

ABOUT THE AGENCY

The Independent Environmental Monitoring Agency was formed in 1997 to act as a public watchdog over the Ekati Diamond Mine. We are governed by a Board of Directors appointed by:

- Akaitcho Treaty 8 First Nations (specifically, Lutsel K'e Dene First Nation and Yellowknives Dene First Nation)
- Tłı̨chǫ Government
- North Slave Métis Alliance
- Kitikmeot Inuit Association
- Government of Canada
- Government of the Northwest Territories
- Dominion Diamond Ekati ULC (Dominion Diamond)

AGENCY MANDATE

- Review, report or make recommendations on the environmental programs, reports and activities of Dominion Diamond and government and the integration of the experience and Traditional Knowledge of Aboriginal peoples;
- Participate as an intervenor in regulatory and other legal processes concerning the environment;
- Maintain a resource library of environmental information relevant to Ekati;
- Distribute information about Ekati to Aboriginal peoples and the general public; and
- Provide an effective means to bring to Dominion Diamond and governments the concerns of Aboriginal peoples and the general public.

BOARD OF DIRECTORS AND STAFF



From left to right: Marc Casas, Tim Byers, Bill Slater, Jaida Ohokannoak, Jesse Jasper, Ron Allen, Emery Paquin, Shannon Moore. Absent: Kim Poole.

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY

HOW TO REACH US

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For further information on the Agency's recommendations, please refer to the technical or plain language version of our annual report available on our website or from our office.

2017-18 SCORECARD FOR THE ENVIRONMENTAL PERFORMANCE OF THE EKATI MINE

Closure and Reclamation: *Satisfactory* – Dominion Diamond was directed by the Wek'eezhii Land and Water Board in 2017 to submit an updated single integrated Interim Closure and Reclamation Plan (ICRP). An updated ICRP has recently been received and will be reviewed starting in the fall of 2018. Reclamation research continues to lag behind schedule, however a revised reclamation research plan is expected to be submitted along with the ICRP. The reclamation of Old Camp is well behind schedule but is expected to be completed during the summer of 2018.

Financial Security: *Satisfactory* – The GNWT holds an appropriate amount of security for the existing liability onsite.

Water and Aquatic Life: *Satisfactory* – There are no new water quality issues this year, however selenium levels in sediment are increasing as are potassium concentrations in water downstream of the Long Lake Containment Facility. The Aquatic Response Framework continues to help with early identification of potential issues of concern.

Air Quality: *Good* – The 2015 - 2017 Air Quality Monitoring Report shows that monitoring results were similar to historical data. Dominion Diamond continued its dust suppression pilot study in efforts to reduce dust levels on site.

Wildlife: *Satisfactory* – The grizzly bear monitoring program continued in 2017. Record numbers of caribou from both the Bathurst and Beverly/Ahiak herds have visited the site in recent years but they are now seen more often during winter months. Monitoring of and reporting on site permeability for caribou (crossing success at different scales) should be enhanced.

Traditional knowledge: *Satisfactory* – The Traditional Knowledge Elders Group continues to meet regularly and provides input on site wide topics and is not restricted to the Jay Project. Unfortunately, a decision was made to delay construction of the cultural camp.



2017-2018 ANNUAL REPORT SUMMARY

A PUBLIC WATCHDOG FOR ENVIRONMENTAL
MANAGEMENT AT EKATI DIAMOND MINE



INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY

MESSAGE FROM THE CHAIR



I am pleased to present the 2017-18 annual report of the Independent Environmental Monitoring Agency (Agency). Our report this year comes in two versions, a technical report and a plain language version. The report summarizes the Agency’s activities and offers recommendations for Dominion Diamond Ekati ULC (Dominion Diamond) and for the regulators.

This past spring the Agency celebrated our 100th Board meeting. We have seen many changes to the mine over the years and continue to participate in regulatory processes, closely review all the monitoring reports and contribute to the improvement of monitoring plans and programs to ensure good environmental performance at the mine.

This year there was a change in the Director appointed by the North Slave Metis Alliance as Arnold Enge stepped down and Bill Slater was appointed. Jessica Simpson, our Communications and Environmental Specialist, also left the Agency. I would like to take this opportunity to thank both Arnold and Jessica for their contributions and welcome Director Bill Slater and our new Communications and Administrative Specialist, Shannon Moore.

During the past year the Agency has participated in the Misery Underground project water license amendment. Our main concerns involved mine water management, closure of the underground mine, and the sensory disturbance to wildlife, in particular caribou, from increased road haul traffic. We also participated as an intervener in the potassium effluent quality criteria (EQC) water license amendment proceedings where our main recommendation was that the EQC be established at levels that ensure short-term and long-term site-specific water quality objectives are not exceeded in the downstream environment.

Another key activity for us this year was hosting an environmental workshop on waste rock including presentations by the Agency, Dr. Leslie Smith, Prof. Emeritus UBC, and Dominion Diamond. The workshop provided good information as a primer to future discussions regarding the closure issues associated with waste rock piles.

This past year the Agency travelled to the community of Kugluktuk, Nunavut and hosted a community open house and met with the Kitikmeot Inuit Association and Municipal Council Members. We also had an opportunity to learn a bit of Inuit Qaujiamjatuqangit (Inuit traditional knowledge) by going out on the land and experiencing some local culture.

Over the next year we will continue our efforts to ensure that the Ekati mine maintains its good environmental performance. Please feel free to contact the Agency at any time with your comments and concerns, or if you wish for us to visit your community.

Jaída Ohokannoak

Jaída Ohokannoak
May, 2018

AGENCY RECOMMENDATIONS 2017-18

1 RECOMMENDATIONS

Dominion Diamond use ‘Effective Neutralizing Potential’ for determining the availability of neutralizing potential in waste rock.

DOMINION DIAMOND RESPONSE:

The Neutralizing Potential correction factor proposed by IEMA in the comments from the Waste Rock and Ore Management Plan (WROMP) Version 8.0 (ENP was temporarily calculated by subtracting 10 kg CaCO3/t from the measured bulk NP (neutralization potential) for each sample, based on the conclusions presented in MDAG [1995]) is not appropriate given the significant limitations associated with the MDAG work. The method for assigning effective NP presented in MDAG (1995) was based on the outcome of long-term testing conducted on only one sample (MCH3 220-258). By suggesting that this approach be applied on a broad scale, it is implied that the factor to correct for effective NP is the same for each rock type. However, no basis is provided for this assumption. The method proposed in MDAG (1995) (and promoted by IEMA) does not account for rock type specific factors that may influence effective NP including, but not limited to, the mineralogical source of NP, mineral textures, and mineral reaction rates. Furthermore, based on visual mineral textures observed in each rock type, the rate of reaction of minerals may also vary according to factors relating to grain size, and mineral availability, which the approach proposed by MDAG (1995) and requested by IEMA does not address. Therefore, given the different mineralogical compositions and textural characteristics of each rock type, it is not appropriate to assign a single corrective factor for effective NP to all rock types, even more so when the proposed value has virtually no technical underpinning and is based on the test results from one single sample.

Currently, rock types are evaluated with respect to acid generation potential using the NP/AP (acid generation potential) ratio calculated from bulk NP. This approach has been implemented based on Dominion’s extensive review of the existing geochemical dataset and aligns with industry best practices and updates to recommended acid rock drainage evaluations through technical literature published by the Mine Environment Neutral Drainage Program (MEND) and International Network for Acid Prevention Program (INAP). Given the significant limitations associated with the MDAG work, it is not appropriate to apply the NP correction factor proposed by IEMA.

2 RECOMMENDATIONS

Dominion Diamond initiate and enhance monitoring programs needed to support development and verification of Waste Rock Storage Area water balance and thermal models.

DOMINION DIAMOND RESPONSE:

Dominion’s existing seepage and thermal monitoring programs (summarized below) have provided, and will continue to provide, extensive and valuable data in the development and calibration of Waste Rock Storage Area (Waste Rock Piles)’s thermal models. Where appropriate, these programs can be supplemented to fit specific model needs such as planned activities to evaluate surface flows.

Seepage Monitoring:

Dominion monitors the seepage from the Waste Rock Piless twice per year and presents the data in the annual seepage survey report. The seepage surveys are conducted at all the Waste Rock Piless on-site at the Ekati mine and include site visits during freshet and in the fall to collect seepage samples. In 2018, in addition to the seepage surveys, Dominion will conduct mapping of surface flow pathways where Waste Rock Piles and CKR seepage flows daylight and, if possible, seepage flow pathways downstream of the Waste Rock Piless and the Coarse Process Kimberlite Storage Area. Dominion is also conducting a waste rock seepage hydrology investigation to monitor seasonal flow variations.

Thermal Monitoring:

Dominion will continue to collect ground temperature monitoring data and provide a summary of the ground temperature conditions annually. Ground temperatures in Waste Rock Piless are measured a minimum of four times annually, using ground temperature cables (GTCs) installed at various locations. Twenty-two GTCs are recording temperature data from toe berms and Waste Rock Piless at Ekati. Dominion installed a new GTC at Misery Waste Rock Piles as part of the recent winter investigation and this GTC will be incorporated into the annual ground temperature monitoring data collection program.

3 RECOMMENDATIONS

The Government of the Northwest Territories, Department of Lands work with the Department of Environment and Natural Resources to develop a legal or policy framework which enables land and water-related reclamation securities to be managed under a single regulatory instrument.

GNWT RESPONSE:

GNWT understands that a single regulatory instrument for managing land and water-related reclamation securities could be beneficial. Because the Mackenzie Valley Resource Management Act remains federal legislation, however, GNWT does not have the necessary legal authority to create such an instrument. GNWT will continue to work with Canada, the Land and Water Boards, and others to develop a clear and enforceable approach to managing land and water-related reclamation securities.

4 RECOMMENDATIONS

Department of Fisheries and Oceans Canada improve the level and rigor of their participation in the assessment, review and monitoring of activities, programs and management plans related to fish and fish habitat at the Ekati mine.

DFO RESPONSE:

In response to the above-mentioned recommendation, FPP has analyzed its involvement in Ekati assessments, reviews and monitoring activities, programs and management plans. In the 2017-2018 year, FPP has participated and/or is currently involved in several reviews in regards to the Ekati mine. This includes, but is not limited to:

- January, 2017: FPP participated in Dominion’s community engagement sessions on the proposed Jay offsetting plan
- February, 2017: FPP reviewed Dominion’s proposal to construct and install two watercourse crossings for the construction of the Jay Road;
- April 2017: FPP issued a Letter of Advice for two watercourse crossings as part of the construction of the Jay Road;
- April 2017: FPP reviewed the Sable Dewatering Plan and provided comments;
- July 2017: FPP reviewed the Aquatic Effects Monitoring Plan 2016 Annual Report and provided comments;
- September, 2017: FPP conducted a site visit at Ekati, specifically at the Jay Road, and other sites of interest to DFO including the Panda Diversion Channel (PDC) and the Pigeon Stream Diversion (PSD);
- October, 2017: FPP reviewed the PDC offsetting monitoring report(s);
- December, 2017: FPP reviewed the as-built designs and fish salvage monitoring reports for the construction of watercourse crossings B0 and Ac35 as part of the Jay Project;
- Winter, 2018: DFO-FPP conducted engagement on the proposed changes to the Fisheries Act;
- Winter, 2018: FPP participated as an intervenor in the review of the Misery Underground (MUG) Project;
- Winter, 2018: FPP participated at an interim closure reclamation plan (ICRP) workshop;
- Winter, 2018: FPP has continued to review the proposed inconnu stocking plan for the Jay Project. The draft plan was reviewed by DFO Science (Canadian Scientific Advisory Secretariat (CSAS) review of Dominion’s proposed offsetting plan).
- May, 2018: FPP reviewed the proposed Sable diffuser construction plan;
- June, 2018: FPP and Dominion are arranging a follow-up site visit for the Jay project area and other sites at the Ekati mine of interest to DFO.

As demonstrated by the above examples, FPP participates in the review of proposed activities at the Ekati mine that have the potential to impact fish and fish habitat, and conducts follow-up in relation to those works, undertakings and activities for which it has issued approvals. DFO will continue to conduct comprehensive reviews according to our mandate “to maintain the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries”.

TO: DOMINION DIAMOND (TOPIC - WASTE ROCK MANAGEMENT)

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TO: GOVERNMENT OF THE NORTHWEST TERRITORIES (TOPIC - CLOSURE & RECLAMATION)

TO: DEPARTMENT OF FISHERIES AND OCEANS (TOPIC - CLOSURE & RECLAMATION)