

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY



2016-17 ANNUAL REPORT

PLAIN LANGUAGE

TABLE OF CONTENTS



1
MESSAGE FROM THE CHAIR



2
MINING AT EKATI



4
HOW WE DO OUR WORK



7
WASTE ROCK



10
CLOSURE AND RECLAMATION



14
WATER AND FISH



18
AIR QUALITY



21
WILDLIFE



25
JAY EXPANSION PROJECT



29
REGIONAL MONITORING



31
TRADITIONAL KNOWLEDGE



34
HOW ARE THE REGULATORS DOING?



37
HOW IS DDEC DOING?

39 AGENCY RECOMMENDATIONS FOR 2016-17

41 GLOSSARY

INDEPEDENT ENVIRONMENTAL
MONITORING AGENCY
A PUBLIC WATCHDOG OF EKATI MINE



MESSAGE FROM THE CHAIR



AGENCY CHAIRPERSON: JAIDA OHOKANNOAK.

I am pleased to present the 2016-17 Annual Report of the Independent Environmental Monitoring Agency (the Agency). The report explains our activities. It makes recommendations to Dominion Diamond Ekati Corporation and regulators.

This year was another busy year for the Agency. Our major focus was the Jay Project regulatory process. We reviewed the Jay Project land use permit applications. We took part in the water licence process. This included technical meetings, making written comments, and speaking at the public hearing in Yellowknife in December. We also reviewed the draft water licence.

Another important activity this year was taking part in the Environmental Impact Review. The Environmental Impact Report compares the results of monitoring at Ekati Diamond Mine with predictions from the 1995 Environmental Impact Statement. The Agency reviewed the report. We took part in technical and public sessions. We were pleased to see an improvement over the last Environmental Impact Review, but suggested improvements for future reports.

The Agency also was part of the 3-Year Aquatic Effects Management Plan Re-evaluation.

We recommended ways to improve the Aquatic Effects Management Plan. We hired a consultant to help us review the Waste Rock Storage Area Closure Ecological Risk Assessment. This was a good starting point for talks about some of the uncertainties in reclaiming the rock piles and can be used to improve the next Interim Closure and Reclamation Plan and the research plans. We also took part in some workshops. We gave comments on plans for air quality and wildlife, aquatic response plans, and on the monitoring program reports.

There was a change in Directors at the end of the year. Doug Doan left the Agency and Ron Allen joined us. I would like to thank Doug for his contributions to the Agency and welcome Ron to the Board of Directors.

Over the next year the Agency will work to ensure that Ekati Diamond Mine continues good environmental practices. ■

Jaida Ohokannoak

May 31, 2017

MINING AT EKATI

Dominion Diamond Ekati Corporation (DDEC) is mining diamonds using large open pits and underground tunnels to remove the kimberlite rock that contains the diamonds.



1 LONG LAKE CONTAINMENT FACILITY

The Long Lake Containment Facility (tailings pond) holds the crushed wet kimberlite that remains after diamonds are removed. It is a lake divided into five sections (cells A to E) by dikes (rock walls) so the processed kimberlite can settle. Water is eventually released into lakes downstream when it is clean and pollutants are below the amounts set in the water licence.



2 MAIN CAMP

This area includes an accommodation building for hundreds of workers, a power plant, a truck shop and a processing plant where the diamonds are removed from the kimberlite.



3 WASTE ROCK PILES

Rock that does not contain diamonds is piled in layers up to 50 metres high.



4 INCINERATOR

The building where garbage is taken to be burned.

5 PIGEON PIT

Pigeon Pit is a relatively small pit, that is currently being actively mined. It is expected to be mined until 2020.



Satellite image 2010/BHP Billiton CANADA Inc.



6 BEARTOOTH PIT

DDEC has finished mining Beartooth Pit. The company currently stores water from underground mining in the pit. Beginning in 2012, DDEC has also used Beartooth Pit for processed kimberlite.



7 PANDA AND KOALA PITS

Open pit mining has finished here. Underground mining is finished at Panda, but is still happening at Koala. DDEC has built an underground tunnel (located between Panda and Koala pits) to provide access to the bottoms of the pits. A conveyor belt system takes the kimberlite rock to the processing plant.



8 PANDA DIVERSION CHANNEL AND PIGEON STREAM DIVERSION

The Panda Diversion Channel and Pigeon Stream Diversion are man-made streams diverting water that would otherwise flow into the pits. Fish, mostly grayling, use the new channels for travel and spawning. The Pigeon Stream Diversion was opened in 2014.



9 HAUL ROADS

DDEC has built all-weather roads to connect the pits to Main Camp. DDEC carefully applies chemicals to reduce dust on the roads. They apply to try to make sure that chemicals do not seep into the lakes and streams near the roads.



10 FOX PIT

This is the biggest pit at Ekati. Mining was finished in early 2015.



11 MISERY PIT

DDEC stopped mining the Misery Pit in 2005. Since then it has been pushed back and re-opened and is currently being mined. It is expected to remain open until 2019.

12 SABLE PIT

Infrastructure work including road construction, dewatering, and dyke construction has begun. Active mining is expected to begin by 2018 or 2019.

■ HOW WE DO OUR WORK

HIGHLIGHTS

- + Four Board Meetings. Annual general meeting. Community Information Session with North Slave Métis Alliance.
- + Took part in the Jay Project water licence process.
- + Review of the Environmental Impact Report and Aquatic Effects Monitoring Program Re-Evaluation.
- + Site visit to Ekati Mine.
- + Made a new video.

ACTIVITIES 2016-17

We had four board meetings in 2016-17. We had a Community Information Session for the North Slave Métis Alliance and the public. During this session, we talked about the mine's environment programs and the changes to the size of the mine. We are still concerned about how roads and other mine infrastructure may be barriers to wildlife. We are not sure this is managed well in the Wildlife Effects Monitoring Program and the Caribou Road Mitigation Plan.

We heard from the North Slave Métis Alliance that use of Traditional Knowledge in Dominion Diamond Ekati Corporation's (DDEC) environment programs is hard to measure. This comment agrees with our 2015-16 recommendations that DDEC show how Traditional Knowledge is used in their programs. People also wanted to know if we believe that DDEC welcomes our ideas. We said that DDEC seems to be trying to do a better job.

We had our annual general meeting in December. We approved changes to the Society Bylaws that govern the Agency's operations.

In January 2014, Indigenous and Northern Affairs Canada (INAC) said that it would seek a 'mutual release of Canada from all future rights and obligations it may have under the Environmental Agreement starting from April 1, 2014.' Later, after hearing from the Agency and others, INAC agreed to still be part of the Environmental Agreement, but in a smaller role. However, the agreement has not been changed yet.

In June 2016, Directors had their yearly visit to Ekati Diamond Mine. We saw Cell B of the Long Lake Containment Facility. We checked progress on planting and reclamation. A helicopter took

us to view the Sable Road work and the Sable Pit, Leslie Lake, and Beartooth Pit. We talked with DDEC staff about dust, the testing of the new dust prevention product EnviroKleen, and how TK is used in monitoring.

Directors would like to thank Doug Doan for his work with the Agency. His term ended March 31, 2017. We welcome Ron Allen to our Board of Directors.

TECH REVIEW AND INPUT

The Wek'èezhii Land and Water Board held a public hearing for the Jay Project water licence in December 2016. Closing remarks were in March 2017. The Minister of Environment and Natural Resources (ENR), Government of the Northwest Territories (GNWT) is expected to make a decision on the water licence by July 2017.

DDEC wrote a draft Environmental Impact Report which looks at all impacts on the environment at Ekati over the past 3 years and compares them to what was predicted in the 1995 Environmental Impact Statement. They held technical meetings in July and public workshops in October. The final Environmental Impact Report was then sent to the Minister of ENR, GNWT in November 2016. Our main concerns were how is Traditional Knowledge is recorded and used in plans and operations. We were also unhappy with the late delivery of the draft to reviewers. It did not give enough time to read the report.

A review of the Aquatic Effects Monitoring Program should be done every 3 years. It was delayed a year to wait for fish monitoring data. DDEC carries out programs and studies to find if changes in the water downstream are caused by the mine. We hired Michael Patterson, an aquatic ecologist, to look at how well DDEC monitors mine

"At a community visit to Behchokò in March 2016, we heard that a video about the Agency and Ekati mine was needed. We made a short video on who we are and what we do. It also shows some of the work at Ekati mine."

impacts on water and fish in lakes of the Ekati area. As a result, we were able to suggest how the Aquatic Effects Monitoring Program could be improved for water and fish monitoring. We also said the Wek'èezhii Land and Water Board should hold a workshop on changes needed to do monitoring. However, the workshop did not take place.

DDEC did major studies to find the impact of water seepage from rock piles on lakes and fish after the mine is closed. The seepage comes from the processed kimberlite and waste rock storage areas. We had help from our consultant Dr. Kevin Morin, a geoscientist and hydrologist from MDAG consulting. We looked at all the reported results. Overall, we said that DDEC should start to collect on-site data needed for the studies and it should repeat the seepage assessment in 2022.

OUR COMMUNICATIONS AND TEAMWORK

We usually hold an environmental workshop each year. Because the Environmental Impact Report was done in 2016 along with its workshops, we did not hold our own workshop.

At a community visit to Behchokò in March 2016, we heard that a video about the Agency and

Ekati mine was needed. We made a short video on who we are and what we do. It also shows some of the work at Ekati mine. The video will be available on our website in 2017. It will be translated later.

In 2013, we set up a Facebook account to tell the public about events and what we are working on. See [facebook.com/monitoringagency](https://www.facebook.com/monitoringagency). We also have a website at www.monitoringagency.net. We are working to make it even better in 2017.

Two Environmental Agreement Implementation Meetings are held each year. We attend along with the GNWT, INAC, and DDEC. These meetings help us all work together. They also give each of us a chance to update others on our work. We also report on finances and future plans.

At the Environmental Agreement Implementation Meeting in January 2017, we all agreed that two face-to-face meetings each year are not needed. A face-to-face meeting will still be held in June each year. This is the same time that we give recommendations in our annual report.

The Inter-Agency Coordinating Team did not meet in 2016-17. The Agency, government regulators and the company are on the Inter-Agency Coordinating Team. We should meet twice a year, including a site visit. We feel it would be good to revive this group. It helps with sharing information about the environmental management of Ekati mine. ■



AGENCY DIRECTORS AND STAFF IN DISCUSSION WITH DDEC STAFF.

WASTE ROCK

HIGHLIGHTS

- + Complete Environmental Risk Assessment of Waste Rock Storage Area Closure.
- + Permafrost is growing into waste rock storage areas.
- + The Fox and Coarse Processed Kimberlite Storage Areas are still mostly unfrozen.

PANDA/KOALA/BEARTOOTH WASTE ROCK STORAGE AREA (UPPER LEFT), BEARTOOTH PIT, AND UPPER PANDA LAKE FLOWING INTO THE PANDA DIVERSION CHANNEL.

WASTE ROCK STORAGE AREAS

Seepage Watch

In March 2017, Dominion Diamond Ekati Corporation (DDEC) issued the 2016 Waste Rock and Waste Rock Storage Area Seepage Survey Report. It explains the results of all past seepage annual reports.

PANDA-KOALA-BEARTOOTH WASTE ROCK STORAGE AREA (WRSA)

Monitoring of spring thaw shows that WRSA water seepage is diluted by snow melt. In the fall, seepage had higher levels of measured chemistry. Most of the Panda-Koala-Beartooth WRSA do not show leaking of chemicals from the rock. Where there is leaching, strengths of chemicals have increased since 2010.

MISERY WRSA

Rocks in the Misery WRSA in 2016 were sampled. They are potentially acid generating. DDEC believes that putting these potentially acid generating rocks into the rock piles along with granite, which does not form acid water, will stop any acid rock drainage.

FOX WRSA

Surveys of the Fox WRSA show rock fines and blasting residue in seepage water – more than allowed under the water licence. DDEC has promised in 2017 to try to find where the rock fines are coming from. Some samples show oxidation of sulphides in the rock. This makes heat that keeps part of the WRSA unfrozen.

PIGEON WRSA

In 2016, tests were done for the different rocks in the Pigeon WRSA to find any acid rock drainage. Most of the rock was okay. One seep at Pigeon WRSA showed some chemical leaching from waste rock.

“A reliable and accurate closure ecological risk assessment depends on the input and assumptions used. We are concerned that the closure seepage Ecological risk assessment results are based on poor data, simple models, and poor assumptions.”

COARSE PROCESSED KIMBERLITE STORAGE AREA (CPKSA)

One-fourth of samples from the CPKSA in 2016 show uncertain acid rock drainage. The report says that the material in the CPKSA can make any water seepage less acidic. Seeps from one corner show oxidation. Strong kimberlite leaching is taking place.

Thermal Monitoring

PANDA-KOALA-BEARTOOTH WRSA

Most of this WRSA is granite. Nine ground temperature cables were installed here between 2000 and 2002. They measure ground temperature and the rate of permafrost growth. The last readings were taken in November 2015. They show the WRSA is freezing.

MISERY WRSA

The Misery WRSA is currently in use. Four ground temperature cables were installed here in 2001 and 2002. No data is given from these cables due to damage. Two more ground temperature cables were installed in 2005. One is unusable after being buried under waste rock in 2014. Temperature readings from the last working ground temperature cable show the rock near the edge is frozen.

FOX WRSA

The Fox WRSA was used until 2014. About two-thirds of the WRSR is kimberlite with granite on top. The rest is waste kimberlite. Three ground temperature cables were installed at Fox WRSA seepage barrier at the bottom edge of the rock

pile in 2004, three in 2006 at the waste kimberlite and granite dumps, and five in 2015 inland. All ground temperature cables are working. Results from 2015 show that large inside parts of the WRSA are unfrozen. Temperatures reach almost 13°C. Ground temperature cables near the edges of the WRSA show they are frozen.

COARSE PROCESSED KIMBERLITE STORAGE AREA

The CPKSA is currently in use. Two ground temperature cables were placed in 2001. No ground temperatures are being taken. One ground temperature cable was destroyed in 2005. The other was buried on purpose in 2014. Readings from 2014 showed that 5 m below the surface was unfrozen. DDEC says that continued work on the area may be the reason for delayed freezing.

EXPANSION OF THE MISERY WASTE ROCK STORAGE AREA

In February 2017, the Wek'èezhii Land and Water Board approved a request from DDEC to change the design of Misery WRSA. This change allows storage of 1.07 million m³ (6.5 million barrels) more rocks by building a new bench. At closure, the extra rocks will be capped with granite. The new bench will increase the height of the WRSA to 65 m (213 feet) above the tundra from the currently allowed 50 m (164 feet). The size of the base will not change. The redesign request came because of an urgent operations need. Usually, mine planners would be expected to identify these needs well in advance.

RESEARCH

WRSA Risk Framework

The Wek'èezhii Land and Water Board reviewed the 2012 WRSA Seepage Survey Final Report. They told DDEC to do an Ecological Risk Assessment study for seepage from the WRSAs. The Ecological Risk Assessment was meant to find what impact seepage is having on water, land, wildlife, and fish.

DDEC sent in the Ecological Risk Assessment reports in 2015. There was a detailed review, including our input. The Wek'èezhii Land and Water Board decided that the reports are a good framework for more work. They told DDEC to do another Ecological Risk Assessment study for WRSA seepage after closure of Ekati Mine.

In 2016, DDEC did three studies on the predicted future:

- Temperatures of Panda-Koala-Beartooth, Misery, and Fox WRSA and CPKSA:
- Seepage water quality:
- Screening-level seepage closure ERA.

Thermal Conditions - Results

Each of the waste rock storage areas is expected to freeze over time, but permafrost will build at different rates. The waste rock storage areas are expected to stay frozen for at least 100 years under climate change.

Seepage Water Quality - Results

Seepage depends on several things:

- Where are waste rock and cover material placed?
- How wet are the piles?
- Are the cores of the waste rock storage areas frozen?

Ecological Risk Assessment - Results

Will exposure to seepage after mine closure be a health risk to wildlife and fish? The study found that any potential effects would be small and therefore ok.

OUR ASSESSMENT

WRSAs have different rock types. They are huge, tall structures. They will be standing on the Lac de Gras landscape long after mining has ended. In our opinion, managing waste rock and processed kimberlite is a very big challenge.

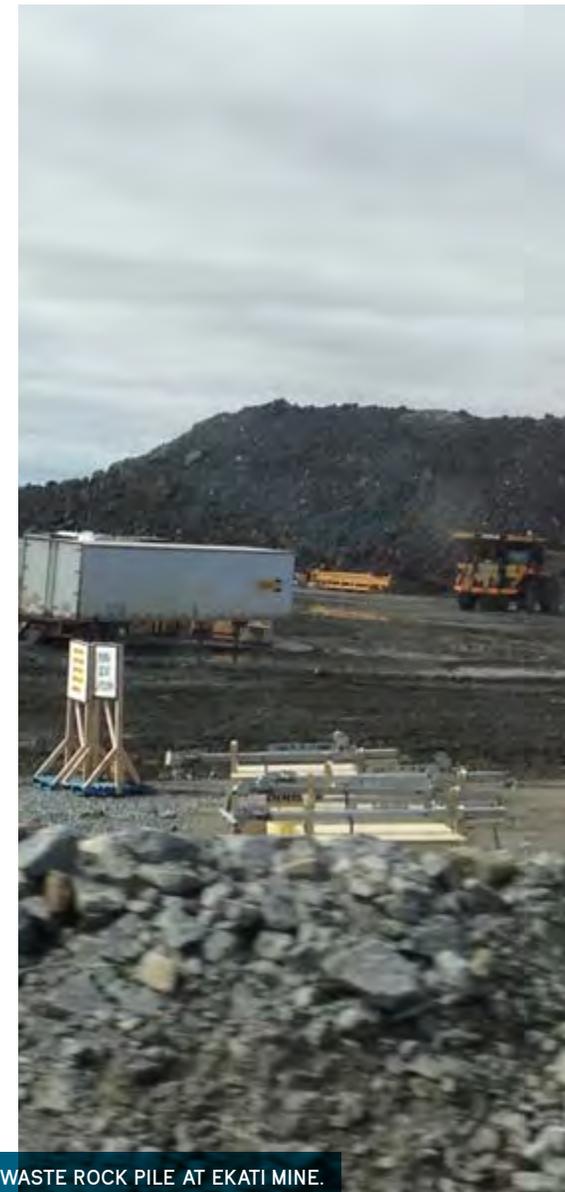
The programs to monitor ground temperatures are giving good information on the waste rock piles. However, we are still concerned by the lack of working ground temperature cables. We again urge DDEC to monitor temperatures in the Misery WRSA and CPKSA.

The high temperatures inside the Fox WRSA, and the presence of water, suggests there are unexpected things happening. This needs more study.

The three research studies are important. They give valuable data for WRSA closure planning. Despite their limits, the studies are expected to help with changes to the Interim Closure and Reclamation and Reclamation Research plans.

We believe that DDEC should focus work on gathering site-specific information. This will reduce the uncertain predictions for thermal and seepage water quality.

A reliable and accurate closure ecological risk assessment depends on the input and assumptions used. We are concerned that the closure seepage Ecological Risk Assessment results are based on poor data, simple models, and poor assumptions. The Agency is concerned that this could result in a lot of uncertainty in the risk assessment. Overall, the three research studies should be repeated in the future using good site-specific data. ■



WASTE ROCK PILE AT EKATI MINE.

CLOSURE AND RECLAMATION

HIGHLIGHTS

- + A timeline for the next Interim Closure and Reclamation Plan has not been set.
- + A way to return financial securities after reclamation is needed.
- + Delays in reclamation research are a serious concern.

CURRENT CLOSURE PLANNING

The Wek'èezhii Land and Water Board says Dominion Diamond Ekati Corporation (DDEC) must have an approved Interim Closure and Reclamation Plan in place during active mining. They must also report on and update the Interim Closure and Reclamation Plan. Reclamation is returning the mine site to a good state that fits a healthy environment and human use of the land and water.

The current plan is to flood the open pits and underground mines to create pit lakes. They are then joined with their watersheds. Ursula Lake, Upper Exeter Lake, and Lac de Gras are identified as potential water sources for flooding. It is expected to take about 35 years. Rock barriers will be built around the pits to keep wildlife away during flooding.

The six waste rock storage areas will stay in place after mining has stopped. They will be covered with granite or glacial till and plants will grow naturally. Their design has a stepped profile and a flat top. This stops snow build-up and helps with permafrost over the long term.

Processed kimberlite tailings in the Long Lake Containment Facility will be re-shaped. It will be capped with rocks and plants. It will link to the watershed by drainage channels and ponds. All dikes and dams within the Long Lake Containment Facility will be broken at closure to allow water to flow through.

The Panda Dam will still send water through the Panda Diversion Channel. It will have a spillway to allow extra water to flow to pit lakes. The Pigeon Stream Diversion will also stay in place to allow water to flow from the Upper Pigeon Stream to Fay Bay.

1 RECOMMENDATION

The Government of the Northwest Territories, in cooperation with the Wek'èezhii Land and Water Board, develop written policies, guidelines, or directives to standardize the process for determining whether, and what portion, of security should be held back for future liabilities upon completion of reclamation activities.

2 RECOMMENDATION

The Government of the Northwest Territories, in cooperation with the Wek'èezhii Land and Water Board, develop written policies, guidelines, or directives to standardize the process for determining the application, consideration and approval of staged closure and reclamation securities.

All structures will be removed and either buried in a landfill or shipped away. Roads, lay down pads, and the airstrip will stay. They will be made safe for people and wildlife to use.

CHANGES TO CLOSURE PLANNING AND FINANCIAL SECURITY

The total financial security needed at any time during the life of Ekati mine should be equal to the total expected cost of reclamation. The Wek'èezhii Land and Water Board met in May 2016 to consider changes to the mine closure and reclamation cost estimates of DDEC. The changes resulted in a new security under Ekati's water licence of \$257 million. This is \$3 million less than

earlier amounts. When combined with a security of almost \$20 million under the Environmental Agreement and \$427,000 under the Pigeon land use permit, the total security held by the GNWT for Ekati Mine now exceeds \$277 million.

The Wek'èezhii Land and Water Board also gave instructions to DDEC about reclamation planning and research activities.

Return of Securities after Progressive Reclamation

Because of DDEC's efforts to complete some reclamation work on the Panda Diversion Channel, the Wek'èezhii Land and Water Board gave back part of the security held for its reclamation. They kept \$657,000 for other risks. This is the first time the Wek'èezhii Land and Water Board has been

asked to consider how much security should be given back to DDEC after reclamation work at Ekati is done.

Reclamation Research Schedule

We are still concerned that research needed to better plan reclamation continues to slip behind schedule. Some are late by many years. The Wek'èezhii Land and Water Board seems to share our concern. After its May 2016 meeting, they told DDEC to submit a new schedule with end dates for all reclamation research. This was to be a single, full timeline for completing reclamation research tasks. We believe DDEC's response to the Wek'èezhii Land and Water Board was not good enough. They told the Wek'èezhii Land and Water Board to look at the 2015 Closure and Reclamation Progress Report for the best dates.

Updated Interim Closure and Reclamation Plan

Closure planning is expected to change a lot because of the Jay Project. So, an update of the Interim Closure and Reclamation Plan is delayed. Many people think that one up-to-date Interim Closure and Reclamation Plan with all major changes is needed.

In December 2016, DDEC asked for changes to security amounts:

- Misery rock pile exposed areas (increase of \$1,497 million):
- Rip up and plant disturbed areas (increase of \$204,000):
- Fuel tank decontamination costs (increase of \$47,000): and
- Return of Panda Diversion Channel risk security (decrease of \$597,000).

If approved, these changes would result in a decrease of \$1.15 million to the security held under the water licence. This request has not yet been considered by the Wek'èezhii Land and Water Board.

RECLAMATION ACTIVITIES IN 2016

Old Camp

Due to the process plant fire in June, resources were not available to do reclamation work at Old Camp. It is unclear when the rest of the work will be finished.

Water samples were taken in 2016 in the Phase 1 North Pond ditches that collect and drain water from Old Camp to Larry Lake. All samples were within standards set by Ekati's water licence, except for total arsenic and dissolved aluminum, which were greater.

Panda Diversion Channel Reclamation Monitoring

An engineering inspection of the Panda Diversion Channel looked for settlement, seepage or cracking. It was done in August 2016. According to the report, the Panda Diversion Channel is doing a good job. Maintenance issues are expected to be minor.

Saving Topsoil

Topsoil was saved from the Misery crusher pad and Sable Road. It will be used in reclamation work.



A DRAINAGE CHANNEL IN THE LONG LAKE CONTAINMENT FACILITY UNDERGOING RECLAMATION ACTIVITIES.

RECLAMATION RESEARCH AND PLANNING

Reclamation research at Ekati mine is done in seven areas: pit lakes: underground: waste rock storage: processed kimberlite storage: dams, dikes and channels: buildings: and site-wide use of plants. Research is also performed using Traditional Knowledge. Planning includes rules for determining successful closure. The research plan has 24 projects.

Research planning is constantly changing. We expect DDEC to start and complete the approved tasks on time.

Research on Schedule

CLOSURE SEEPAGE ECOLOGICAL RISK ASSESSMENT

DDEC was asked to determine the risk from Waste Rock Storage Area seepage when the mine is closed. DDEC gave the results to the Wek'èezhii Land and Water Board during 2016. Here are some study conclusions:

- Thermal Modelling - the Waste Rock Storage Areas will stay frozen for at least 100 years:
- Water Quality Modelling - seepage from the Waste Rock Storage Areas depends on placement of waste rock and cover material, water in the piles, rain and snow rates, and if cores of the Waste Rock Storage Areas stay frozen:
- Ecological Risk Assessment – except for sulphate, seepage quality at mine closure will not pose a bad risk to wildlife and fish.

We commend DDEC for doing the risk assessment. However, we have questions about the findings.

LONG LAKE CONTAINMENT FACILITY RECLAMATION

Planting tests continued in Cell B of the Long Lake Containment Facility. DDEC watched native plant species. Here are the questions we had about the findings:

- Can organic matter from Ekati composter be improved?
- What happens when processed kimberlite is exposed to weather?
- How stable is extra-fine processed kimberlite?

BEARTOOTH PIT WATER QUALITY

Studies in 2016 found there is good settlement of processed kimberlite in Beartooth Pit. The water above forms layers so that the top part of the water can be released into the environment.

Closure and Reclamation Research Slippage

We note that many of the scheduled tasks are still on hold. DDEC blames the changes from the Jay Project and the Interim Closure and Reclamation Plan update. We are still concerned that tests to solve major problems about reclamation are late. Some are late by many years.

OUR ASSESSMENT

The Wek'èezhii Land and Water Board's review of the Interim Closure and Reclamation Plan Annual Progress Report continues to be well done. We take special note of the board's decision to change Schedule 2 of the water licence. This reflects a \$3 million decrease in financial security. It includes a holdback of \$657,000 for the Panda Diversion Channel. DDEC's overall closure and reclamation actions are encouraging. However, the

"We view the continued delays in reclamation research as a very serious problem."

legacy of mining projects in the North shows that environmental liabilities should never be greater than financial security companies have to leave with the government.

In order to follow NWT Mine Closure Guidelines, the Ekati Interim Closure Reclamation Plan should be updated every three to five years. The current Interim Closure and Reclamation Plan was approved six years ago. Since then, more Ekati pits have started and changes have been made to closure goals. We believe these changes are big enough to need an update of the document. We look forward to this matter being cleared up in 2017.

We view the continued delays in reclamation research as a very serious problem. We believe other agencies and communities share this concern. We believe that the clarity sought by the Wek'èezhii Land and Water Board has not been answered by DDEC's simple responses.

For the first time, the Wek'èezhii Land and Water Board was asked to return security after some reclamation work at Ekati. Neither the Government of the Northwest Territories nor the Wek'èezhii Land and Water Board have a written policy or guideline for deciding if, and what part, of the security should be held back for future costs. We believe this matter will be more important as the mine gets closer to ending.

We know there were challenges caused by the process plant fire. However, we are sorry that the Old Camp reclamation work was put off. We now look forward to DDEC making a new schedule for tasks approved under the Old Camp Closure and Reclamation Plan. ■

WATER AND FISH

HIGHLIGHTS

- + Aquatic Response Plans now in place.
- + Three-year Aquatic Effects Monitoring Program Re-evaluation has been completed.
- + Dominion Diamond Ekati Corporation showed progress in assessing changes through the Aquatic Ecology Synthesis.

There are three watersheds which may be altered by the mine operation. Lakes and streams in these three are sampled each year under the Aquatic Effects Monitoring Program. Using numbers from the AEMP, any changes in water and the life in them can be seen.

The three-year AEMP Re-evaluation was released in 2016. It lets reviewers recommend ways to improve the AEMP.

MAJOR ACTIVITIES 2016-17

Processed kimberlite, sewage and sump water were still discharged into the Long Lake Containment Facility. Process plant slurry (2.6 million cubic meters=15.8 barrels) was pumped to the Beartooth Pit. More than 15.5 million cubic meters of waste was released from the Long Lake Containment Facility from October to December 2015 and May to October 2016. It enters the Koala watershed through Leslie Lake and was diluted as it flowed downstream. The Long Lake Containment Facility waste was the main source of possible water pollution from Ekati Mine.

A second source of possible water contamination is waste discharged from Misery and Lynx pits. Water from King Pond Settling Facility was pumped into Cujo Lake in October 2015 and September 2016.

AEMP MONITORING RESULTS

Each year, DDEC reports the results of its AEMP to the Wek'èezhii Land and Water Board. It also gives highlights in its Environmental Agreement and Water Licence Annual Report.

SUMMARY OF WATER QUALITY RESULTS

The AEMP suggests that changes in water quality still come from the discharge of Ekati waste. Amounts of all water quality values are still above levels found in other lakes. In general, the amount of change is less as water flows farther away from the mine.

Koala and King-Cujo Watersheds

Dissolved oxygen in the water under-ice was too low for fish to breathe in Leslie and Moose lakes. DDEC believes this might be caused by the mine. On the other hand, low oxygen in Cujo Lake is due to natural causes.

Potassium is still high. The average under-ice was below the amount from 2013 to 2015 in Leslie and Moose lakes.

Selenium amounts in Leslie and Moose lakes are still rising in August.

Iron amounts under-ice spiked above guidelines in Kodiak Lake. Zinc spiked above guidelines at one Lac de Gras station. Fluoride rose above the under-ice guidelines in Cujo Lake. These three spikes are not explained by DDEC and the Agency would like further explanation on the spikes. They are measured and graphed, but not evaluated.

Metal and nutrient increases in Cujo Lake sped up in 2016. The metals spiked to new high amounts. Metals spiked due to more input from Misery Pit. The nutrient spike was blamed on water with high nitrate amounts. This water was pumped by mistake. There was an error in figuring out the permitted amount of the nitrate for the wrong lake.

Pigeon-Fay Watershed

Since the 2008 spill of processed kimberlite, Fay Bay has had high amounts of many chemicals. Also, in 2016 the density of tiny water plants (e.g., algae) in Fay Bay increased.

AQUATIC RESPONSE FRAMEWORK

The Aquatic Response Framework is an early warning system. It alerts DDEC and regulators when an item downstream of the mine nears an alarming level. In the Aquatic Response Framework for 2016, DDEC made new or revised response plans to fix water quality items. A response plan for fish was sent in April 2016. A changed response plan for water plants and lake bed communities was sent in March 2017. There are now eight response plans for water quality and living things.

Low action levels for chloride and phosphate-P seen in 2015 did not continue into 2016. DDEC promised to watch and evaluate these chemicals.

AEMP RE-EVALUATION

The AEMP is checked every 3 years. They update AEMP sampling and study methods. They make sure the program is working.

The Wek'èezhii Land and Water Board delayed the AEMP Re-evaluation Report a year. They wanted the fish data collected every three years to be used. In the report DDEC asked for 33 changes to the AEMP and Response Plans. Most were approved by the Wek'èezhii Land and Water Board.

To better monitor cumulative effects on Lac de Gras from Ekati and Diavik mines, using the same

methods is very important. So, DDEC agreed to match laboratory detection limits for chemicals with those of Diavik Diamond Mine. The report also talked about why plants and animals in the lakes are changing.

Aquatic Ecology Synthesis

The Aquatic Ecology Synthesis finds what drives changes in lakes downstream of the Long Lake Containment Facility. DDEC gave the results of the synthesis at a workshop in June 2016. The study found that nutrients, mainly nitrate, may play a big role in the changes. After 20 years of mining, changes are only at the bottom of the food web, not yet reaching fish. Changes are getting stable over time.

Sable AEMP

In April 2016, the Wek'èezhii Land and Water Board told DDEC to update the proposed Sable AEMP. A new version was sent in September 2016. Reviewers found gaps in the baseline data. They didn't think the measures would find real changes downstream of Sable Pit. The Wek'èezhii Land and Water Board agreed with the Agency and others that building a better baseline of environmental information in lakes is needed before construction.



DISCHARGE FROM LONG LAKE
CONTAINMENT FACILITY INTO LESLIE LAKE.

Table 1: Variables that exceeded low action levels in 2016.

| VARIABLE | KOALA WATERSHED | KING-CUJO WATERSHED | ACTION LEVEL RESPONSES BY DDEC |
|-----------------|-----------------------|---------------------|---|
| Dissolve Oxygen | Kodiak, Leslie | Cujo | Measure every 2 weeks. Clear snow from ice surface to encourage oxygen. |
| Potassium | Leslie, Moose | | Compare the Koala Watershed computer model with the potassium amounts measured in 2016-17. Write a new Potassium Response Plan. Include improvement options. |
| Nitrate | | Cujo - under ice | Continue nitrogen management. Check on the standard for nitrite. Write a new response plan. |
| Nitrite | | Cujo - open water | Continue nitrogen management. Check on the standard for nitrite. Write a new response plan. |
| Selenium | | Cujo - under ice | Read papers on selenium toxicity. Write a new Selenium Response Plan. Include medium and high action levels. Test the concentrations for selenium in fish tissue, which is the best measure of selenium toxicity. |
| Tiny Plants | Kodiak, Leslie, Moose | | Watch nitrogen and phosphate-P. They affect tiny plants. Write Phosphate-P and Nitrogen Response Plans. Do an Aquatic Ecology Synthesis study to better understand the changes. |
| Tiny Bugs | Leslie, Moose | | Define medium and high action levels. Do an Aquatic Ecology Synthesis study to better understand changes to the living things in lakes. |

OUR ASSESSMENT

We commend DDEC for raising the bar in monitoring water life at Ekati through the Aquatic Ecology Synthesis. The progress of response plans is also welcome.

If amounts of fluoride, iron, or zinc continue to be near the government guidelines in Koala or King-Cujo watersheds in 2017, we recommend that these values become statistically evaluated variables. Then they would be discussed in more detail in the 2017 AEMP.

In a September 2016 letter, we made recommendations to the Wek'èezhii Land and Water Board to improve the AEMP. These recommendations were accepted, and are as follows:

- Change sediment sampling to use K-B corers instead of the metal grabs used now:
- Monitor stations S5 and S6 in the northwest arm of Lac de Gras:
- Conduct stable isotope analysis (a lab-based way of telling what a fish has eaten for a period of years) in future years if fish are badly affected by mining; and
- Watch for parasites in whitefish beginning in 2018.

These changes in monitoring methods will better track changes to the lakebed, fish health and water quality in and around Lac de Gras. ■

AIR QUALITY

HIGHLIGHTS

- + Results from the 2016 dust study show EnviroKleen is good at reducing dust on roads.
- + Incinerator stack tests were well below emissions standards.
- + The Government of the Northwest Territories began to write air regulations.

ACTIVITIES 2016-17

The Ekati Air Quality Monitoring Program (AQMP) has these parts:

- Monitor weather (every day):
- Air emissions and greenhouse gas numbers (each year):
- Measure Total Suspended Particulate. Use high volume air sampling and Partisol Samplers (every six days):
- Monitor air pollution all the time:
- Monitor dust in the summer:
- Sample snow chemistry (every three years): and
- Sample lichen (every three years).

The AQMP results are reported every three years. The next one is expected in 2017.



SORTED WASTE PREPARED FOR THE INCINERATOR.

Keeping Dust Down

The road dust program at Ekati Mine includes the use of DL-10 on the roads and EK-35 on the airstrip. The Agency and others have often raised concerns about fine dust on plants. How does this affect the plants and the caribou that eat them? The Mackenzie Valley Environmental Impact Review Board's did a Report of Environmental Assessment for the Jay Project. It said that the Jay Project should 'be designed and operated in a manner that reduces impacts to caribou particularly from roads and dust.' Dominion Diamond Ekati Corporation (DDEC) has now done trial studies looking at ways to reduce dust.

In 2015, DDEC did a small pilot study on the Misery Road using EnviroKleen. This study showed good results. In 2016 the study area was bigger, and showed less dust during the summer after use of EnviroKleen. They also say that EnviroKleen does a better job after a second year of use.

Air Quality Emissions Monitoring and Mitigation Plan (AQEMMP)

In 2016, we reviewed the AQEMMP for the Jay Project. In September, we took part in a workshop to review changes made to the plan. DDEC will now be checking air quality during both construction and mining of the Jay Project. Passive air samplers will be placed in some places. There will be also be a full-time air monitor station at the Jay Pit. The information will be checked weekly. Limits and triggers have been set. In response to our comment, DDEC agreed to include limits and action levels for the dust objectives, that the Government of the Northwest Territories is developing. DDEC has also promised to combine their original Air Quality Monitoring Plan with the Jay Project AQEMMP within the next 6-12 months.

Incinerator Air Emissions

In 2016, DDEC did stack testing on the incinerators to see how well they were working. DDEC reports that the 2016 results were well below Canadian government standards for mercury and dioxins and furans from smokestacks. We look forward to reviewing the results report.

The Mackenzie Valley Environmental Impact Review Board's Report of Environmental Assessment suggested that DDEC look at having more all-the-time monitoring of incinerator emissions. The findings would be reported within one year. We look forward to seeing these results soon.

Air Regulations

As part of the Jay Project review, we recommended that the Government of the Northwest Territories develop rules for air quality in the Northwest Territories. We are pleased to report that in June 2016, the Government of the Northwest Territories announced they are developing new air regulations for the Northwest Territories.

The Agency was asked to review the proposed Air Regulatory Framework. We also took part in an information session. We supported the main ideas of the framework. However, we gave some technical recommendations which included the need for adding air quality to those environmental protections addressed by impact review boards and the regional land and water boards.

OUR ASSESSMENT

We have a long-standing interest in air quality and dust at Ekati. We have pressed DDEC for years to research ways to reduce dust. We are pleased to learn that the 2016 dust study showed good results. We are glad that DDEC plans to use EnviroKleen on the Misery Haul Road. We look forward to the full report. We urge DDEC to write a dust management best practices paper to give clear guidelines for using dust suppressants on their roads.

We see that DDEC has made major progress in air quality at Ekati in recent years. DDEC has promised to put limits on air pollution into the current program. However, there has been no progress on determining what amount of dust is permitted before action is needed to reduce it.

We commend the GNWT for starting to develop new rules under the *NWT Environmental Protection Act* for air quality. The devolution of land and water management from Canada in 2014 has given the Government of the Northwest Territories a chance to fill this gap in environment rules. We look forward to taking part in this process. We also look forward to talks on an interim dust objective.



INCINERATOR BUILDING.

HIGHLIGHTS

- + Observers saw more than 25,000 caribou at the Ekati mine. This is the highest number in recent years.
- + The Agency reviewed the updated Wildlife Plan and Caribou Road Plan.
- + Dominion Diamond Ekati Corporation stated that the 2014 and 2015 camera studies show no sign of roads that kept caribou from crossing. Sample size of deflected caribou was limited.

ACTIVITIES 2016-17

Dominion Diamond Ekati Corporation's (DDEC) Wildlife Effects Monitoring Program tells about how wildlife reacts to mine activity. It also reports how the mine is reducing harm to animals. The 2016 Wildlife Effects Monitoring Program focuses on the animals of greatest interest including caribou, grizzly bear, wolves, wolverine, foxes, raptors and breeding birds and where they live. The program includes incident reports and sightings, surveys, and remote cameras. Wildlife monitors did wildlife surveys along the Misery Road power line, which became fully operational in mid-September 2016.

Size of Ekati Mine

During 2016, more animal habitat (126 hectares) was disturbed at Ekati. This was due to mine development. The total amount of habitat loss caused by the project since 1997 is now 3,525 ha (35 km²). This includes 136 km of road.

Waste Management

DDEC continues trying to improve waste management and reduce attractants at landfills, to reduce wildlife incidents, and to discourage wildlife from areas of danger (e.g., airstrip, high traffic areas). Although DDEC has two waste management Team Leaders and a full-time waste consultant, getting employees to use good waste disposal at the mine has been difficult. In 2016, DDEC seemed to be making progress. It's too bad wildlife seen at the landfill was about the same as other years.

Wildlife Accidents and Deaths

Wildlife incidents involve interaction between wildlife and humans or infrastructure. There were 19 wildlife events with humans or mine infrastructure reported at Ekati. This included grizzly bear (nine), fox (six), and birds (two). The number in 2016 is higher than those from 2011 to 2015 (6-15 each year).

Eleven vehicle-related wildlife deaths were reported in 2016. None of these involved big animals. Two waterfowl and a loon were killed during fish projects. No caribou have died because of mine activities in recent years.

Misery Power Line

In 2016, wildlife monitors did wildlife surveys almost every day while the power line was being built. Observers saw more than 900 caribou in about 40 groups, mostly near the Misery end of the power line. No caribou or other animals showed avoidance of the power line due to construction or operation. No changes to the road and construction activities or short closures of the local road access were needed.

Caribou

The draft Caribou Road Mitigation Plan was in use for all roads at Ekati during 2016. There were 24 reports of caribou near roads. Those called

WILDLIFE EFFECTS MONITORING PLAN AND THE CARIBOU ROAD MITIGATION PLAN

We reviewed Dominion Diamond's December 2016 revision of the Wildlife Effects Monitoring Plan and the Caribou Road Mitigation Plan. We recommended that the GNWT not approve either plan. DDEC did not make changes for 75% of the nearly 100 recommendations. Few changes were made by DDEC to lessen the impact of the mine on wildlife, especially Bathurst and Beverly/Ahiak caribou. Noise and vibration problems are poorly addressed. Many questions remain unsolved: How do these impact the caribou zone of influence? Are the mitigation measures working? Measures of impacts to caribou are poorly linked with adaptive management. There are no ways given to test the success of caribou crossings. How will failed crossings be determined? As of this writing, updated (March 2017) versions of both plans have been developed by DDEC, but the Agency has asked for more changes.

for lower speeds or stopping traffic. DDEC lost 200-300 man-hours of work during Sable Road construction due to caribou within 100m of the road.

Caribou monitoring for 2016 included:

- Analysis of number and location of collared cows:
- Caribou sightings – 25,225 seen, a high number:
- How caribou behave: and
- Long Lake Containment Facility monitoring and camera monitoring.

Caribou seen at the mine have declined since 2009 but in 2016, sightings rose to 25,225, the highest number since the recording of mine sightings began in 2006. There were only 10 caribou during spring migration, usually a time when more caribou pass through the mine. Observers saw about 4,750 caribou in summer and 1,500 during fall migration, which satellite collar data show to be all Bathurst caribou. Most unusual was the approximately 19,000 caribou observed between mid-November and the end of December. They were mostly from the Beverly/Ahiak herd and included one group of nearly 2,000. Caribou sightings were evenly distributed across the entire mine site.

Monitors did behaviour surveys on 32 adult caribou within 1 km of mine buildings. Questions asked were: How long did the animal bed, feed, or run? The caribou spent less than 10% of their time on alert. Also, monitors did 30 surveys on groups to see how they behave. The groups were exposed to 59 stressful events. The groups of caribou ran 8% of the time.

Wildlife are monitored in the Long Lake Containment Facility. Only one group of 10 caribou was seen near the Long Lake Containment Facility in 2016. Since 1999, no caribou injuries or deaths are blamed on the Long Lake Containment Facility.

“DDEC has worked hard to make the roads at the mine easier for caribou to cross. Caribou crossings are placed at locations pointed out by Elders. Smaller rocks are used. They ensure the ramps are smooth and close to tundra level.”

The Wildlife Camera Monitoring Study was started in 2011. It uses motion-triggered cameras to see how caribou act near the mine and its roads. Eighty-nine infrared motion-triggered cameras were used in 2016 along Misery and Sable roads, as well as at the Narrows between Lac du Sauvage and Lac de Gras and along the proposed access road for the Jay Project. It takes time to process the pictures, so no results were given from 2016. Results from 2014 and 2015 were released in August 2016. The report talks about road design and caribou crossings. It found no connection. The camera study did not address how passing trucks disturb the animals.

Grizzly Bears

Monitors observed grizzly bears at Ekati through direct observations and remote cameras. There were 240 bears seen at 147 times. This included 54 family groups. This is a high number of sightings. Eighty-seven times when bears were seen, work was stopped or moved so that bears could eat or move undisturbed. Nine times a helicopter, bear bangers or rubber bullets were needed. Most bears were seen between the main camp area and 5 km north along Sable Road, and 5 km west of Misery camp along the Misery Road.

Other Wildlife

There was no monitoring of wolf dens in 2016. No pups were seen. In 2016, 136 wolves were seen 95 times. This included 32 family groups. Wolves were seen evenly through the mine site.

DDEC performed DNA-based wolverine counts in April 2015. Ekati DNA-based wolverine count was done in April 2015. About 180 lure stations were used and nearly 500 hair samples collected. No results of this program were in the 2016 Wildlife Effects Monitoring Program report. The number of wolverines seen in 2016 (39) is the highest recorded since 2008. Wolverines were seen evenly through the mine site. The high numbers of wolves and wolverines in 2016 are likely linked to the high number of caribou.

Arctic fox and red fox are a concern. They are attracted to human activity and bring the risk of rabies. In 2016, there were 276 fox sighted 255 times. These are the highest numbers since 2007. There were no suspected cases of rabies in 2016.

There were five sightings of six moose in 2016. Moose have been seen more often each year since 2013.

Raptors nested in several of the pits in 2016. Nesting was stopped in the Misery and Pigeon pits to avoid conflict with mining. Four of seven occupied sites produced nestlings. These were peregrine falcon, rough-legged hawk, and raven. No gyrfalcon nests were recorded.

The North American Breeding Bird Survey was done for the 14th year. Twenty-one types of birds were seen. The number of birds was 310 in 2016.

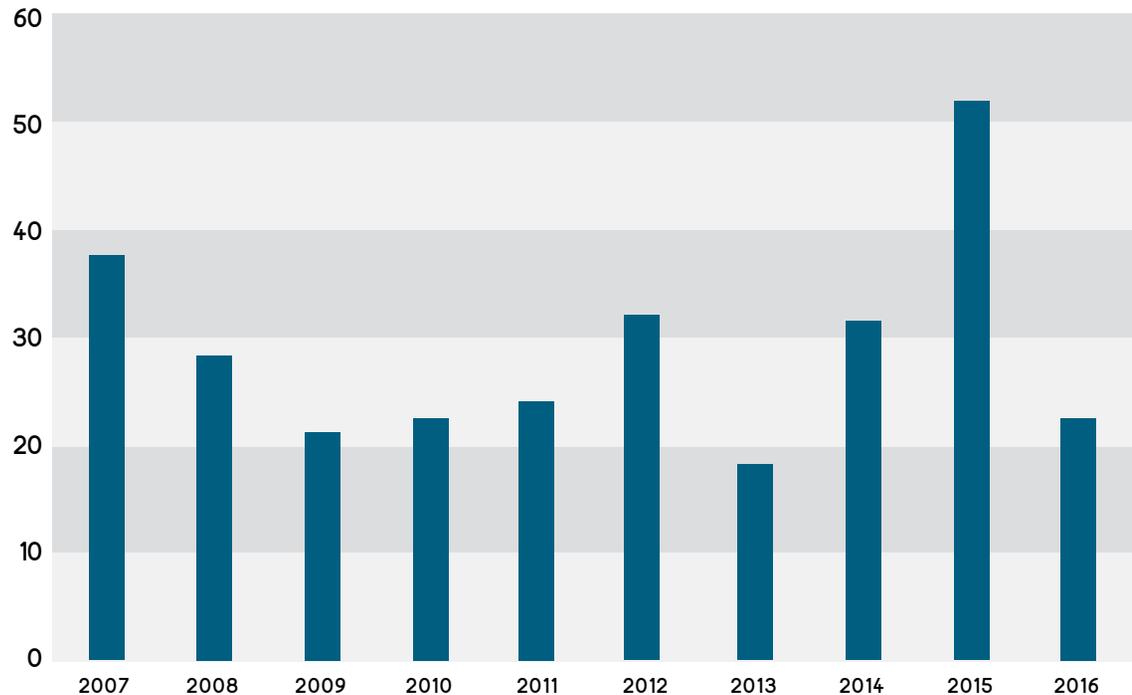
OUR ASSESSMENT

The 2016 WEMP had a number of problems that suggest it may have been written too fast. For example, different numbers and interpretation of trends were given in results and discussions. Current caribou population surveys were not given. DDEC should also have had an update on the April 2015 wolverine DNA inventory.

DDEC gave a good background on the Bathurst herd in the 2016 Wildlife Effects Monitoring Program. However, the Beverly/Ahiak herd was ignored. Although all caribou are treated equally, a review of this herd was needed. Also, little discussion was given on the large numbers of Beverly/Ahiak caribou at the mine in early winter. In the past, only the Bathurst caribou have visited Ekati Mine. Changes in caribou herd numbers and location may be changing this pattern. Finally, a question remains why the data from 14 Bathurst bull caribou collared in 2015 was not shown. Past collaring has focused on cows. Better understanding of bull caribou movements would be very helpful.

DDEC has worked hard to make the roads at the mine easier for caribou to cross. Caribou crossings are placed at locations named by Elders. Smaller rocks are used. They ensure the roads are smooth and close to tundra level. ■

Figure 1: Reported Spills of Hazardous Materials



Spills of hazardous materials must be reported. Over the past 10 years, 294 spills have been reported at Ekati. There were 24 spills in 2016. The most common things spilled are diesel, oil, antifreeze, sewage, and tailings.

JAY AND SABLE EXPANSION PROJECTS

HIGHLIGHTS

- + Public hearings on the Jay Project water licence application.
- + A decision on the Jay Project water licence is expected in summer 2017.
- + Work on developing the Sable Project has started.

JAY PROJECT

The Jay Pit is 30 km southeast of the existing mine. There will be a horseshoe-shaped dike in Lac du Sauvage. Pumping water from the diked area will expose the kimberlite ore. Trucks will take ore from Jay Pit along 7 km of new roads to the Misery Haul Road then to the main site for processing. The new Jay Haul Road will cut through the Lac du Sauvage esker.

DDEC will build a new waste rock storage pile by Lac Du Sauvage. Groundwater and surface runoff will be pumped to the Misery Pit for storage. DDEC expects groundwater will be the largest source of water during operations. The Jay Project is expected to extend the life of Ekati Mine by more than 10 years.

The Government of the Northwest Territories (GNWT), Minister of Lands approved the Report of Environmental Assessment for the Jay Project in May 2016. We were fully part of the review process. We reported on it in our 2015-16 Annual Report.

Land Use Permitting

Dominion Diamond Ekati Corporation (DDEC) sent a land use permit application to the Wek'èezhii Land and Water Board in May 2016 for the Jay Road and other early works. DDEC said the land use permit was needed for transport and storage of materials near the pit before the dike was built. DDEC was concerned that a project-wide land use permit would be delayed until 2017.

The Wek'èezhii Land and Water Board approved the early works land use permit in July 2016. DDEC sent a project-wide land use permit application for the Jay Project to the Wek'èezhii Land and Water Board in June 2016. A decision is expected in the summer of 2017.

"Keeping water clean and preventing lowering of water levels in Lac du Sauvage and Lac de Gras is important. The lakes must be stable and ready for traditional use after the mine closes."

Water Licensing

DDEC sent in an updated Type A Water Licence application for the Jay Project in June 2016. With the application was a request to extend the Ekati water licence by 13 years. This would cover the life of the Jay Project. DDEC withdrew the request after the Agency, the Tłı̨chǫ Government and several others had strong concerns about it.

Technical meetings on the licence were held in October in Behchokǫ. A public hearing was held in December in Yellowknife. We focused on four major areas of concern during the water licence process:

- Minewater
- Waste rock storage area seepage:
- Lac du Sauvage water quality; and
- Closure and reclamation planning and research.

The water licence process is expected to end during summer 2017.

MINEWATER MANAGEMENT

The mine plan calls for water from the diked area to be pumped back into Lac du Sauvage. As the water level lowers, sediment is expected to increase, muddying the remaining water. The rest of the lake water will be pumped to Misery Pit.

DDEC expects water layers to form within Misery Pit. As the pit fills, top water would then be pumped to Lac du Sauvage. Discharge of water from the Misery Pit is not expected for the first five to seven years of Jay operations.

Keeping water clean and preventing lowering of water levels in Lac du Sauvage and Lac de

Gras is important. The lakes must be stable and ready for traditional use after the mine closes. We stressed the need for DDEC to develop alternate plans in case water layers did not form in the pit lakes. We suggested that DDEC submit an updated Wastewater and Processed Kimberlite Management Plan when water filling the Misery Pit reaches one-fourth of its capacity. DDEC argued that an updated Wastewater and Processed Kimberlite Management Plan when the pit reaches 40% capacity is good enough. The final decision rests with the Wek'èezhii Land and Water Board and the Minister of Environment and Natural Resources (ENR).

WASTE ROCK STORAGE AREA SEEPAGE MANAGEMENT

Potentially acid generating rocks and others will be removed from the diked area and placed in the Jay Waste Rock Storage Area. DDEC says that seepage will be avoided by capping the storage area with five m of granite. They say that the mixing of materials in the Waste Rock Storage Area will balance the acid rocks.

We believe that placing waste rocks as mined could leave pockets of acid rock. These pockets might be large enough to leak acid. Careful monitoring and controls are needed. In response, DDEC proposed more waste rock sample collection and field programs to help ensure the needed mixing. How many potential acid generating rocks can be put in the Waste Rock Storage Area before other rock is added? This is not clear. What will be done if co-placement does not stop the acid seepage? This has yet to be answered to our satisfaction.



TUNDRA LANDSCAPE NEAR EKATI MINE.

LAC DU SAUVAGE WATER QUALITY DURING AND AFTER DIKE CONSTRUCTION

Building the Jay dike might raise the sediment in Lac du Sauvage. DDEC has proposed a Suspended Sediment Monitoring and Management Plan. With the Surveillance Network Program and two turbidity barriers, they should protect the lake from high sediment levels during construction.

During the technical meetings and public hearing, we said that after construction, the three permanent Surveillance Network Program places along the long dike do not give enough data to ensure meeting the water licence standards. We also said that the proposed licence limits for sediments while building the dike are not good enough to protect water quality and water life. The same level of testing should take place during operations as during building. If levels of sediment in the water are high, two nearby fish-spawning shoals should be checked to see if they get too muddy.

CLOSURE AND RECLAMATION PLANNING AND RESEARCH

Delays in updating the 2011 Interim Closure and Reclamation Plan, as well as research delays, are serious concerns for the Agency. The Interim Closure and Reclamation Plan is now spread over a number of documents. This makes it very hard to track progress, reasons, and meaning of any changes.

DDEC agrees the Interim Closure and Reclamation Plan needs an update to include the new pit developments. In the public hearing, they suggested a deadline of 18 months after the Jay Project water licence approval. They said this time is needed to talk to communities and others. We have asked for an updated Interim Closure and Reclamation Plan in the past. We suggest

that 12 months after the Jay water licence was enough time to do the update. The decision on timing rests with the Wek'èezhii Land and Water Board and the Minister of Environment and Natural Resources (ENR).

SABLE PROJECT

In 2015, DDEC said it plans to develop Sable Project. The Sable Project would allow Ekati to operate until ore from the Jay Project is ready for processing.

Sable Pit is about 27 km north of the Ekati Main Camp. The mine plan involves draining Sable Lake, developing Sable Pit, and using Two Rock Lake as a pond to settle sediments out of Sable minewater before it flows to Horseshoe Lake. Kimberlite will be hauled to the main plant. Waste rock will be placed in two nearby Waste Rock Storage Areas.

The Sable all-weather road was finished in 2016. It's about 19 km long. It bypasses Exeter and Ursula eskers before reaching the Sable area.

One of the first steps in developing the Sable Project was the fish salvage of Sable and Two Rock Lakes. Community members from Kugluktuk, Behchokq, Lutsel K'e, Dettah, N'dilo, Gamèti, Fort Resolution, and Yellowknife salvaged 468 kg of fish. The fish were gutted, frozen and given to the communities.

Two other items are important. The Sable Aquatic Effects Monitoring Program Design Plan was done. The Ekati water licence was amended to increase the amount of water that can be taken from Two Rock and Sable lakes.

Financial security for the Sable Project has been set at \$8.8 million under the water licence and \$860,000 under the land use permit. In March

2016, DDEC asked the Wek'èezhii Land and Water Board to have security posted in phases between 2016 and 2021. We supported DDEC's request. We recommended the payment timing be set and security provided before construction starts.

OUR ASSESSMENT

The February 2016 Report of Environmental Assessment on the Jay Project requires that DDEC and regulators give the Mackenzie Valley Environmental Impact Review Board a report on environmental assessment before July 1st annually.

It is our opinion that the Wek'èezhii Land and Water Board did a good review of the Jay Project water licence application. During most of the process, DDEC was responsive and cooperative. However, during the technical meetings and public hearing, DDEC's responses were somewhat vague and rigid. This meant that several important

issues had to be given to the Wek'èezhii Land and Water Board for final decision rather than reaching agreement among all the parties beforehand.

DDEC asked to amend the Ekati Water Licence at the same time as the Jay Project application. Several groups expressed concerns. The Tìjchq Government strongly questioned the fairness, reasonable notice, and possibility of real consulting on the request. In our opinion, this request was made without thought to its meaning. If DDEC did not withdraw the request, it would have caused major delays.

The Jay Project is seven km northeast of Misery Camp. Sable is 19 km north of the Long Lake Containment Facility. Both projects are in areas of the mine lease that have not been used by the mine before. We note that the projects will extend the area of possible disturbance to wildlife, fish and habitat into new and opposite directions. New roads to the pits will act as new barriers to

wildlife movement. They cut or go around several important eskers. The main Jay Road will cut through an area of known caribou movement. The Sable Road will lead to mining activities in areas that are among the most highly used by caribou. Also, for the first time, an area of Lac de Sauvage will be diked, drained and mined. As a result, we strongly urge DDEC to continue trying to lower impacts to wildlife in these new areas.

We supported DDEC's request to phase the posting of financial security for the Sable Project. It is reasonable that DDEC not have to provide a bigger deposit than what is needed for problems that do not exist yet. However, the regulatory system should not be burdened by the constant need to adjust security. We recommend that the GNWT, along with the Wek'èezhii Land and Water Board, develop a written guideline to make a standard process for securities. This will give the Wek'èezhii Land and Water Board, DDEC, and reviewers a standard approach to future requests. ■



A HAUL TRUCK ON THE SABLE ROAD DURING THE ROAD CONSTRUCTION.

REGIONAL MONITORING & CUMULATIVE EFFECTS

HIGHLIGHTS

- + Environmental and Natural Resources released a Bathurst Caribou Range Plan for public review.
- + The caribou zone of influence task group made little progress during 2016-17.
- + Diavik Diamond Mine is concerned that it will be hurt by more phosphorous in Lac de Gras from the Jay Project.

ACTIVITIES 2016-17

Wildlife

The Bathurst Caribou Range Plan project led by the Government of the Northwest Territories (GNWT) working group continued during 2016-17. The working group's job is to recommend how to manage human and natural disturbance across Bathurst caribou land. In February 2017, GNWT-Environment and Natural Resources (ENR) sent out a discussion paper for the public. It is clear that the working group has put a lot of time and thought into these papers. We gave the following comments:

- How are seasonal changes shown in the range plan?
- How are limits for disturbance calculated?
- Does the location of mines and sensitive range change the limits?
- How would Mobile Caribou Conservation Measures work?

ENR has promised to look at comments, make a draft range plan, and have more community and public review.

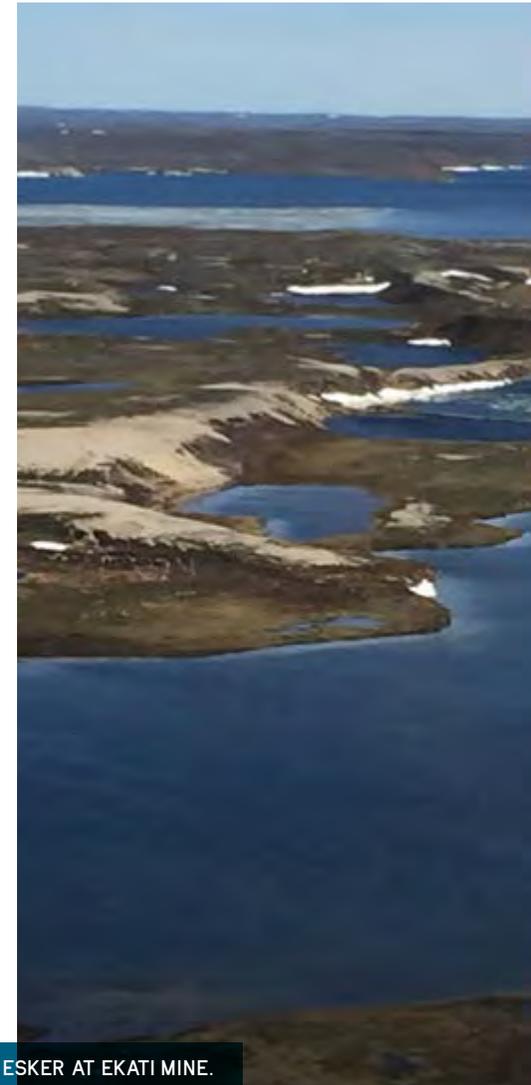
For several years, ENR has been leading a group to study how caribou avoid diamond mines. This work could help with regional monitoring and cumulative effects. A draft background paper was released in March 2015. We are disappointed that progress on this work seems to have stalled. We hope that work on this important topic will continue in 2017-18.

Water Quality and Aquatic Effects

The GNWT's Cumulative Impacts Monitoring Program did a study on Lac de Gras. It looked at data from Diavik Diamond Mine's and Ekati's Aquatic Effects Monitoring Programs. Are cumulative effects from the mines impacting Lac de Gras? The study says that there are two parts of the lake being impacted by mine outflow. One in the northwest arm of Lac de Gras downstream of the Koala watershed flowing from Ekati Mine and another in the eastern portion of the lake near Diavik Diamond mine.

When the Jay Project is operating, there will be more dirty water flowing from Lac du Sauvage into Lac de Gras. This could change the water quality of Lac de Gras, and could change it downstream too. During the Jay Project environmental assessment hearings, Diavik Diamond Mine argued that its operations could bring about changes by having more phosphorous in Lac de Gras. The *NWT Waters Act* states that the Wek'èezhii Land and Water Board can't issue a water licence if impacts to downstream users are expected unless compensation is paid. Diavik Diamond Mine is asking that it be DDEC's job to prove impacts and make needed payment.

Water quality measures need to be the same for the two mines. DDEC agreed to change their laboratory's chemical detection limits for most water quality values to match those of Diavik Diamond Mine. ■



ESKER AT EKATI MINE.

TRADITIONAL KNOWLEDGE

HIGHLIGHTS

- + The Traditional Knowledge Elders Group for the Jay Project held its first meeting.
- + Wek'eezhii Land and Water Board approved a new version of the Ekati Mine Engagement Plan.

ACTIVITIES 2016-17

Dominion Diamond Ekati Corporation (DDEC) has sponsored several Traditional Knowledge projects. Some were in the communities while some were at Ekati, the following is an overview of those projects:

Community Traditional Knowledge Projects

Cultural Teaching Programs: Programs in Kugluktuk, Whati, Gamètì and Łutsel K'è. Elders work with youth on cultural subjects.

Yellowknives Dene First Nation Goyatiko Dene Language Conference: About Dene language. Teaching youth the Dene language and writing.

Web-Based Atlas for the Naonaiyaotit Traditional Knowledge Project: Operating since 2015. Create an easy-to-use, interactive atlas of Inuit land use and Traditional Knowledge for the Kitikmeot. This is a tool that is expected to be used for schools in the region and in cultural programs.

Tłìchq Boots on the Ground Caribou Monitoring: Elders and hunters use traditional ways to assess the Bathurst caribou herd and its land. What are the impacts from natural and man-made stress?

Łutsel K'è Dene First Nations Traditional Knowledge and Livelihoods Project: Completed. Final report to DDEC in November 2016:

- *Traditional Knowledge Digital Archives:* Collect, scan, catalogue, and share Traditional Knowledge. Includes place names, hunting and trapping trails, and stories of land use as told by Elders.
- *Caribou Monitoring - Traditional Livelihoods Project:* DDEC and Government of the Northwest Territories funding, Łutsel K'è Dene First Nation watch the health of caribou. And make sure people hunt caribou in the right way.

"The updated Ekati Mine Engagement Plan is better than the old version. We are pleased to see DDEC is open to adjusting its plan methods to make room for community requests. Flexibility in how DDEC works with communities is important."

Ekati-Based Programs

Monitoring Programs and Studies: DDEC brings Aboriginal community members to Ekati and tells them about environment monitoring. Traditional Knowledge is shared.

Misery Pit Raptor Surveillance: A team watched raptors who tried to nest close to Misery Pit. From March to October, wildlife monitors watched the installation of the Misery Road powerline poles to see if it had any effects on wildlife.

Site Visits: This past year DDEC hosted a number of groups at the mine:

- *Student Tour:* Students from Tłìchq communities job-shadowed with several departments.
- *Yellowknives Dene First Nation Site Tour:* Members of Yellowknives Dene First Nation toured Pigeon and Sable pit areas and Sable Road.
- *The Diavik and Ekati Diamond Mines Tibbet-to-Contwoyto Yellowknives Dene First Nation Ice Road Tour:* Members of Yellowknives Dene First Nation met with Ekati leaders to discuss projects at Ekati Mine. It is not clear if the ice road was discussed or if they talked while driving on the road.
- *Kitikmeot Inuit Association Jay Project and Sable Road Site Tour:* People from Kugluktuk were updated on the Jay Project and Sable Road.

DDEC, Łutsel K'è Dene First Nation, and GNWT Agreement on Caribou: They agreed to study together how to monitor and manage the Bathurst caribou herd during the Jay Project.

Use of Traditional Knowledge in Operations

Culture Camp: In summer 2016, DDEC set up a culture camp for Aboriginal communities to use during the fish-out of Sable and Two Rock lakes. The camp was removed in fall/winter 2016. There are plans, as advised by the Traditional Knowledge Elders Group, to move it to the Jay Pit area in 2017.

Sable and Two-Rock Lakes Fish-Out: During the summer of 2016, fishers from eight communities helped with fishing salvage of these lakes before the mining of Sable. The fish-out of Sable Lake took eight weeks. The Two Rock fish-out took 11 weeks. The fish were weighed, measured and age determined, then gutted and frozen for storage. Ten communities got a total of 320 kg of fish to eat.

Lynx Lake Fish Offsetting Project: To offset the loss of fish habitat at Lynx Lake, DDEC has started a community-based fish offset project at Jackfish Creek near Łutsel K'è. Improvements to the creek will be made to allow pike from Great Slave Lake to get to their spawning area.

Jay Fish Offsetting Plan Project: DDEC talked with Traditional Knowledge holders to find ways to offset fish loss due to the mining of Jay Pit. The proposed project will bring inconnu (coney) back to the Yellowknife River. For decades, they have not been found in the river. DDEC has promised to work with Aboriginal communities to look for other ways to improve local fisheries.

Use of Traditional Knowledge in Sable and Jay Mine Planning

Traditional Knowledge Elders Group: In the Report of Environmental Assessment for the Jay Project, it was recommended that DDEC set up a Traditional Knowledge Elders Group. The Report of Environmental Assessment dealt with the Jay Project, but the knowledge gained can be used for the whole mine site. The first meeting was in Dettah in June 2016. It set up the Traditional Knowledge Elders Group Terms of Reference, which deals with intellectual property rights and bars the use of all Traditional Knowledge beyond this project. Two more meetings were held in October 2016 and January 2017. They looked at the Jay fisheries and fish-out, Jay road building and design, and the use and location of the culture camp. They approved the Traditional Knowledge Framework and the Terms of Reference.

Tłı̄chq̄ What'aa Eskers Traditional Knowledge Project: A Traditional Knowledge study since 2014, Tłı̄chq̄ elders were brought to Ekati to look at an undisturbed rocky esker near mine buildings. They gave advice on design and building of waste rock piles. They also advised on the Jay esker road crossings to make them caribou-friendly. The project also aims to hear reclamation ideas for the mine.

Community Caribou Engagement Program: People from Kugluktuk, North Slave Métis, and the Tłı̄chq̄ took part in the program in 2015. They were invited back to see the new Sable Road in 2016 and to give more advice on caribou crossings and traffic.

Community Caribou Engagement Report: The 2014-15 report was translated into four Aboriginal languages. It tells how DDEC has used ideas from community members in the design of caribou crossings on Ekati roads.

EKATI MINE ENGAGEMENT PLAN (VERSION 3.0)

the Wek'eezhii Land and Water Board approved an updated version of the Ekati Mine Engagement Plan in October 2016. The plan guides DDEC in communicating with communities and developing local projects.

OUR ASSESSMENT

The Agency has seen an improvement by DDEC this year in getting and reporting Traditional Knowledge. However, it is still unclear how Traditional Knowledge is used in monitoring programs and in closure and reclamation planning. It is also not clear how DDEC handles Traditional Knowledge that may contradict results of its science-based monitoring. We hope that the Traditional Knowledge Elders Group will help improve the use of Traditional Knowledge at Ekati.

The updated Ekati Mine Engagement Plan is better than the old version. We are pleased to see DDEC is open to adjusting its plan methods to make room for community requests. Flexibility in how DDEC works with communities is important. It is better than asking them to conform to DDEC's schedule.

The Mackenzie Valley Environmental Impact Review Board's Engagement and Consultation Policy requires that companies explain how they manage disputes and complaints. However, there is no clear dispute solving process in DDEC's Engagement Plan. DDEC's plan states that a dispute gets registered, but gives no detail about follow-up. We believe this should be looked at when the plan is updated. ■



WILLOW CATKINS AT EKATI MINE.

HOW ARE THE REGULATORS DOING?

HIGHLIGHTS

- + The involvement of Fisheries and Oceans Canada and Environment and Climate Change Canada in the environmental regulation of Ekati was disappointing.
- + Environment and Natural Resources' intervention and public hearing action in the Jay Project review was robust and focused.
- + Wek'èezhii Land and Water Board ran a good process for the Jay Project water licence and land use applications.

THE REGULATORS AND OUR MANDATE

The Independent Environmental Monitoring Agency (the Agency) is the public watchdog for environmental management at Ekati mine. We monitor how well the company does. We also monitor the agencies that regulate the mine. Here are our comments about the regulators in 2016-17.

OUR OVERALL ASSESSMENT

The regulators are still good at ensuring that DDEC operates the mine in an environmentally sound way. Most of the regulators' time in 2016-17 was focused on taking care of the Jay Project Water Licence and Land Use Permit, Environmental Impact Report, and the Aquatic Effect Monitoring Program Re-evaluation. The Agency felt that government agencies and regulators did well in some instances, but their work could have been improved in others.

Indigenous and Northern Affairs Canada

After devolution of its land and water work to the GNWT, Indigenous and Northern Affairs Canada has a much smaller role in the Environmental Agreement. In a joint letter, the Government of the Northwest Territories (GNWT) and Indigenous and Northern Affairs Canada said they wanted to fix the Environmental Agreement to show changes in duties. Concerns were raised by us and by Aboriginal Society Members because Canada would no longer be part of the Environmental Agreement. Indigenous and Northern Affairs Canada has now agreed to remain as part of the Environmental Agreement. We are pleased with this decision. It is good to have them take part.

Fisheries and Oceans Canada

Fisheries and Oceans Canada is given reports for review. However, we have noticed that they are giving very little input. This may be a result of changes to the *Fisheries Act* and Fisheries and Oceans Canada's mandate. As part of the Jay Project water licence process, Fisheries and Oceans Canada attended the technical session, sent an intervention, and took part in the public hearing. Although they did show up, they did not seem to want to answer questions or to talk. In addition, we were disappointed by their lack of interest in the review of Aquatic Effects Monitoring Program Re-evaluation and Aquatic Response Plans. The Aquatic Effects Monitoring Program Re-evaluation is an important report that looks at the effects of the mine on the water environment and proposes changes to the program. These processes would have been better with the in-house technical expertise and informed comments of federal regulators. Overall, we were disappointed in Fisheries and Oceans Canada's part in the regulatory process in 2016-17.

We are also frustrated by the lack of clarity over which federal department is in charge of which parts of the water environment. This complicates both Environment and Climate Change Canada's and Fisheries and Oceans Canada's part in the regulatory process. It is not always clear who should comment.

Looking forward, we are glad to learn that Fisheries and Oceans Canada is reviewing the *Fisheries Act*. We hope this will lead to an increase their input in future regulatory processes.

Environment and Climate Change Canada

Environment and Climate Change Canada's part in the regulatory process for Ekati in 2016-17 varied. They gave useful technical comments

and recommendations in the Jay Project water licence proceedings. They have lots of expertise in water quality. We feel they could have done more in the review of reports from DDEC. We were sorry to see little involvement of Environment and Climate Change Canada with the Aquatic Effects Monitoring Program Re-evaluation and the Aquatic Response Plans. These are important reports for protecting Ekati lakes. Review of water monitoring at Ekati is always better with the in-house technical expertise and informed comments of Environment and Climate Change Canada.

Environment and Climate Change Canada has sent out draft changes to the federal Metal Mining Effluent Regulations. These, if approved, would include diamond mining. We took part in early talks on March 2017. More meetings are planned for summer 2017.

Government of the Northwest Territories

Department of Lands: We are pleased that an inspections routine has been kept up in 2016-17. The GNWT inspector for Ekati is still thorough and effective.

Department of Environment and Natural Resources: It is still in Environment and Natural Resources mandate to give detailed reviews of papers. The process is better due to their expertise and strong use of consultants. Their part in the Jay Project water licence hearings was excellent. We are happy with progress made on the Regional Bathurst Caribou Range Plan. The same is true of the review process for the Wildlife Effects Monitoring and Caribou Roads Mitigation plans. Environment and Natural Resources also did a draft Air Quality Regulatory Framework and changes to the Environmental Protection Act. We see these new rules as a help toward filling the gap in air regulations.

We are pleased to note that Environment and Natural Resources has been able to move forward with changes to the Environmental Agreement, keeping Indigenous and Northern Affairs Canada involved. They have sent out proposed changes to the Environmental Agreement. We look forward to talking about these changes in future meetings.

Wek'èezhii Land and Water Board

We are pleased with how the Wek'èezhii Land and Water Board handled the Jay Project water licence and land use permit process. We are happy to see many of our concerns in the draft water licence that was sent out for comment.

A workshop was held for the Waste Rock Storage Area Closure Ecological Risk Assessment in January 2017. This workshop was well received and attended by Agency Society Members. All parties were able to benefit from good a talk about the issues.

We recommended a similar workshop for the Aquatic Effects Monitoring Program Re-evaluation. It is too bad our request was rejected by the Wek'èezhii Land and Water Board. In our opinion the issues raised needed a face-to-face meeting with all groups. ■



THE AGENCY PRESENTING TO THE WLWB AT THE JAY PROJECT WATER LICENCE HEARING, DECEMBER IN YELLOWKNIFE.

HOW IS DDEC DOING? ■

HIGHLIGHTS

- + Dominion Diamond Ekati Corporation (DDEC) answered written comments on the Jay Project. They were less open in public meetings.
- + DDEC rejected most of the comments on drafts of the Wildlife Effects Monitoring Plan and the Caribou Road Mitigation Plan.
- + A Traditional Knowledge Elders Group was started. A culture camp was set up close to the mine.

Dominion Diamond Ekati Corporation (DDEC) still runs Ekati Mine in an environmentally sound way.

DDEC answered many written comments during the Jay Project water licence and land use permit processes. Staff answered all comments in a timely and efficient way. However, we were disappointed with DDEC's lack of openness during meetings. During the technical session and public hearing, DDEC was often not willing to directly answer public concerns. This was frustrating. It limited open talk. The experts present might have helped to ease the concerns.

DDEC mostly meets their deadlines. There were a few times when items were sent late. This caused a rushed approval or a lack of time to really review an item. For example, there was the request and approval process for the Waste Rock Ore Management Plan 6.2. DDEC asked for a 15 m raise for the Misery waste rock pile at the last minute because it was running out of room. DDEC should have known about this problem much earlier so that it could have made its request earlier to allow more time for everyone to review the request.

In November 2016, DDEC completed stack testing of their waste incinerator. The results show emissions were well below the Canada-wide standards. We look forward to seeing a report of the test results.

In January 2016, we wrote a letter to support DDEC for the Towards Sustainable Mining Environment Excellence Awards. This was for work on its waste management program. We hear that DDEC was chosen for the award, and offer our Congratulations.

DDEC reviewed the Wildlife Effects Monitoring Program and Roads Mitigation Program during 2016-17. It is too bad that DDEC made no changes in response to comments on older versions.

We have seen some improvement in DDEC's work with Traditional Knowledge. However, it is not always clear how the Traditional Knowledge is used by DDEC. We urge DDEC to show the link between Traditional Knowledge gathering and use at Ekati. We hope that the Traditional Knowledge Elders Group and the culture camp will help with using Traditional Knowledge at Ekati mine. ■

"DDEC reviewed the Wildlife Effects Monitoring Program and the Caribou and Roads Mitigation Program during 2016-17. It is too bad that DDEC made no changes in response to comments on older versions."

RECOMMENDATIONS

1

THE GOVERNMENT OF THE NORTHWEST TERRITORIES, IN COOPERATION WITH THE WEK'ÉEZHII LAND AND WATER BOARD, DEVELOP WRITTEN POLICIES, GUIDELINES, OR DIRECTIVES TO STANDARDIZE THE PROCESS FOR DETERMINING WHETHER, AND WHAT PORTION, OF SECURITY SHOULD BE HELD BACK FOR FUTURE LIABILITIES UPON COMPLETION OF RECLAMATION ACTIVITIES.

GNWT Response

When reviewing the security requirements for a mining project, the GNWT relies on the Mine Site Reclamation Policy for the Northwest Territories, developed by Indigenous and Northern Affairs Canada (INAC) in 2002. Post devolution, when the GNWT took over responsibilities for land and water management and holding of associated financial securities, the GNWT adopted the federal Mine Site Reclamation Policy on an interim basis. This policy describes the requirements for any ongoing monitoring once reclamation work is deemed complete, and confirms that financial security can be held back to cover future requirements for sites that may necessitate long-term care and maintenance. Although the GNWT strives for consistency in applying the policy, determining whether, and how much, security may need to be held back would be determined on a project-by-project basis.

The GNWT is aware that the land and water boards have identified clarifying matters relating to securities and progressive reclamation as a priority for future discussions among boards, government, proponents and others. The GNWT has previously provided additional information on appropriate approaches to determining how much security to hold back when reclamation is completed in an information request submitted to the Wek'ëezhii Water Board (WLWB) in September 2016. Moving forward, the GNWT expects to develop its own policies and guidelines related to reclamation security, and would work with the land and water boards and other stakeholders to develop that guidance. In 2017, the GNWT is reviewing the legislative, regulatory and policy framework for land and water securities, and will be consulting and engaging as part of that work. The GNWT commits to providing IEMA with updates as progress is made.

2

THE GOVERNMENT OF THE NORTHWEST TERRITORIES, IN COOPERATION WITH THE WEK'ÉEZHII LAND AND WATER BOARD, DEVELOP WRITTEN POLICIES, GUIDELINES, OR DIRECTIVES TO STANDARDIZE THE PROCESS FOR DETERMINING THE APPLICATION, CONSIDERATION AND APPROVAL OF STAGED CLOSURE AND RECLAMATION SECURITIES.

GNWT Response

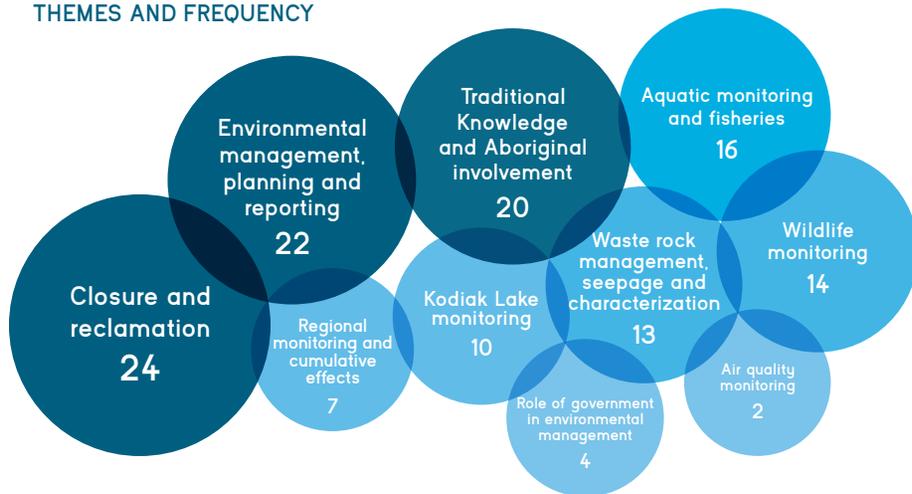
When reviewing the security requirements for a mining project, the GNWT relies on the Mine Site Reclamation Policy for the Northwest Territories, developed by Indigenous and Northern Affairs Canada (INAC) in 2002. Post devolution, when the GNWT took over responsibilities for land and water management and holding of associated financial securities, the GNWT adopted the federal Mine Site Reclamation Policy on an interim basis. Again, this policy outlines the requirement for conducting progressive reclamation, reporting on reclamation progress, and adjusting securities as required due to completed reclamation activities.

The GNWT is aware that the land and water boards have identified clarifying matters relating to securities and progressive reclamation as a priority for future discussions among boards, government, proponents and others, and the GNWT has addressed specific board questions in recent information request responses. Moving forward, the GNWT expects to develop its own policies and guidelines related to reclamation security, and would work with the land and water boards and other stakeholders to develop that guidance. In 2017, the GNWT is reviewing the legislative, regulatory and policy framework for land and water securities, and will be consulting and engaging as part of that work. The GNWT commits to providing IEMA with updates as progress is made.

Figure 2: Agency Recommendation Themes 1997-2016

| RECIPIENTS | # OF RECOMMENDATIONS |
|--|----------------------|
| Dominion Diamond Ekati Corporation (DDEC - Previously BHPB) | 96 |
| Government (GNWT, Government of Nunavut, Government of Canada) | 19 |
| Water Boards (NWT Water Board, MVLWB, WLWB) | 11 |
| Environmental Agreement signatories | 3 |
| Aboriginal Society Members and DDEC | 3 |
| Aboriginal Society Members | 1 |
| All Agency Society Members | 1 |
| Total | 134 |

THEMES AND FREQUENCY



MAIN CAMP WITH KOALA PIT AND AIRSTRIP IN THE BACKGROUND.

GLOSSARY

Adaptive Management – Learning from environmental monitoring results and using the results to change and improve operations and monitoring.

Closure – Act of ceasing mining, processing and other production activities (final closure of the mining operation).

Consultation – (i) The party to be consulted has enough notice on a matter to allow for the party to prepare its view on the matter. (ii) Opportunity to present these views to the decision making body. (iii) Full and fair consideration be given to any party that presents their views to the decision making body.

Contaminant – A substance not naturally present in the environment or present in amounts that can negatively affect the environment.

Cumulative Effects – Environmental changes or impacts from past, present and future human land use activities (e.g., exploration and mining) combined with natural factors (e.g., fires, climate change).

Devolution – A transfer of responsibility from the federal government to a provincial or territorial government.

Dioxins and furans – A type of organochlorine that can cause cancer and other health problems. A group of chemicals that mainly come from the burning of waste.

Effluent – Wastewater that flows into a receiving body of water.

Environmental Agreement – Signed by BHP Billiton and the federal and territorial governments in 1997 to provide environmental monitoring for the Ekati Mine not covered by other licences and permits. The Tłı̨chǫ Government, Akaitcho Treaty 8 First Nations (Lutsel K'e Dene First Nation and Yellowknives Dene First Nation), Kitikmeot Inuit Association and North Slave Metis Alliance were involved in the negotiations.

Financial Security – Money that is required for the reclamation of the mine.

Hydrocarbons – Elements made of only hydrogen and carbon. Hydrocarbons are found in oil products.

Kimberlite – A rare type of rock rich in iron and magnesium that sometimes contains diamonds. Created deep below the earth's surface, Kimberlites are usually found in long pipe-shaped forms.

Nitrate – A plant nutrient formed in nitrogen. Too much nitrate can affect the growth of baby fish.

Processed Kimberlite – The crushed rock and water mixture that is left over after kimberlite ore has been processed by the mill to collect diamonds. Also called 'tailings'.

Progressive Reclamation – Reclamation that can be carried out during the construction and operation phases of a mine prior to final closure (e.g., rock waste dumps). See also 'Reclamation'.

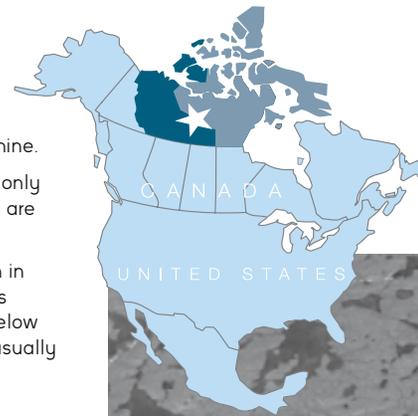
Reclamation – The process of returning areas of land and water to healthy ecosystems after being disturbed by mining or other human activities.

Tailings – See 'Processed Kimberlite'.

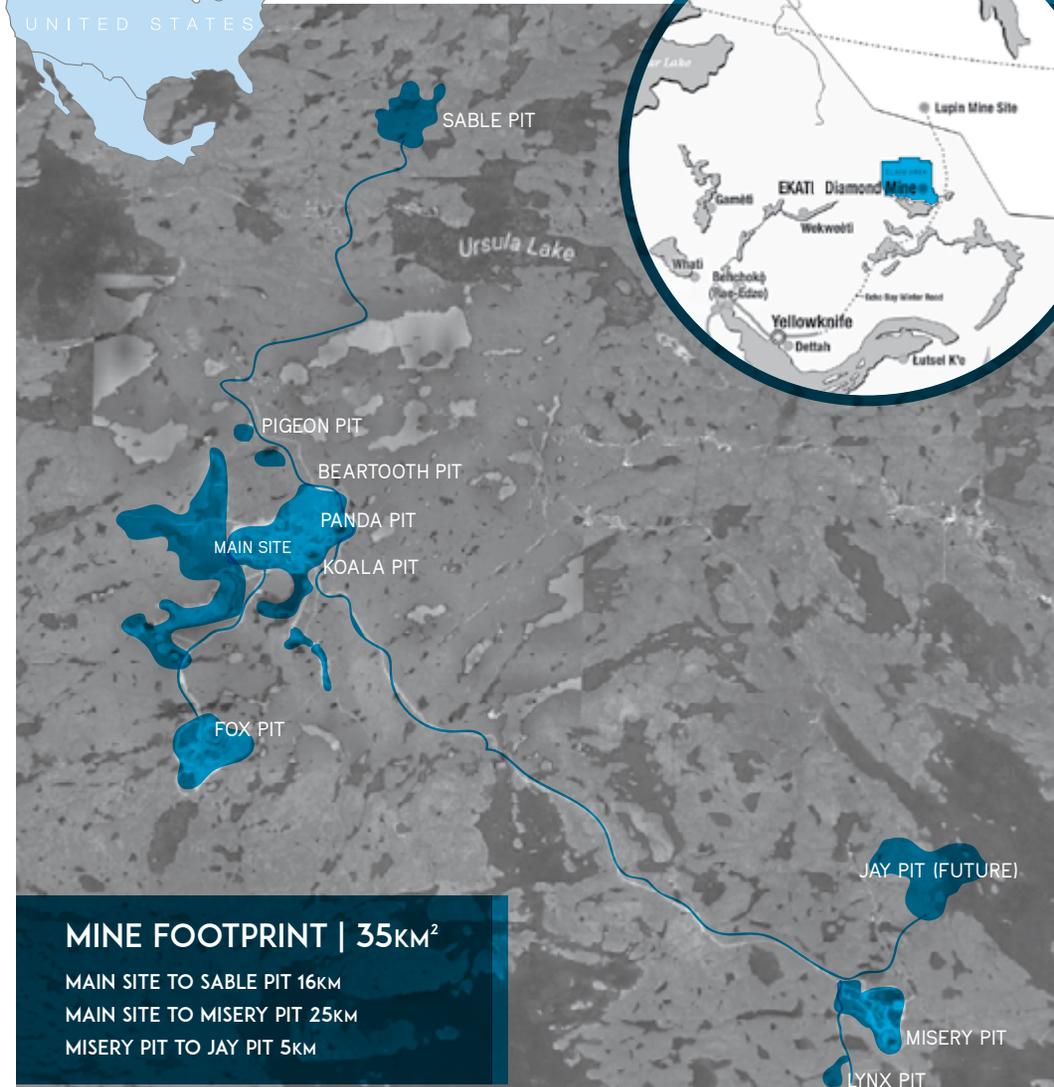
Total Suspended Particulates – Portion of dust released into the air that remains in the air.

Waste Rock – Rock that must be removed to access kimberlite pipes, or rock that contains diamonds but that is not worth mining or processing.

Wastewater – Water that contains wastes from the mining process (e.g., sewage and chemicals from explosives).



■ NORTHWEST TERRITORIES
■ NUNAVUT



2016-17 ANNUAL REPORT

PLAIN LANGUAGE

Directors

JAIDA OHOKANNOAK

Chairperson
P.O. Box 2366
Cambridge Bay NU X0B 0C0

EMERY PAQUIN

Vice Chairperson
225 Grace Lake Boulevard
Yellowknife NT X1A 0C5

KIM POOLE

Secretary-Treasurer
1918 Shannon Point
Nelson BC V1L 6K1

TIM BYERS

P.O. Box 1049
Teulon MB R0C 3B0

ARNOLD ENGE

5124 Forrest Drive North
Yellowknife NT X1A 2N4

JESSE JASPER

2 Vaydik Court
Yellowknife, NT X1A 3H7

RONALD ALLEN

4 Glowach Court
Yellowknife NT X1A 3M9

How To Reach Us

IN PERSON

Suite 203
5006 Franklin Avenue
Yellowknife NT

BY MAIL

P.O. Box 1192
Yellowknife NT
X1A 2N8

BY TELEPHONE

(867) 669-9141

BY FAX

(867) 669-9145

BY E-MAIL

monitor1@monitoringagency.net

WEBSITE:

www.monitoringagency.net

Office Staff

MARC CASAS

Executive Director

JESSICA SIMPSON

Communications and
Environmental Specialist

OFFICE HOURS

Monday to Friday
9:00 a.m.—12:00 p.m.
1:00 p.m.—5:00 p.m.

