



File: W2017D0004

February 8th, 2019

Dominion Diamond Ekati ULC (Dominion)
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 Ekati Mine Misery Underground Project, Misery Camp expansion, Misery laydown areas and the underground electrical supply infrastructure was conducted by Inspector Joe Heron on January 22nd, 2019. 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. Dustin Chaffee (Environment Advisor - Permitting) and Mr. Shane Amy (Acting Project Superintendent - Misery Underground).

Overall, it appeared the land use area is being maintained in a very tidy & orderly fashion and only minor concerns were noted. The Permittee must ensure secondary containment is used during fuel transfers (Condition #32) and spilled hydrocarbons are cleaned up to comply with Condition #38 of the permit. The Permittee appears to be conducting land use operations in the Misery area to comply with the operating conditions annexed to LUP W2017D0004.

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)
North Slave Regional Office
GNWT - Department of Lands

cc: *Marty Sanderson*
Megan Schnurr (WLWB)
Roberta Judas (WLWB)
Scott Stewart (GNWT-Lands)
Marc Casas (IEMA)



ENVIRONMENTAL INSPECTION REPORT

Permittee:	Dominion Diamond Ekati – Misery Underground	Inspection Dates: January 22 nd , 2019
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		Permit Expiry Date	Last Previous Inspection
Land Use Permit No.	W2017D0004	July 11 th , 2023	October 18 th , 2018
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 expansion. The inspection also included laydown areas and the 440 Bench underground infrastructure.
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Current Stage of Operation:	Drilling and blasting at the Misery Pit lower portal continues and approximately 1,200 metres of the underground has been developed. The camp expansion has been completed and the new camp buildings were occupied on January 2 nd , 2019.
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Condition of Operation A- Acceptable U - Unacceptable N/A - Not Applicable

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



ENVIRONMENTAL INSPECTION REPORT Pg. 2

Date: January 22nd, 2019

Permit#: W2017D0004

Explanatory Remarks

An inspection of the Ekati Mine Misery Underground Project, Misery Camp expansion, Misery laydown areas and the 440 Bench underground infrastructure was conducted by Inspector Joe Heron on January 22nd, 2019. 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. Dustin Chaffee (Environment Advisor - Permitting) and Mr. Shane Amy (Acting Project Superintendent - Misery Underground).

Misery Underground Project (MUG Project)

At the time of inspection, approximately 1,200 metres of the underground had been developed to an area known as the 2nd Remuck. All temporary infrastructure to support the underground operations, including a staging laydown located at the ramp switchback, continues to be staged along the ramp adjacent to the 2235 Portal (Photos #1 & #2). As seen in Photos #3 & #4, there are gensets, fuel tanks, a lunch room & tag-in/tag-out board, washrooms, mud & brine tanks, air heaters, a ventilation fan and a rock dump area on the 2235 Portal ramp.

The underground infrastructure is continually being established as development progresses and at this stage, air is being pumped to the underground from heaters & fans staged on the ramp adjacent to the 2235 Portal (Photo #5). It appears an additional air heater (Photo #6) and an exhaust line from the underground are in place. As seen in Photo #7, the soft vent lines to the underground are being replaced with hardline. Water removed from the mine will be pumped up through the dewatering line in Photo #8 and deposited into King Pond.

Electrical components and sub-stations were installed at key locations or were being installed to assist in powering the underground (Photos #9 & #10). As seen in Photo #11, protective tubing for electrical lines is being installed and allows for electrical lines to be routed between the working levels within the underground. Once the electrical lines are fed through the tubing and installed, a concrete barrier is being constructed to protect the electrical lines from potential vehicle & equipment impacts.

As drifts are being established in the underground, crews are installing screen to ensure the tunnel walls are being stabilized in working areas (Photo #12). The hanging of the screen is completed in stages with split-sets (~1 metre lengths) being installed to temporarily hold the screen in place prior to the rebar installation. A plate driver (aka a 'kabonker') is used to drive the rebar in to the rock to depths of approximately 2.3 metres and allows for the screen to be held in place on a permanent basis. If required, shotcrete is then used to further secure the tunnel walls and allow for increased structural integrity and more importantly, personnel safety.

At the working face of the mine, water is removed prior to drilling and blasting by pumping into a sump system (Photo #13). Water from the working face in the decline is being pumped up to a holding sump where it flows down into a lower sump in a weir configuration. As water is pumped into the holding sump, suspended solids present in the water settle to the bottom and clean water flows over a retaining wall, down into a lower sump. Re-captured water is then used throughout the underground for development activities such as drilling, and the settling sump is mucked out as it fills. The mucked out material is hauled to the surface with an underground AD30 haul truck. Once at the surface, the material is hauled to its disposal area on the top of the Misery rock dump with a CAT 730 haul truck.

There are two (2) portable MineArc refuge chambers in place: One (1) refuge chamber is in place near the 2235 Portal ramp at the 1st Remuck and a second refuge is in place at the 2nd Remuck area on the decline portion of the development (Photo #15). Once the underground development progresses, the MineArc refuge chamber located at the 1st Remuck will be repositioned on the incline to the 2340 Portal. The MineArc refuge stations are essential pieces of equipment that allow for the personal safety of personnel working in underground mining operations.

The majority of the Fresh Air Raise (FAR) construction and the electrical transformer on the Misery Pit 440 Bench has been completed (Photos #17 & #18). In addition, a 50,000 litre fuel tank that will be used to supply the FAR building air heaters is in place within a secondary containment berm (Photo #19). The tank will be plumbed in once warmed is required to be pumped into the underground through the yet-to-be-established borehole (4 metre diameter).

It appears a concrete pad to support the raise bore is in place and can be seen in Photo #20. The raise bore will be shipped to site along the winter road will arrive onsite early in the 2019 winter road season. Once the borehole is drilled, all ancillary equipment along the Misery Pit 440 Bench will be made operational and electrical lines will be fed from the transformer and down through the borehole to supply power to the underground.



ENVIRONMENTAL INSPECTION REPORT Pg. 3

Date: October 18 th , 2018	Permit#: W2017D0004
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<p>Explanatory Remarks</p> <p>Fuel trucks are being used during all underground fueling operations in the refueling of machinery and equipment and there appeared to be adequate spill response materials available throughout the MUG Project. Garbage and sewage produced during the underground operations are removed daily and are being deposited into approved facilities at the Ekati Mine. No concerns were noted by the Inspector regarding the underground construction & mining operations occurring at the MUG Project.</p> <p>Misery Camp</p> <p>As part of the Misery Camp expansion, new buildings have been constructed, made operational and were occupied by mine personnel on January 2nd, 2019 (Photo #21). The three tanks used to manage potable water, sewage and fire suppression water have also been made operational as part of the expansion (Photo #22). The Cold Storage Building in Photo #23 appeared to be fully built and the Welding Shop building roof in Photo #24 is in place. As noted in the previous inspection, sewage & greywater produced at the Misery Camp and MUG Project is being trucked to the Ekati main camp for treatment at the mine Sewage Treatment Plant. The Inspector noted waste was being properly segregated prior to its disposal to approved facilities at the mine (Photo #25). No concerns were noted regarding the camp buildings or the management of the various waste streams at Misery.</p> <p>The three main laydowns within the Misery Camp compound and the Misery Camp winter road laydown adjacent to the Misery Pit appeared to be relatively free of materials and ready to receive supplies and equipment along the 2019 winter road (Photos #26-#29). It appeared materials staged within the laydowns were being consumed on an ongoing basis and waste appeared to be properly staged and labeled. Staged kimberlite continues to be transported to the Ekati main Process Plant with the use of road trains on an ongoing basis. No major spills or obvious hydrocarbon staining was observed at the laydowns, including the heavy equipment laydown, and no concerns were noted by the Inspector.</p> <p>Fuel & Facilities</p> <p>It appeared there were no major hydrocarbon spills and all fueling of equipment & machinery during the MUG Project is completed with the use of mobile fuel trucks. Only minor concerns were noted regarding fuel on the ground and with snow in the sumps at the Misery Camp fuel transfer station (Photos #30-#35). The use of secondary containment is imperative during fuel transfers (Condition #32) to prevent impacts to the surrounding land use area. All fuel transfer areas must be diligently monitored to ensure fuel remains properly contained and is not tracked out of the fuel transfer areas. Fuel sumps at the fueling stations must be kept free and clear of snow to ensure there is adequate capacity available in the event of spills (Condition #33). Any hydrocarbons spilled within the land use area must be immediately cleaned up and disposed of at approved facilities to prevent adverse effects to the surrounding environment (Condition #38).</p> <p>Overall, it appeared the land use area is being maintained in a very tidy & orderly fashion and only minor concerns were noted. The Permittee appears to be conducting land use operations in the Misery area to comply with the operating conditions annexed to LUP W2017D0004.</p>

Completed off Site
Representative's Signature

Joseph Heron
Inspector



Inspector's Signature



Photo #1 - W2017D0004
Temporary underground infrastructure staged on the ramp adjacent to the 2235 Portal. The rock dump area can be seen on the right.



Photo #2 - W2017D0004
Materials including a waste bin and fresh air tubing for the underground staged at the switchback laydown.



Photo #3 - W2017D0004
Another look at some of the infrastructure staged on the ramp adjacent to the 2235 Portal.



Photo #4 - W2017D0004
Additional equipment and supplies staged on the ramp.



Photo #5 - W2017D0004
The underground air heaters and fan system.



Photo #6 - W2017D0004
The added air heater (orange box) and stench gas box can be seen in this photo.



Photo #7 - W2017D0004
Air tubing within the underground is being replaced with hardline.



Photo #8 - W2017D0004
A dewatering line has been installed and water passed through will eventually end up in King Pond.



Photo #9 - W2017D0004
Electrical sub-stations are being established in key locations in the underground.



Photo #10 - W2017D0004
Concrete barriers are being put in place to protect electrical lines.



Photo #11 - W2017D0004
Electrical lines between the underground levels will be passed through protective tubing.

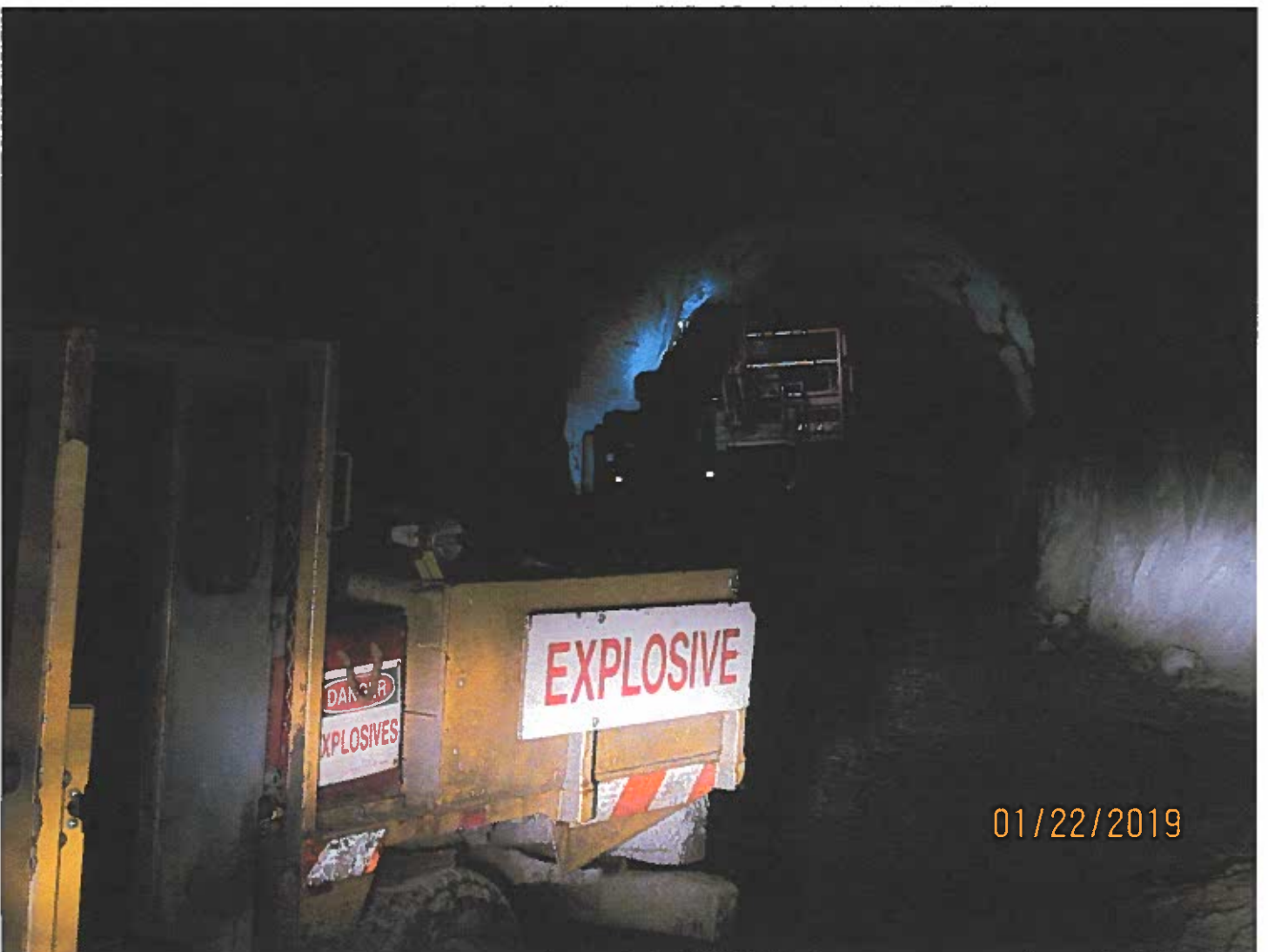


Photo #12 - W2017D0004
Though hard to see, crews were hanging screen to stabilize the drifts with the use of equipment known as a telehandler.



Photo #13 - W2017D0004

The working face prior to mark-up for drilling & blasting. Water is being removed from the face with an electric pump.



Photo #14 - W2017D0004

One of the sumps being established underground as the project progresses.



Photo #15 - W2017D0004
This MineArc refuge station is in place on the decline from the 2235 Portal in the area of the 2nd Remuck.



Photo #16 - W2017D0004
A photos of the Equipment Maintenance Bay with parked equipment.



Photo #17 - W2017D0004
Infrastructure to support the underground operations on the 440 Bench. The large building in the centre is the FAR Building.



Photo #18 - W2017D0004
The Inspector was informed the 440 Bench electrical transformer is ready for operation.



Photo #19 - W2017D0004
A 50,000 diesel tank has been put in place and will be plumbed in once the FAR becomes operational.



Photo #20 - W2017D0004
Though covered in snow, the concrete pad for the raise bore can be seen in this photo.



Photo #21 - W2017D0004

The new buildings at Misery Camp along with tanks for sewage, potable water and fire suppression water are now operational.

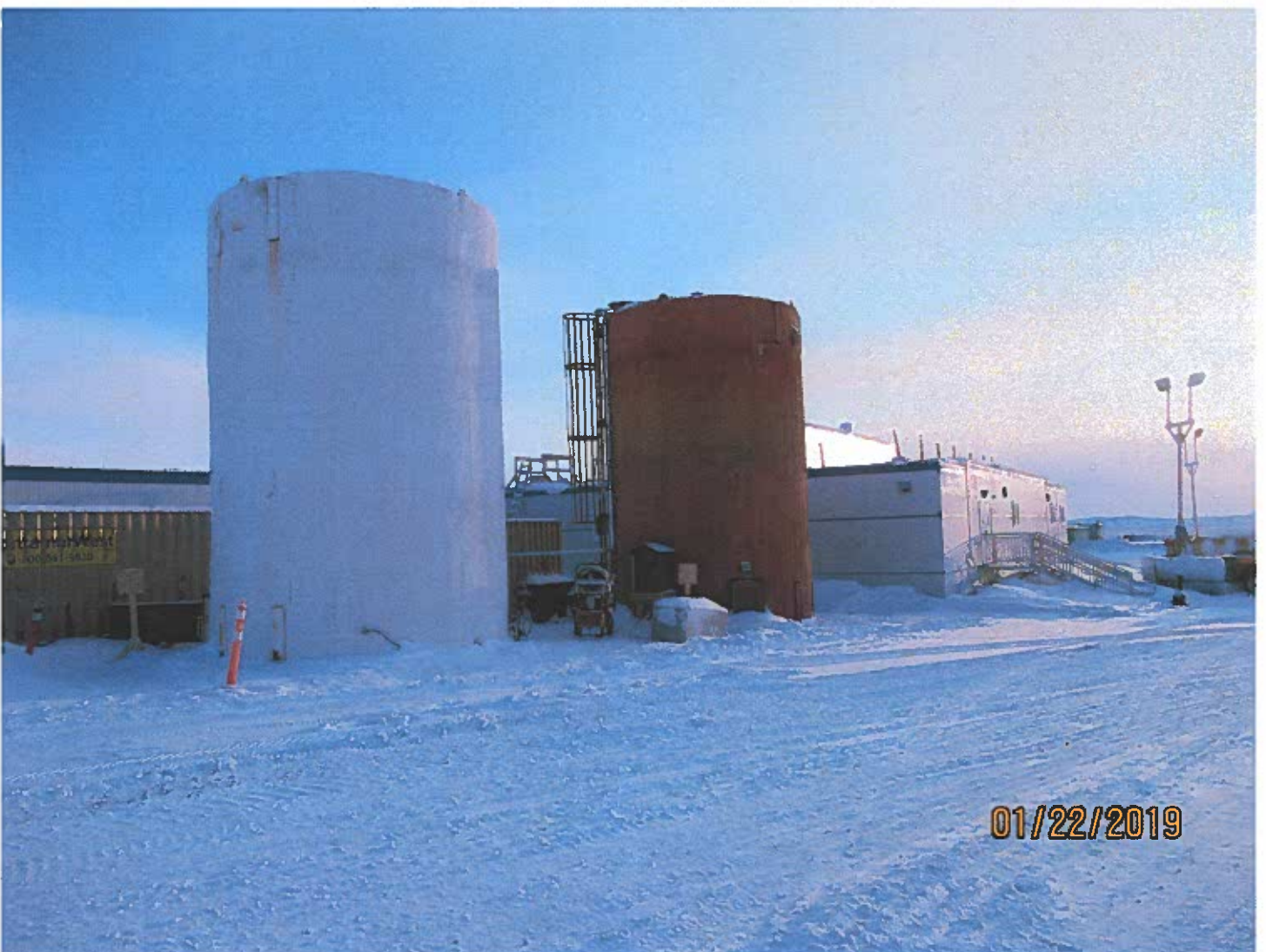


Photo #22 - W2017D0004

These tanks are used to manage potable water (white) and fire suppression water (red).



Photo #23 - W2017D0004
The Misery Camp Cold Storage Building.



Photo #24 - W2017D0004
It appeared the Misery Welding Shop was built and operational.



Photo #25 - W2017D0004
An example of properly segregated, staged & labeled waste and a spill kit at Misery Camp.



Photo #26 - W2017D0004
This laydown adjacent to the camp fuel storage facility is ready to receive materials transported along the winter road.



Photo #27 - W2017D0004
Waste staged in the laydown next to the Cold Storage Building was properly staged and labeled.



Photo #28 - W2017D0004
Crews were repairing equipment in the camp equipment laydown.



Photo #29 - W2017D0004
The laydown at the top of the Misery Pit ramp appeared ready to receive materials.

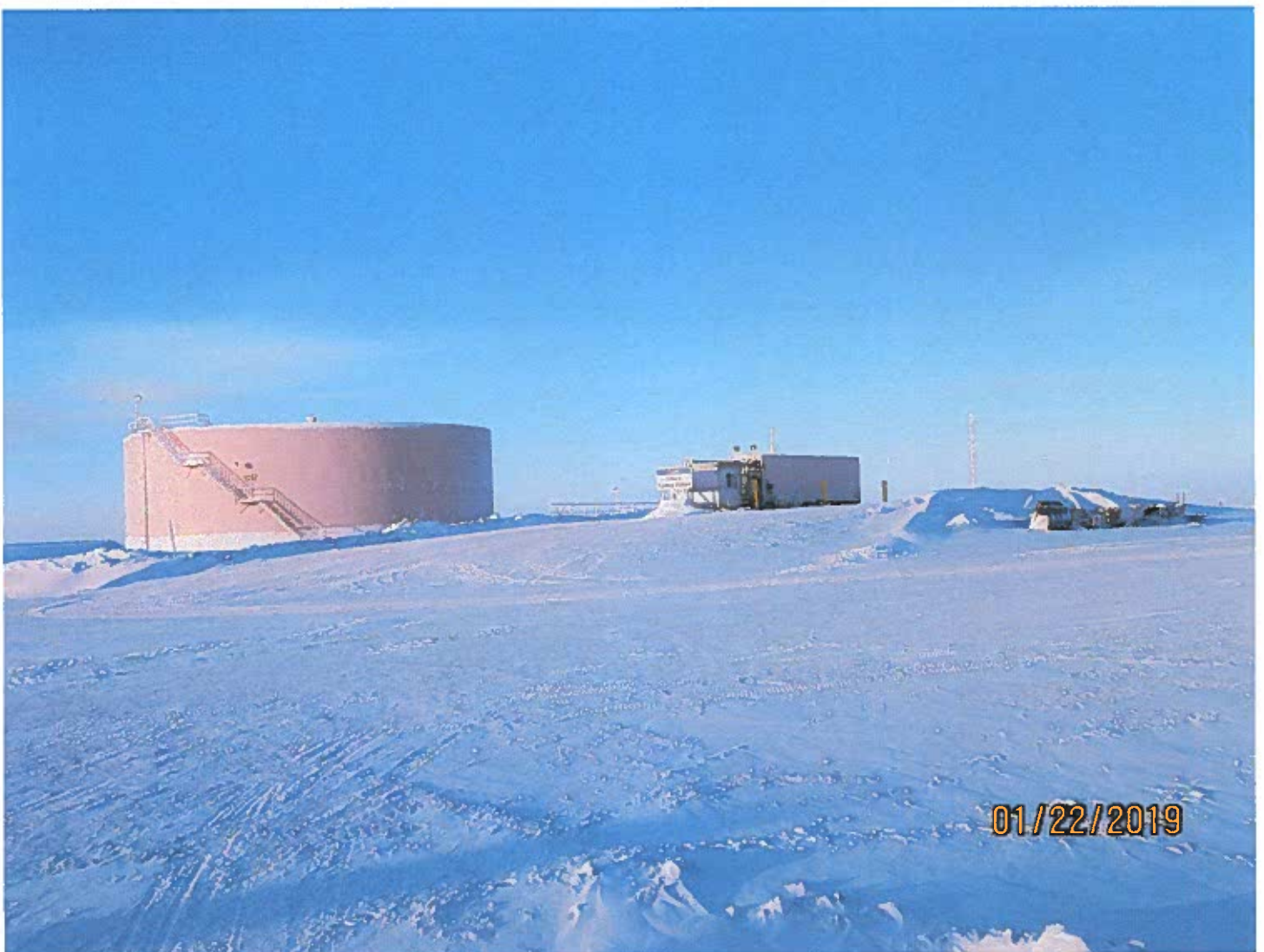


Photo #30 - W2017D0004
The Misery fuel storage, distribution and offload area.

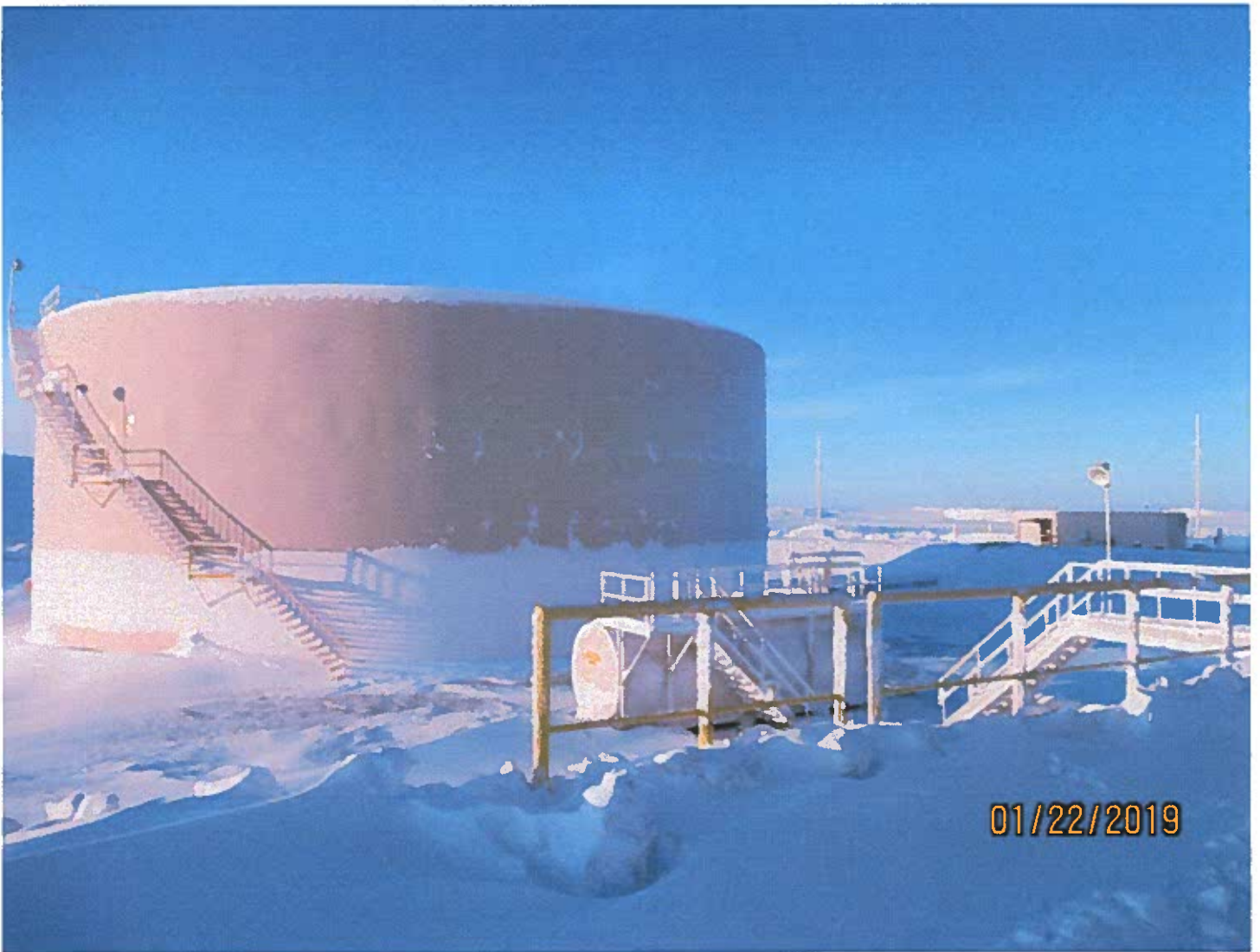


Photo #31 - W2017D0004
An additional 25,000 L diesel tank in the diesel tank berm.



Photo #32 - W2017D0004
Though it appeared to be freshly scraped clean, there were hydrocarbons on the ground at the Misery fuel transfer station.



Photo #33 - W2017D0004

Fuel nozzles were in secondary containment and there were adequate spill response materials at the fuel station.



Photo #34 - W2017D0004

As seen in Photo #33 and in this photo, there was spilled fuel on the ground at the transfer station.



Photo #35 - W2017D0004
This transfer station is used to offload fuel brought to site during the winter road season.



Photo #36 - W2017D0004
Fuel trucks are used to transfer fuel to all operations, including the underground, occurring under the W2017D0004 permit.