



File: W2017D0004

February 21st, 2020

Dominion Diamond Mines ULC
Misery Underground Project
900 – 606 4th Street SW
CALGARY, AB T2P 1T1

Attention: Ms. Claudine Lee – Head of Environment

**Re: Land Use Permit W2017D0004
Mining & Associated Activities
Ekati Diamond Mine, Northwest Territories**

Dear Ms. Lee,

An inspection of the Misery Underground Project and Misery Camp at the Ekati Diamond Mine was conducted by Inspector Joe Heron on February 6th, 2020. The inspection was carried out to ensure operating conditions annexed to the above-noted land use permit are being adhered to during this land use operation. All findings of the inspection were discussed onsite with Mr. Lorne Newbury (Project Superintendent, Misery Underground) and Mr. James Simpson (Draw Control Technician, Misery Underground).

Overall, the Inspector is appreciative of the Permittees efforts to ensure adherence to the operating conditions annexed to Land Use Permit W2017D0004. However, as mentioned in the December 10th, 2019 Inspection Report, it is the expectation of the Inspector that secondary containment is properly utilized during fuel transfers and containment is placed under parked equipment as per Conditions #32 & #37 of the permit. A proper waste management station must be utilized at the underground 2150 Level and waste throughout the project must continue to be properly managed and disposed of on an ongoing basis as per the approved Ekati Mine *Waste Management Plan* (Condition #23).

As per **Section 28** of the *Mackenzie Valley Land Use Regulations*, ensure the Inspector is notified when the underground electrical and air supply/heating systems are made operational.



- 2 -

Your copy of the Environmental Inspection Report is enclosed and should be self-explanatory. If you have any questions or concerns, please contact the undersigned at (867) 767-9187 ext. 24192.

Sincerely,

Joseph Heron
Resource Management Officer III (Inspector)
GNWT Department of Lands, NSRO

cc: *Jamie Steele (GNWT Lands, NSRO)*
Rhiana Bams (WLWB)
Roberta Judas (WLWB)
Lorne Newbury (DDM, Project Superintendent)
Shane Amy (DDM, A/Project Superintendent)
Baruck Wile (Procon, Project Manager)
Shannon Moore (IEMA)



ENVIRONMENTAL INSPECTION REPORT

Permittee:	Dominion Diamond Mines ULC – MUG Project	Inspection Date(s): February 6 th , 2020
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		Permit Expiry Date	Last Previous Inspection
Land Use Permit No.	W2017D0004	July 11 th , 2023	December 10 th , 2019
Quarrying Permit No.	N/A		
Contractor:	Procon, Ryfan, Civeo, BAT Construction, Nuna Logistics	Subcontractor:	N/A

Location(s) Inspected:	The Ekati Mine Misery Underground Project and Misery Camp.
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Current Stage of Operation:	Development along the Misery Underground 2120 & 2100 levels continues and kimberlite is being stockpiled on the surface on the south of the Misery Waste Rock Pile prior to its transport to the Processing Plant located at the Ekati Diamond Mine main site.
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Condition of Operation A- Acceptable U - Unacceptable N/A - Not Applicable

	Operating Condition	Aspect Inspected			Condition
		MUG Project	Misery Camp		
A	Location and Area	A	A		
B	Time	A	A		
C	Type and Size of Equipment	A	A		
D	Methods and Techniques	A	A		
E	Type, Location, Capacity and Operation of All Facilities	A	A		
F	Control or Prevention of Ponding of Water, Flooding, Erosion, Slides & Subsidence of Land	A	A		
G	Use, Storage, Handling and Ultimate Disposal of Any Chemical or Toxic Material	A	A		
H	Wildlife and Fisheries Habitat	A	A		
I	Storage, Handling and Disposal of Refuse or Sewage	A*	A*		#23 Waste Management
J	Protection of Historical, Archeological and Burial Sites	A	A		
K	Objects and Places of Recreational, Scenic or Ecological Value	N/A	N/A		
L	Security Deposit	A	A		
M	Fuel Storage	A* A* A*	A* A* A*		#32 Secondary Containment - Refueling #37 Drip Trays #38 Clean Up Spills
N	Methods & Techniques for Debris and Brush Disposal	A	A		
O	Restoration of the Lands	A	A		
P	Display of Permits and Permit Numbers	A	A		
Q	Matters Not Inconsistent with the Regulations	A	A		
R	Sections 8 to 16 M.V.L.U.R.	A	A		

* Inspectors concerns were identified and discussed in the field.



ENVIRONMENTAL INSPECTION REPORT Pg. 2

Date: February 6 th , 2020	Permit#: W2017D0004
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Explanatory Remarks

An inspection of the Misery Underground Project and Misery Camp at the Ekati Diamond Mine was conducted by Inspector Joe Heron on February 6th, 2020. The inspection was carried out to ensure operating conditions annexed to the above-noted land use permit are being adhered to during this land use operation. All findings of the inspection were discussed onsite with Mr. Lorne Newbury (Project Superintendent, Misery Underground) and Mr. James Simpson (Draw Control Technician, Misery Underground).

Misery Underground Project

The raise bore has been dismantled and removed from its staging area on the Misery Pit 440 Bench. It appears the electrical and underground Fresh Air Raise (FAR) infrastructure on the bench is in place and is awaiting final commissioning. Crews are also setting up equipment at the underground 2150 Level that will be used to distribute power and fresh air throughout the underground. As seen in Photos #1-#3, the electrical sub-station and electrical distribution equipment is being installed and a concrete pad for the compressor station is being built. As per **Section 28** of the *Mackenzie Valley Land Use Regulations*, ensure the Inspector is notified when the underground electrical and air supply/heating systems are made operational.

In addition to the other equipment being set up at the 2150 Level, work on the MudWizard mud treatment system continues (Photo #4). Once operational, the MudWizard system will be used to recapture water for use during underground operations. Currently, water that is required for underground operations is being trucked to site and reused whenever possible. As seen in Photo #5, trucked water is being pumped into the underground sump system from the 2235 Lower Portal.

Only a minor concern was noted by the Inspector regarding the need to have an appropriate waste management station setup and made available at the 2150 Level (Photo #6). The use of a properly setup waste management station will allow for the segregation of waste prior to its disposal and will prevent waste items from being discarded on the ground in the area (Photo #7). Waste generated during the underground operations must be disposed of on an ongoing basis and conform to the approved Ekati Mine *Waste Management Plan* (Condition #23).

Developmental activities involving the mining of the kimberlite are occurring at two levels in the underground. There are currently six (6) drifts established on the 2120 Level and five (5) additional drifts on the 2100 Level. The drifts are staggered vertically between the levels and this arrangement ensures there is competent ground support to allow for the drilling, blasting and mining of the kimberlite (Photo #9). The kimberlites are being staged in an underground area called a remuck prior to its transport to surface and onto the Ekati Mine processing plant (Photo #10). Waste rock, hydrocarbon impacted soils and metasediments (PAG material – Photo #11) continue to be disposed of on the Misery Waste Rock Storage Area (WRSA) as per the Ekati Mine *Waste Rock and Ore Storage Management Plan*.

Hydrocarbon Management

It appeared the majority of hydrocarbons throughout the MUG Project were being properly placed in containment and hydrocarbon impacted waste was properly labeled and staged (Photos #13 & #14). However, as seen in Photos #15-#18, deficiencies noted during the inspection included:

- Secondary containment was not being used at the Getman (fuel truck) on the Lower Portal 2235 ramp and fuel was present around the area of the transfer nozzle.
- Secondary containment trays under the Frost Fighters on the 2235 ramp were full of snow and hydrocarbons were out of containment and impacting the underlying snow/soils.
- There was no secondary containment under the parked equipment on the east of Misery Camp (Photo #19).
- Spilled fuel was on the ground at the Misery Camp fuel transfer station (Photos #20 & #21). The Permittee must ensure spilled hydrocarbons are cleaned up as spills occur to prevent fuel tracking off the fuel pad (Photo #22).
- The sump at the fuel transfer station was full of snow and must be kept cleared to ensure adequate capacity in the event of larger spills.

The Permittee is also reminded that spilled hydrocarbons and hydrocarbon impacted materials are to be cleaned up and disposed of in a timely manner (Condition #38). Proper hydrocarbon management practices will help prevent the introduction of hydrocarbons into the surrounding receiving environment. No further concerns were noted by the Inspector.



ENVIRONMENTAL INSPECTION REPORT Pg. 3

Date: February 6 th , 2020	Permit#: W2017D0004
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<p>Explanatory Remarks</p> <p>Misery Camp</p> <p>It seemed sewage and waste management activities at Misery Camp were acceptable with a minor concern noted. It appeared a bin on the east of the camp truckshops was overfilled with burnable waste (Photo #23). Waste must be removed and disposed of in a timely manner on an ongoing basis as per the approved Ekati Mine <i>Waste Management Plan</i> (Condition #23). It appeared the lines of the sewage, water and fire suppression tanks were intact and no spills were noted on the ground (Photo #24).</p> <p>Conclusion</p> <p>Overall, the Inspector is appreciative of the Permittees efforts to ensure adherence to the operating conditions annexed to Land Use Permit W2017D0004. However, as mentioned in the December 10th, 2019 Inspection Report, it is the expectation of the Inspector that secondary containment is properly utilized during fuel transfers and containment is placed under parked equipment as per Conditions #32 & #37 of the permit. A proper waste management station must be put in place at the underground 2150 Level and waste throughout the project must continue to be properly managed and disposed of on an ongoing basis as per the approved Ekati Mine <i>Waste Management Plan</i> (Condition #23).</p>
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Completed off Site
Representative's Signature

Joseph Heron
Inspector



Inspector's Signature



Photo 1: This electrical sub-station at the UG 2150 Level will step down electricity from an electrical transformer located on the Misery Pit 440 Bench.



Photo 2: Electricity from the sub-station in Photo 1 reports to this electrical distribution station. Electricity will then be directed throughout the underground to support mining operations.



Photo 3: A concrete pad for the underground compressor station was being construction at the UG 2150 Level.



Photo 4: This MudWizard mud treatment system was being installed at the UG 2150 Level.



Photo 5: Trucked water was being pumped into the UG water system in support of the UG mining operations.



Photo 6: Containers used to manage aerosol can waste and staged hydrocarbons at the UG 2150 Level.



Photo 7: The Inspector noted there was no visible waste bin at the UG 2150 Level and there was a minor amount of produced waste on the ground.



Photo 8: There was a properly set-up waste management station being used at the UG 2155 Maintenance Bay.



Photo 9: As part of their ground support operations, crews at the UG 2100 Level were spraying shotcrete on the surface of this drift known as Drawpoint 3. As seen in the foreground, a spray bar was being used to help suppress dust levels in the work area.



Photo 10: Mined kimberlite is being staged underground prior to its transport to surface.



Photo 11: Metasediments (PAG material) from the UG was being deposited on the Misery Waste Rock Storage Area (WRSA).



Photo 12: Inert waste from the UG was being staged south of the Misery WRSA.



Photo 13: Hydrocarbons at the UG were properly staged and within secondary containment.



Photo 14: Properly labeled and staged hydrocarbons in a lined containment area on the west of Misery Camp.



Photo 15: There was no secondary containment in place under this Getman on the 2235 Lower Portal ramp.



Photo 16: Though the fuel nozzle was stored in containment when not in use, it appeared secondary containment was not being used during fuel transfers at the Getman.



Photo 17: As seen, the secondary containment tray under this Frost Fighter was filled with snow and required maintenance.



Photo 18: There was not secondary containment under this Frost Fighter and hydrocarbons were present on the ground under the area of the refueling nozzle.



Photo 19: There was no secondary containment in place under this parked equipment on the east of Misery Camp.



Photo 20: The main fuel storage facility at Misery Camp.



Photo 21: Looking at the bulk fuel offload station on the east of Misery Camp.



Photo 22: Though hard to see in this photo, there were hydrocarbons on the ground at the Misery Camp fuel transfer station. All spilled hydrocarbons must be cleaned up and properly disposed in a timely manner.



Photo 23: Waste at the truckshop on the east of camp required disposal.



Photo 24: Sewage lines at the camp septic tank appeared intact and no spills were noted by the Inspector.