WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
TMAC Resources Inc.	Sarah Warnock
Licence No. / Expiry	**Representative's Title**
2AM-DOH1335	Environment Supervisor
Land / Other Authorizations	**Land / Other Authorizations**
Date of Inspection	**Inspector**
13/08/19-15/08/19	Candice Pedersen

Activities Inspected

☒ Camp ☐ Drilling ☒ Mining ☐ Construction ☐ Reclamation ☒ Fuel Storage
☐ Roads/Hauling ☐ Other: ☐ Other:

SECTION 1 ☐ Comments (s.__) ☐ Non-Compliance with Act or Licence (s.__) ☐ Action Required (s.__)

Background:

This licence authorizes TMAC Resources Inc. to use water and dispose of waste associated with the Mining and Milling undertaking at the Doris North Project as outlines in the Water Licence Application, submitted to the Board through the regulatory process.
They are authorized to use 2,033,800 cubic meters of fresh water annually.

TMAC Resources has a Type "A" Water Licence and is authorized to:
Use water from Doris Lake for mining, milling and domestic purposes, construct and operate the following: roads, airstrip, water crossings, laydown areas, Sewage Treatment Plant, Landfill and Landfarm, and the Tailings Impoundment Area, and to divert site runoff to Water Management Facilities and to construct and operate the Contact Water Ponds and Non-Contact Water Ponds.

Inspector Statement:

On August 13th, 2019 a water licence inspection was conducted at the TMAC Doris camp (2AM-DOH1323) by Inspector Candice Pedersen accompanied by Sarah Warnock of TMAC. Facilities inspected included, but were not limited to; Roberts Bay Facilities, Doris Main Camp, Waste Management Area, Bulk Fuel Storage at the Single Tank Farm, the contract drillers laydown area, the Tailings Impoundment Area (TIA), Doris Lake Raw Water Intake, Doris Camp Pad, Doris Camp Diversion Ditch North of Camp, Fuel Storage & Refueling Station, Waste Rock Pile, Sedimentation Control Pond, Pollution Prevention Control Pond, Tailings Line, Catchment Basins East and West, North and South Dams, Ocean Discharge Pump house, Mechanical Shop, and the Underground Mining Portal, Sump #1-3.

During this inspection on August 13th, 2019 the following was noted:

Roberts Bay Facilities

Marine Outflow Pipeline: This is a new facility that is being constructed. The Marine Outflow Pipeline is a pipeline that will take discharge water from the Tailings Impoundment Area and underground mine water, into the Ocean Discharge Pump house water facility that will treat the water to approved levels and discharge into the ocean at Robert's Bay. The pipeline is at the final stages of construction. The Inspector can see they are using about approximately 30-35 tires to hold the pipes up as they install the concrete around the pipes (*see photo log #1)* that will hold in to approved depth in the ocean and prevent it from moving around underneath. Once the concrete is placed the pipe is placed into the ocean and lined up to prepare for sinking (*see photo log #2)*. No concerns where noted with this activity.

Bulk Fuel Storage at the Four Tank Farm: The Inspector is informed that a fuel transfer is being conducted from the fuel barge, to date they have transferred 6.5 million liters, at the end 25 million liters will be transferred. They are transferring fuel via barge, the barge takes fuel from the ship and it takes about 6-7 hours to empty the barge. The barge is stationed at the Jetty with a fuel line going from the barge into the bulk fuel storage. The fuel line connections have bins under then to prevent fuel from leaking (*see photo log #3)*. Inspector is informed they have employees walking the lines as the fuel is being transferred to ensure no spills occur. The inspector notes spill kits and spill trays at each connecting in the fuel line.
Behind tank # 3 and tank #4 near the connectors small spills have occurred, Inspector thinks these spills occurred during the fuel transfer, Inspector is not too concerned as the spills occurred in the bermed area.

Bulk Fuel Storage at the Single Tank Farm: Prior to the replenishing of the fuel at the Robert's Bay Bulk Fuel Storage Tanks Farms the fuel from the tanks where moved into the Doris Camp tank farms to make room for the new fuel including the fuel at the Signal Tank Farm. A pump is seen near the tank outflow as they have just finished pumping out the tank (*see photo log #4)*, there are dip trays near the pump. Near the pump is a 45 gallon drum with no lid about 1/5th full of fuel (*see photo log #5).*
On the SW side of the bermed area are two fuel bladders that can hold up to 125,000 liters (*see photo log #6),* one bladder is about 90% full. When questioned about the capacity of the berm the Inspector was informed they calculated

the capacity before placing and filling the fuel bladders.
The SE corner of the berm is still sloping, (*see photo log #7)* this concern was noted in the October 2018 inspection. Inspector has been informed that a contractor will be arriving within the month of August to address this issue. Also on the SE corner has water build up, there is a stick in the middle with measurements, the water is currently at 4 centimetres (*see photo log #8)* in the deepest part. There is a blue hose from this pool of water into the approved water discharge area, they have been testing the water and when it meets criteria they have been discharging the water into the approved discharge location which is North of the berm, Inspector is informed the flow of the water is low enough as to not cause erosion.

Waste Management Area: During the inspection it was noted that the waste management area has been reorganized and is now surrounded by sea cans (*see photo log #9)*, the waste is being segregated and disposed of as required by the water licence. Such as aerosols, batteries, oily rags, oily plastic, electronics, and general garbage, all to be disposed in appropriate facilities such as the burn bit, land farm or to be sent out to appropriate facility.

Contract Drillers Laydown: This is the site where the fire occurred on July 18, 2019 the area has been cleaned, the debris was segregated to appropriate facilities, such as clean wood went to the burn pan. In the back of the area at the end of the laydown area, a little bit of burnt debris was seen. (*see photo log #10)*

Doris Facilities:

South Dam: The South Dam is operational, floating tailings are being discharged. Inspector is informed there is weekly inspection of the South Dam to ensure there is no steeping out of the dam.
On the far East side of the South Dam Inspector notices tailings have been discharged, Inspector is informed that this is spigot number 3 and they discharged to test to ensure it is working and it will, in the future, become a discharge location. (*see photo log #11)*

Emergency Catch Basins: Inspector checks North and South Emergency Catch Basins, the West one still has slopping (*see photo log #12*) sides as per the October 2018 inspection concern, Inspector is informed that contractors will be arriving to fix these ones as well. No concerns.

Pollution Control Pond: Inspector notes that the Pollution Control Pond is mainly empty. (*see photo log#13)* They have been pumping the water into the Sediment Control Pond.

Sediment Control Pond: There is water from underground currently being pumped into the Sediment Control Pond. In the near future underground water will be pumped into the Ocean Discharge Pump house and discharge it in the Marine Outflow Pipeline. No concerns where noted with this facility.

Sump: 3 water management sumps that capture run off that may bypass the Sediment Control Pond or emanating from Pad G/F and is returned to the water management system by automated float operated pumps. Sump #2 (*See photo log #14)* is constructed downstream of Pad F/G along the East edge of the TIA Access Road. Water from Sump #3 (the newest Sump) collects water from the direction of the Sediment Control Pond (*see photo log #15*) after further investigation, the proponent realized the water is coming from subsurface channel that is non-contact water and is captured by Sump #3 and placed into the Sediment Control Pond. Water from Sump #3 get pumped into Sump #1 with an automated system that senses how full the sump is and activates the pump. Water from Sump #1 get pumped into the Sediment Control Pond, water from Sump #2 also pumps directly into the Sediment Control Pond.
No concerns were noted with this facility.

Doris Tank Farm and Refuelling Station: Some water is observed in the bermed area near the Tanks, no sheen is seen. The amount of water near the refueling station has dropped drastically since the May inspection (*see photo log #16)*.
No concerns where noted with this facility.

SECTION 2	☐ Comments	☐ Non-Compliance with Act or Licence	☐ Action Required

Madrid *Construction:*

The Madrid construction is currently under the 2AM-DOH1335 Water Licence.
During the inspection the following was noted by the Inspector:

Crown Pillar:

The Crown Pillar is currently being mined (*see photo log#17)*, all the overburden is currently being removed and placed into the Overburden Stockpile/Storage (*see photo log #18)*. The mining of the Crown Pillar started in Mid-July, all the ore will be processed at the Doris camp via truck. Currently they are still mining overburden, no ore has been removed. Some of the waste rock has been used to stabilize the cladding of the mine pit. Any water that is generated will be trucked into the Tailings impoundment Area.

Silk fencing can be seen placed on the downward side of the hill from the Crown Pillar and the Overburden Stockpile. No concerns were noted

Overburden Stockpile: The Overburden Stockpile is not lined, 40,934 cubic meters have so far been placed into this facility. A culvert has been placed into the road leading into the stockpile (*see photo log #19)* no concerns where noted with this facility.

The Contact Water Pond: This facility is in the last stages of construction (*see photo log #20)* the whole facility is not bermed, the liner has been cemented into the bedrock that on the floor of the facility.
No concerns where noted with this facility.

Culverts: The Kilometer 1 Madrid Culvert was installed on the first kilometer of the Madrid road. No debris is in the culvert (*see photo log #21).* No concerns where noted with this facility.

The Overburden Access Road Culvert was installed on the road accessing the Overburden Stock Pile. No debris was in the culvert. No concerns where noted with this facility. (*see photo log #22)*

The South Bridge Culvert is a culvert that was installed before TMAC purchased the project, it is the southernmost culvert on the road towards Windy Camp. No debris was noted in the culvert. No concerns where noted with this facility.

The Northern Bridge Culvert is a culvert that was installed on the road going to Windy Camp and was installed before TMAC purchased the project. No debris was noted in the culvert. Some sand build up can be seen under the gravel holding up the bridge(*see photo log #23)*, it appears to be from adding sand onto the roads during the winter time then the sand being deposited between the bridge cracks as vehicles drive over the bridge, the sand is far enough from the steam as to not deposit into the stream. No concerns where noted with this facility.

Licensee or Representative	Inspector's Name
Sarah Warnock	Candice Pedersen
Signature	**Signature**
Sh Wark	
Date	**Date**
2019-09-20	2019-09-19

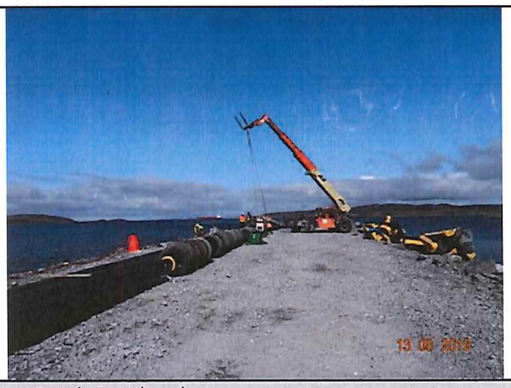
Office Use Only:	Follow-up report to be issued by Inspector	☐ Yes	☒ No

CC: Licensing Department, NWB
Justin Hack, Manager of Field Operations, CIRNAC

PHOTO LOG

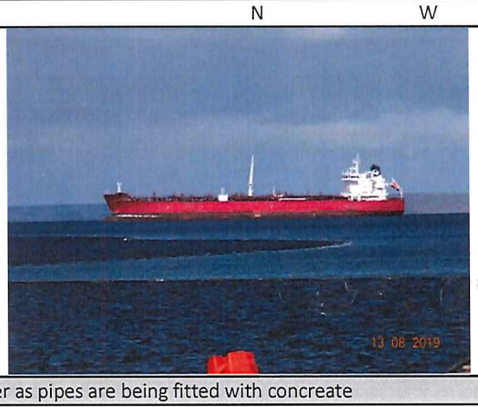
Date	Camera	Inspector	Authorization
	Sony Cyber-shot	Candice Pedersen	

Photo Log # 1	Location (NAD 83 DD MM SS.SS)	
Photo #1	N	W



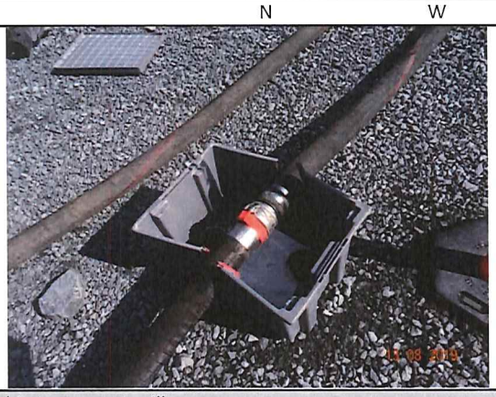
Description: Tires holding up pipe while concreate is being placed

Photo Log # 2	Location (NAD 83 DD MM SS.SS)	
Photo #2	N	W



Description: The pipeline floating on the water as pipes are being fitted with concreate

Photo Log # 3	Location (NAD 83 DD MM SS.SS)	
Photo #3	N	W

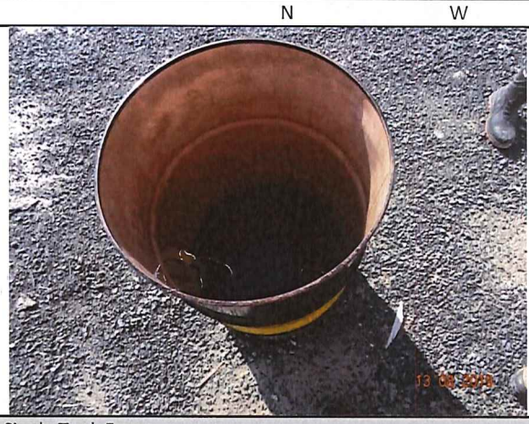


Description: Fuel transfer pipe fittings with a bin to prevent spills

Photo Log # 4	Location (NAD 83 DD MM SS.SS)	
Photo #4	N	W

Description: Pump at Single Tank Farm

Photo Log # 5	Location (NAD 83 DD MM SS.SS)	
Photo #5	N	W



Description: Open drum with some fuel at Single Tank Farm

Photo Log # 6	Location (NAD 83 DD MM SS.SS)	
Photo #6	N	W

Description: Two bladders inside Single Tank Farm

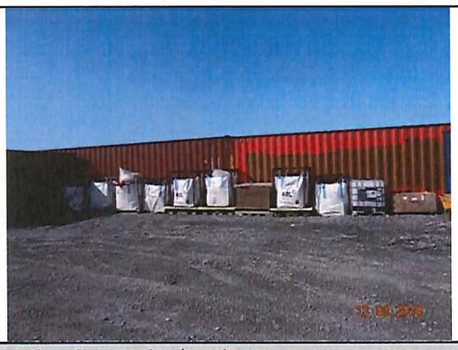
Photo Log # 7	Location (NAD 83 DD MM SS.SS)	
Photo #7	N	W

Description: slooping SE corner of Single Tank Farm

Photo Log # 8	Location (NAD 83 DD MM SS.SS)	
Photo #8	N	W

Description: Water collecting in SE corner of Single Tank Farm

Photo Log # 9	Location (NAD 83 DD MM SS.SS)	
Photo #9	N	W

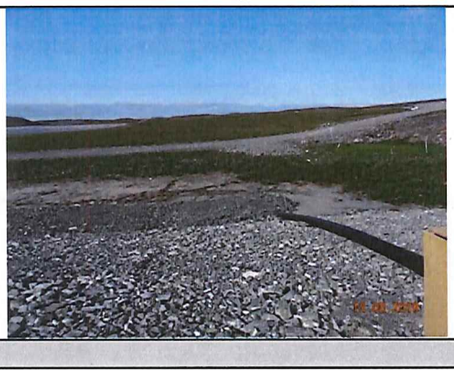


Description: Waste Management Facility new location. Segregation location.

Photo Log # 10	Location (NAD 83 DD MM SS.SS)	
Photo #10	N	W

Description: Some black debris can be seen from the fire in Contract Drillers Laydown

Photo Log # 11	Location (NAD 83 DD MM SS.SS)	
Photo #11	N	W

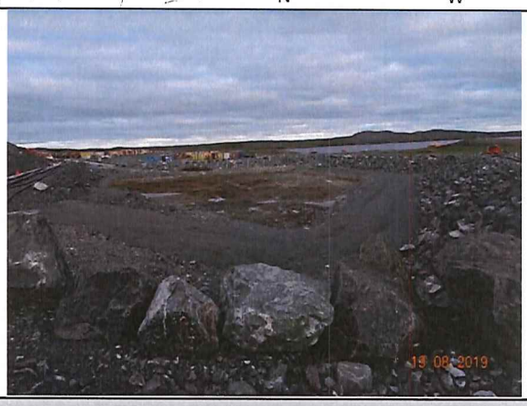


Description: Spigot 3 discharge

Photo Log # 12	Location (NAD 83 DD MM SS.SS)	
Photo #12	N	W

Description: Emergency Catch Basin slooping

Photo Log # 13	**Location (NAD 83 DD MM SS.SS)**	
Photo #13	N	W

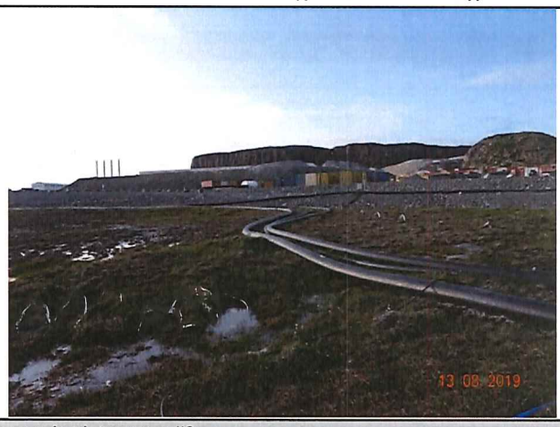


Description: Pollution Control Pond

Photo Log # 14	**Location (NAD 83 DD MM SS.SS)**	
Photo #14	N	W

Description: Sump #2

Photo Log # 15	**Location (NAD 83 DD MM SS.SS)**	
Photo #15	N	W



Description: Direction water is coming from going into sump #3

Photo Log # 16	**Location (NAD 83 DD MM SS.SS)**	
Photo #16	N	W

Description: Refuelling Station with significantly less water

Photo Log # 17	Location (NAD 83 DD MM SS.SS)	
Photo #17	N	W

Description: Crown Pillar at Madrid being mined

Photo Log # 18	Location (NAD 83 DD MM SS.SS)	
Photo #18	N	W

Description: Overburden Stockpile at Madrid

Photo Log # 19	Location (NAD 83 DD MM SS.SS)	
Photo #19	N	W

Description: Culvert at Overburden Stock pile

Photo Log # 20	Location (NAD 83 DD MM SS.SS)

Photo #20	N	W

Description: Contact Water Pond at Madrid

Photo Log # 21	**Location (NAD 83 DD MM SS.SS)**	
Photo #21	N	W

Description: Culvert at 1st KM of Madrid road

Photo Log # 22	**Location (NAD 83 DD MM SS.SS)**	
Photo #22	N	W

Description: Culvert at overburden stock pile

Photo Log # 23	**Location (NAD 83 DD MM SS.SS)**	
Photo #23	N	W

Description: Build-up of sand at the Northern bridge