

# Joint Polar Knowledge Canada/NASA Arctic Boreal Vulnerability Experiment/GNWT Workshop

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# History and Overview

- 1992 Aber Resources stake mineral claim
- 1994/95 A21, A154, A418 kimberlites discovered
- 1997 Environmental baseline studies completed
- 1998 Project description submitted under CEAA
- 2000 All project permits in place
- 2001 Construction commences
- 2003 Production from A154 commences
- 2008 Production from A418 commences, A154 open pit concludes
- 2010 Official opening of underground mine
- 2012 A418 open pit concludes – fully operational underground mine
- 2014 Construction of A21 commences





# History and Overview

- Joint venture
- Located ~300 km NE of Yellowknife
- 4 ore bodies
- Construction of water retention dikes required to access the ore bodies
- 2M tonnes/yr
- 7M carats/yr
- Workforce of 1,017
- 24/7 - 365 day operation





# Life of Mine



Mine life	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
A154 open-pit	█																													
A418 open-pit						█																								
A154/A418 underground								█																						
A21 open-pit																	█													
Closure																					█									

Mine schedule subject to market conditions, further resource evaluation, continued mine planning, etc.



# Environmental Overview

- Regulated under both Federal and Territorial Acts
  - Land Leases
  - Fisheries Act Authorizations
  - GHG's
  - Water Licence
  - Wildlife Act
- Environmental Agreement
- Rio Tinto Standards



**Wek'èezhii**  
Land and Water Board

Box 32, Wekweèti, NT X0E 1W0  
Tel: 867-713-2500 Fax: 867-713-2502

#1-4905 48<sup>th</sup> Street, Yellowknife, NT X1A 3S3  
Tel: 867-765-4592 Fax: 867-765-4593  
www.wlwb.ca

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Pursuant to the *Mackenzie Valley Resource Management Act* and Regulations, the Wek'èezhii Land and Water Board, hereinafter referred to as the Board, hereby grants to:

\_\_\_\_\_  
Diavik Diamond Mines (2012) Inc.  
(Licensee)

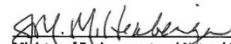
of \_\_\_\_\_  
P.O. Box 2498 Suite 300, 5201-50<sup>th</sup> Avenue, Yellowknife, NT X1A 2P8  
(Mailing Address)

Hereinafter called the Licensee, the right to alter, divert or otherwise use water and deposit Waste subject to the restrictions and conditions contained in the *Waters Act* and Regulations and in accordance with the conditions specified in this Licence.

Licence Number:	W2015L2-0001 (Formerly W2007L2-0003, MV2005L2-0009, N7L2-1645)
Licence Type:	A
Water Management Area:	NORTHWEST TERRITORIES 05
Location:	LAC DE GRAS, NT
Purpose:	WATER USE AND WASTE DISPOSAL
Description:	DIAMOND MINING AND MILLING
Quantity of water <b>not to be exceeded</b> :	SEE PART D, ITEM 2
Effective Date of Licence:	OCTOBER 19, 2015
Term of Licence:	8 YEARS
Expiry Date of Licence:	OCTOBER 18, 2023

This Licence issued and recorded at Yellowknife includes and is subject to the annexed conditions.  
**Wek'èezhii Land and Water Board:**

 _____ Witness	 _____ Chair
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**APPROVED BY:**   
 \_\_\_\_\_  
 Minister of Environment and Natural Resources

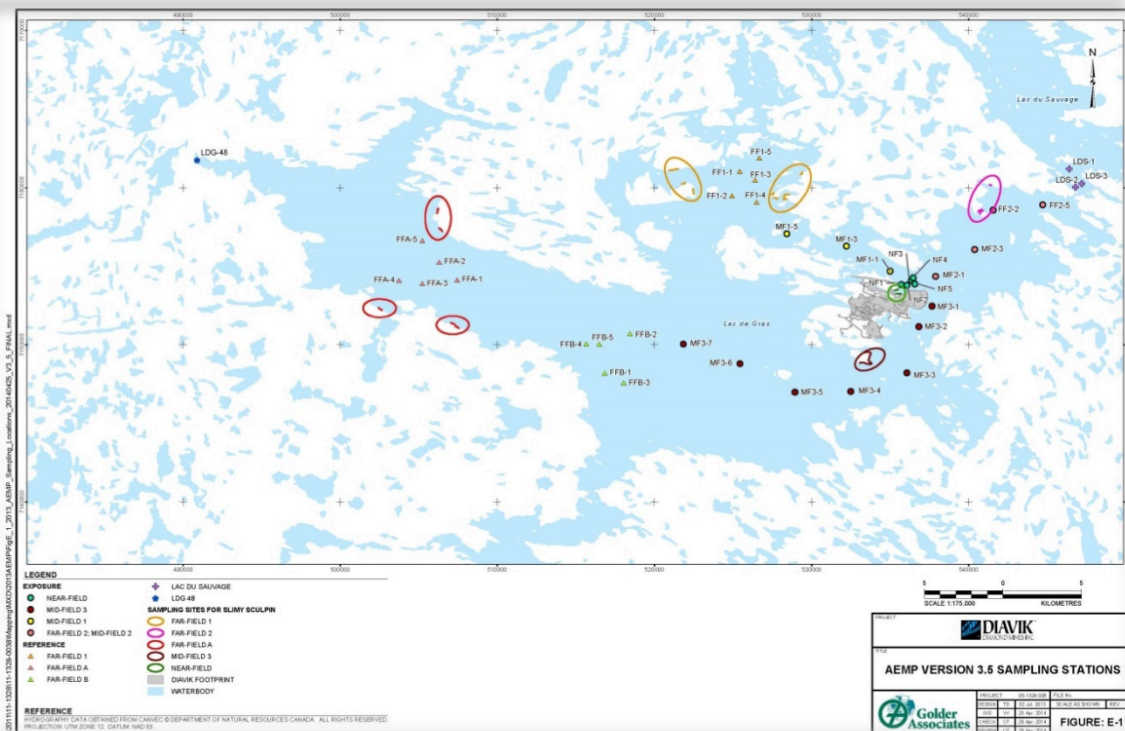


W2015L2-0001 (Renewal of W2007L2-0003)

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# Monitoring Programs

- Water
  - Onsite vs Offsite
- Wildlife
  - EA predictions
    - Caribou
    - Wolverine
    - Grizzly bears
    - Water fowl
    - Raptors
- Air





# Aquatic Effects Monitoring Program



- Completed 2X each year
- Three year intensive program
- Three year summary and redesign
- Different components each year



# Wildlife Monitoring

- Caribou
- Grizzly Bear
- Wolverine
- Waterfowl
- Raptors
- Varying frequencies





# Windfarm

- Awards
  - CanWEA group leadership
  - NAPEG environmental excellence
- Oct 2012 – Dec 2015
  - 14.8M L of diesel offset
  - 59.3 gigawatts
  - 41,771 tonnes of CO<sub>2</sub>e reduced
  - Fuel savings: ~CDN\$18 million
  - Availability: 97.5%
- Estimated 7 year payback



# Closure

- 2023 – End of commercial production
- Reclamation to commence in 2017
- Closure and post closure to ~2030





# Current Research Collaboration

- Re-Vegetation
- Waste Rock Test Piles
- PKC Closure Studies
- Fish Habitat Enhancement
- Support for GNWT Wildlife programs

# Potential Research Gaps

- Increased number of meteorological stations
  - improve resolution of environmental variation (spatially and temporally)
- Monitoring temporal changes in phenology and abundance of lichen/vegetation on caribou calving, post-calving and summer areas.
- Effect of extended ice-free season resulting from global warming on subarctic lake ecosystems
- Potential for nutrient inputs to subarctic lakes from permafrost degradation
- Extended climate change models specific to Northern Regions
- Increased capability for satellite monitoring
  - Post closure monitoring
  - Wildlife monitoring
  - Water quality
  - Ice Roads
- Re-vegetation of disturbed sites (natural vs planned)



# Thank-you

