See p. 25 for more details from the Wildlife report.

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: Diavik conducted the Aquatic Effects Monitoring Program (AEMP) in 2006 as a requirement of the Water License. This was the sixth year of post-baseline aquatic effects monitoring and the fourth full year of monitoring (open-water and ice-cover) since the program was first approved in July 2001. The Wek'èezhii Land and Water Board (WLWB) asked Diavik to delay the full report on the 2006 AEMP data until technical issues with the AEMP design could be resolved. Instead, Diavik was asked to submit a data compilation report (summary tables and graphs). Therefore, 2006 (and 2005, when a data compilation report only was also prepared) results are not summarized here. They will be provided when the full 2006 report is prepared. Below are results from previous years for reference.

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.

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.

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 values 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?

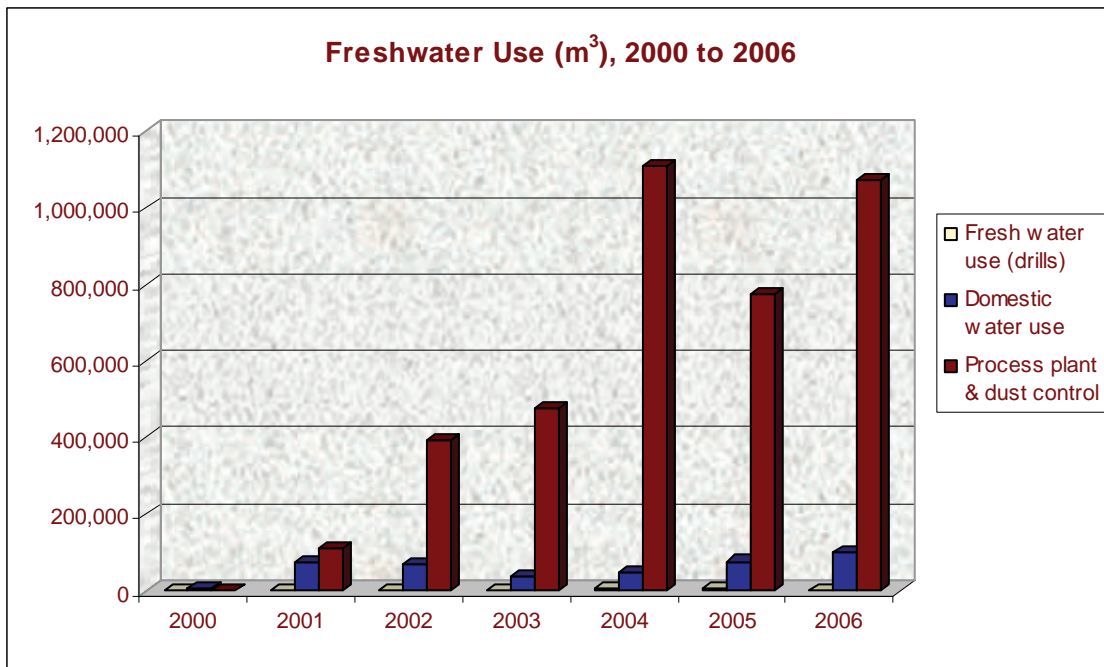
EA Prediction

- 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 2006, and what it was used for. 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.

Date	Water 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
May 25, 2006	415.47
June 24, 2006	415.60
Aug. 28, 2006	415.76



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 2006. Scientific testing for metals levels in fish tissue and organs that were caught during these camps were also as expected - the results showed no concerns. 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, to date, no effects on fish eggs have been seen. See p.19 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.



Summary of Compliance - 2006

As in past reports, a table is provided here with a summary of notes and requests made by the DIAND Inspector during inspections of the Diavik mine site during the year. Also listed are the responses or actions that Diavik took for each of the requests. In 2006, Diavik was in compliance with both the Land Lease and the Water License.

Inspection Date	Notes and Action Items Requested	Response
Jan. 25	A glycol spill was noted on the A418 dike. The inspector requested that it be cleaned up.	<i>The spill was cleaned up as per request.</i>
	An inspection of the waste transfer area showed some food containers with residue on them, and it was requested that food waste be stored indoors and incinerated as soon as possible.	<i>Waste to be incinerated is now stored in sea cans with closed doors and is incinerated as soon as possible.</i>
Feb. 27 & 28	Fuel tanks for the drills are contained by metal drip trays and have spill kits in case a spill happens. The inspector noticed that one drill appeared to have a leak in a fuel line.	<i>The fuel lines were in the process of being repaired and were being wrapped with absorbent pads. The Inspector was satisfied with the secondary containment.</i>
May 2 & 10	The Inspector requested that the liner under the Envirotank at the A21 underground area be fixed. The tank was empty at the time.	<i>The liner was investigated and found to be in good shape. The area of the liner that the inspector thought it was damaged was only folded on the corner of the containment area.</i>
	Hydrocarbon staining was noticed around the nozzle of the Envirotank within the lined berm at the LDGC work area.	<i>Cleanup of the spillage was started during the time of the inspection</i>
	The Inspector requested that priority be given to cleanup of drill holes for the A21 and A418 winter drilling program. Some of these drill pads had been left unclean with some hydrocarbon staining and drill cuttings. The Inspector stresses the importance of cleaning these drill holes when drilling is complete rather than the end of season.	<i>The holes were cleaned up. They were revisited at the May 10 Inspection and had all been cleaned to the Inspector's satisfaction.</i>
Dec. 20	The refueling nozzle for haul trucks was hanging over a pipe with no secondary containment. It appeared that the pail was crushed and needed to be replaced. Any contaminated snow in this area is to be collected for proper disposal.	<i>A new container was placed, and a nozzle insert was placed on the fuelling rack to hold the nozzle upright. The contaminated snow was cleaned up.</i>

Table 1: Environmental Monitoring Programs 2006

Program	Purpose of the Monitoring	Key 2006 Activities	Key Results
Dust Monitoring	Determine if environmental assessment (EA) predictions were accurate. To inform management when dust levels require management response.	<ul style="list-style-type: none"> Ongoing notification to Operations for dust suppression. The Dust Monitoring Program continued in 2006 with summer / winter dust sampling, in order to determine the extent of dust dispersion related to operations activities 	<ul style="list-style-type: none"> Dust suppression using water is effective for reducing dust during non-freezing periods Dust deposition rates are higher close to mine activities and were higher than EA predictions for 2006, but lower than 2005 levels
Meteorological Monitoring	Measure/detect meteorological trends. Determine influences on site water balance. Provide design and construction information to operations.	Measured: <ul style="list-style-type: none"> wind speed and direction temperature relative humidity precipitation – rain and snow incoming solar radiation evaporation rate 	<ul style="list-style-type: none"> Annual average temperature was -6.2 °C (up from -8.70 °C in 2005). Relative humidity averaged 77.9% Prevailing winds are mostly from the north and east Total annual precipitation was 413.2 mm (45.6% rain and 54.4% snow)
Water Quantity	Measure limits, sources and purpose of water consumption as established in water license.	<ul style="list-style-type: none"> All water used for consumption and operations is metered. PKC facility levels are monitored. All make-up water is measured. Completed an updated mine site water balance. 	<ul style="list-style-type: none"> Freshwater obtained from Lac de Gras for domestic water use for the accommodations complexes, south construction camps, maintenance shops, process plant, dust control around the site and other associated infrastructure totaled 1,174,650 m³ in 2006
Water Quality Compliance	Monitor effluent limits as required by water license.	<ul style="list-style-type: none"> Collected and analyzed samples in compliance with the water license at required SNP locations in 2006 	<ul style="list-style-type: none"> Results of monitoring are consistent with baseline data and compliant with water license requirements
Aquatic Effects	Collection of information to determine the short and long-term effects in the aquatic environment resulting from the project.	<ul style="list-style-type: none"> Samples collected at AEMP sites for water quality, phytoplankton biomass, zooplankton biomass, and sediment chemistry 	<ul style="list-style-type: none"> The full AEMP report will be written at a later date; for now, Diavik submitted a data compilation summary only, at the request of the Wek'èezhii Land and Water Board. Monitoring will continue.
Wildlife	Determine if predictions in environmental assessment are accurate. Assess the effectiveness of mitigation strategies.	<ul style="list-style-type: none"> Caribou monitoring for abundance and distribution Raptor and waterfowl monitoring Grizzly Bear habitat plot surveys for presence Wolverine track surveys and DNA study 	<ul style="list-style-type: none"> The number of caribou within the study area was higher during baseline (1996 to 1997) than from 2000 through 2006, especially during the southern migration. However, data from 2002 to 2006 (aerial surveys) show relatively constant numbers, with the exception of 2004 when approximately twice the number of animals were recorded. Raptors and waterfowl are still present and using habitat in the area of the mine. Diavik completed the second year of a population estimate for wolverines using DNA from hair samples. Track surveys show wolverines are still in the area. Grizzlies are still found in the area, and mortality rate is within what was predicted.
Wildlife Habitat (Vegetation loss)	Determine if environmental assessment predictions (linked to wildlife program) are accurate. Determine extent of loss of vegetation/habitat.	<ul style="list-style-type: none"> Surveyed extent of the mine footprint related to vegetation loss Vegetation plots were surveyed for population change and density 	<ul style="list-style-type: none"> Total vegetation/habitat loss in 2006 was 0.71 km², bringing the total lost to date to 8.86 km². This is within original Environmental Assessment predictions (12.67km²)
Fisheries	Fisheries authorization requirement. Establish additional baseline information. Initiate long-term monitoring programs and identify control sites. Test monitoring methodology. Test modeling predictions.	<ul style="list-style-type: none"> Community-Based Monitoring Camp for Fish Palatability was conducted in conjunction with EMAB in summer 2006 	<ul style="list-style-type: none"> Fish from Lac de Gras continue to taste good, as reported by community participants
Re-vegetation Test Plots Country Rock Test Piles	To establish research programs related to reclamation research. Information gathered from these programs will be used for closure.	<ul style="list-style-type: none"> Soil measurements were taken and vegetation assessments done in 2006. The next phase will include more test plots, monitoring and analysis of results Two of the three piles with instruments in them were completed in 2006, and the third pile was 90% completed. All instruments were put together and installed. 	<ul style="list-style-type: none"> Preliminary results are included earlier in this report, discussing metal levels in PK, the combination of PK:till being better for plants than PK or till alone, and benefits of sewage sludge and topsoil addition. Also - it's better to seed in spring than fall, and three particular species had higher growth densities than other species. No results yet at this stage. Work on the study will continue in 2007.

Table 2: Adaptive Environmental Management

	Performance/Compliance Expected	Adaptive Management	Mitigation Measures	Current Effectiveness of Measures Taken
Waste	Minimal waste management issues. Maintained dump site for inert waste materials.	<ul style="list-style-type: none"> All domestic and office wastes are incinerated at the waste transfer area Implemented the use of clear plastic bags in all areas of domestic and office space 	<ul style="list-style-type: none"> All employees and contractors are provided orientation on proper waste management. Color-coded garbage bins and posters for non-food waste around site Communication plan for 2007 starts off with a poster campaign on waste management and the “three R’s” Site Services implemented clear plastic bags in all domestic and office areas to allow staff to verify contents prior to disposal 	<p>During Inspector’s visits in 2006, there was only one concern raised with food waste at the waste transfer area and no issues at the landfill. For 2007, more comprehensive awareness sessions for employees/contractors will be given to emphasize waste separation / disposal and how it relates to wildlife.</p> <p>This measure helps to identify non-segregated waste within the two waste streams. There has been a reduction in non-segregated waste from the accommodations and office complex.</p>
Water	All effluent treated before discharge to Lac de Gras, or recycled. Ammonia levels in pit water within water license limits.	<ul style="list-style-type: none"> Channeled water away from the blast patterns, by cutting ditches along the high walls along the ramp. Channeled water from the A154N pipe to the A154S pipe. 	<ul style="list-style-type: none"> Followed water management procedures within the A154 pit. Reduced water contact with blast rock. Redirecting water along the high wall along the ramp towards the bottom sump, which reduces water contact with blast rock. Channeling of water from A154N to A154S pipe reduces water contact with blast rock on lower benches between the two pipes. 	Ammonia levels in 2006 were well below the license limit of 20 mg/L., with a maximum concentration of 4.94 mg/L in early spring.
Hazardous Materials	No significant spills or non-compliance issues.	<ul style="list-style-type: none"> All spills are reported, recorded and cleaned up. Alternative biodegradable products are encouraged. 	<ul style="list-style-type: none"> Orientation and specific training for employees and contractors handling hazardous materials All employees and contractors take WHMIS training Reduction in hazardous products on site 	A new chemical management system was purchased to control all chemicals on site, including an approval process for new chemicals which must meet HSE requirements. System to be implemented in 2007.
Wildlife	No wildlife-related compliance issues.	<ul style="list-style-type: none"> Caribou is herded away from the airstrip Bears are deflected away from the mine site Wildlife reporting system is in place site-wide, for other wildlife observations 	<ul style="list-style-type: none"> Orientation and environmental awareness training related to wildlife on site Caribou advisory updated daily Waste inspections conducted regularly Waste management system in place 	There were no wildlife-related compliance issues or incidents in 2006.
Dust	Isolated higher deposition levels due to construction activities.	<ul style="list-style-type: none"> Obtained approval for the use of a dust suppressant for the airstrip that is approved by both the Lands Inspector and Transport Canada 	<ul style="list-style-type: none"> Dust suppression using water during non-freezing periods, in crusher area and on haul roads 	Control of dust from crusher and roads. Dust suppressant was purchased and will be trialed on the airport’s taxiway and apron in 2007.
Greenhouse Gas Emissions	Performance as anticipated.	<ul style="list-style-type: none"> New waste incinerator was ordered and has pollution prevention devices on it to reduce the release of dioxins and furans, and particulate matter, from entering the air. 	<ul style="list-style-type: none"> Use of low sulphur fuels Boiler optimization program Initiative to install auxiliary engine heaters in large trucks to reduce idle time was continued and trials are ongoing 	DDMI is on target for reduction of greenhouse gas emissions that was set for 2008.