95 Wellington Street
Suite 1010
Toronto, Ontario
M5J 2N7
416-628-0216

July 25, 2018

Karén Kharatyan
Director of Technical Services/Acting Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0

Re: Applications for a Type "A" Water Licence File No. 2AM-BOS---- and for Amendments to the Type "A" Water Licence No. 2AM-DOH1323; Confirmation of Pre-Hearing Conference and Responses to Intervenor Submissions after the Technical Meeting

Dear Mr. Kharatyan,

This correspondence is being provided to the Nunavut Water Board (NWB) on behalf of TMAC Resources Ltd. (TMAC) in response to the NWB's July 3, 2018 Notice of Pre-Hearing Conference (PHC) and commitments made by TMAC to the NWB in its June 19, 2018 correspondence.

Specifically, this correspondence intends to:

1. Provide further information illustrating TMAC's suggested approach for the scope of existing and proposed water licences associated with the Hope Bay Project as described by TMAC in its June 19, 2018 correspondence to the NWB;
2. Respond to comments received on July 18, 2018 from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) regarding TMAC's application as identified above; and
3. Provide comments on the draft PHC agenda and indicate our intended list of attendees.

TMAC would also like to acknowledge the correspondence sent by the Kitikmeot Inuit Association (KIA) to the NWB on July 18, 2018 which confirms:

- KIA has resolved all technical issues with TMAC for the Hope Bay Phase 2 Project concerning hydrology, hydrogeology, fisheries, aquatic environment, and water quality monitoring;
- KIA's agreement with TMAC on a total reclamation security amount of $61,174,597 for the Doris Madrid closure costs (to be held 85% by KIA and 15% to CIRNAC), and a

total reclamation security amount of $36,712,621 for the Boston closure costs (to be held 23% by KIA and 77% by CIRNAC); and
- KIA agrees in principle, subject to discussion on conditions, to staged bonding of Phase 2 components.

In regards to Item #1 and Item #2 listed above, please see Attachment A of this correspondence.

Regarding Item #3, TMAC does not propose any suggested additions or changes to the listed agenda items. However, with respect to Item 6, as discussed during the Technical Meeting, TMAC will be requesting that the NWB should proceed immediately after the PHC to issue a 60-day notice of public hearing and should not delay this step until after the NIRB Ministerial Decision. In making this request, TMAC notes that there are no outstanding technical issues or information requirements, and that each of the interveners (KIA, CIRNAC, Environment and Climate Change Canada, Fisheries and Oceans Canada, Natural Resources Canada) have confirmed that they have no further technical comments. In making this request, TMAC is aware that the NWB would not be permitted to issue a Type A Water Licence until after the Ministerial Decision and issuance of a Project Certificate. However, there are no issues preventing the Applications from proceeding to a public hearing.

TMAC proposes the following participants for the PHC:

1. Oliver Curran, Vice-President, Environmental Affairs, TMAC
2. Adam Grzegorczyk, Manager, Land Tenure and Reclamation, TMAC
3. Maritz Rykaart, Principal Consultant, SRK – Geotechnical Engineering
4. Cameron Hore, Senior Consultant, SRK – Geotechnical Engineering
5. Nicole Bishop, Project Manager, ERM
6. Michael Henry, Technical Director, ERM – Marine and Freshwater Aquatic Biology
7. Christine Kowbel, Partner, Lawson Lundell LLP – Legal Counsel

Should you have any further questions please feel free to contact me at oliver.curran@tmacresources.com.

Sincerely,

Oliver Curran

Vice-President, Environmental Affairs
TMAC Resources Inc.

Cc:
Stephanie Autut (NWB)
Derek Donald (NWB)
NWB Licencing
John Roesch (KIA)
Sarah Forte (CIRNAC)
Gabriel Bernard-Lacaille (ECCC)
Bradley Summerfield (ECCC)
Angie McLellan (DFO)
Peter Unger (NRCan)

Attachments:

Attachment A: TMAC Resources Inc. Technical Memorandum, July 25, 2018. Re: Clarification on proposed scope of Type A Licences versus existing Exploration Licences and response to CIRNAC July 18th, 2018 submission

Attachment A

TMAC Resources Inc. Technical Memorandum
July 25, 2018

Re: Clarification on proposed scope of Type A Licences versus existing Exploration Licences and response to CIRNAC July 18, 2018 submission

MEMORANDUM

DATE: July 25, 2018

TO: Karén Kharatyan

FROM: Oliver Curran

SUBJECT: Clarification on proposed scope of Type A Licences versus existing Exploration Licences and response to CIRNAC July 18th, 2018 submission

---

1.0 PURPOSE

The purpose of this technical memo is to provide further clarification of TMAC Resources Inc's (TMAC) proposed approach for maintaining existing exploration licences while using the proposed Phase 2 Type A Water Licences for commercial mining at Madrid North, Madrid South and Boston deposits. Secondly, this memo responds to comments received on July 18, 2018 from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) regarding TMAC's water licence application for the Boston-Madrid (Phase 2) Project.

2.0 PROPOSED TYPE A LICENCES

As part of TMAC's June 19, 2018 correspondence to the Nunavut Water Board (NWB), TMAC indicated that a draft Amendment No. 2 to 2AM-DOH1323 and a proposed draft 2AM-BOS would be provided to the NWB prior to the PHC.

Currently TMAC believes it will be more constructive to respond to CIRNAC's questions around how TMAC plans to use Type B Exploration Licences at Hope Bay concurrently with the proposed Type A Water Licences. Therefore, a submission of draft Water Licences will be provided after the PHC and prior to the Final Hearings. However, in response to TMAC's commitment and as a mechanism to address CIRNAC's questions, TMAC is providing an itemized breakdown of the proposed scope of Amendment No. 2 of 2AM-DOH1323 and the proposed scope of 2AM-BOS---- in the following subsections.

2.1 AMENDMENT NO. 2 OF 2AM-DOH1323

TMAC requests Amendment No. 2 of Type A Water Licence 2AM-DOH1323 include:

a) The infrastructure and activities currently listed in Part A of Amendment No. 1 of 2AM-DOH1323.
b) The scope of all activities and facilities authorized under Amendment No. 2 of 2AM-DOH1323 be extended to 2037 including the closure and post-closure stages of the Phase 2 Project.
c) The scope of all facilities and activities authorized under the Type B Licence 2BB-MAE1727 be maintained until such time that TMAC states that the bulk sample and advanced exploration activities are complete.

d) To expand the scope of Licence Type A 2AM-DOH1323 with the additional activities and facilities listed in Table 1 (as per the December 2017 application).

Table 1. Proposed Marginal Changes under Amendment No. 2 of 2AM-DOH1323

Item	Approved under Amendment No. 1 2AM-DOH1323		Request for Amendment No. 2 Type A Water Licence 2AM-DOH1323
Roberts Bay Facilities, Infrastructure and Activities			
Life of Facilities	2022		Year 1 (2019) to Year 19 (2037)
Fuel storage - Diesel	4 @ 5 ML (existing)	1 @ 5ML (permitted)	Diesel - 2 @ 5 ML Total storage: 35 ML
Fuel storage – Jet fuel	Drums within Sea-Can (existing)	500,000 L (permitted)	No additional storage
Waste management	Storage facilities, incinerators, work area		No additional requirements
Quarries	Four active quarries permitted		Two additional quarries (Quarry AE and AF)
Doris Infrastructure, Facilities and Activities			
TIA Construction	North and South dam		Raise south dam and build west dam
Airstrip	All-weather air strip Ice air strip on Windy Lake/Doris		No change
Fuel Storage - Diesel	5 @ 1.5 ML		No change
Power house	8 gen-set @ 1.2 MW Modularized building with day tanks. Back-up power supply.		Two wind turbines Nominal capacity of 4.2 MW each
Processing Facility	2,400 tpd		No change
Overburden stockpile	Located west of the Doris Camp area		No change
Waste rock stockpile (used for backfill of mine)	In use and located to the east and north of the mill building		No change
Ore stockpile	In use and located to the east and south of the mill building		No change
Tailings Impoundment Area (TIA)	Capacity of 2.5 Mt		Expansion to 18 Mt, roads, raise height of south dam, and construction of west dam, and construction of west dam
Waste management	Landfill, landfarm and handling/temporary storage of hazardous waste, incineration and open burning for combustible waste		No change
Accommodations	280-person accommodations Mine dry, administration buildings, security, emergency		400-person accommodations
Potable Water Use (Windy Lake)	22,995 m^3 (with potable treatment plant)		43,800 m^3 (expansion to water treatment plant)
Industrial Water Use (Doris Lake)	480,000 m^3 (including pump house)		1,930,000 m^3 (inclusive of Madrid Operations)
Fire protection tank	500,000 m^3		No change

Item	Approved under Amendment No. 1 2AM-DOH1323	Request for Amendment No. 2 Type A Water Licence 2AM-DOH1323
Water management and treatment	Cyanide destruction at mill and placement of detoxified tailings underground Mill water pumped to TIA and water recycled to mill TIA water discharged to Roberts Bay via pump house Mine water (saline) discharged to Roberts Bay via pump house Site contact water and domestic waste water pumped to TIA	No change Retain existing water management approach
Contact water ponds	Two contact water ponds, sediment control berm, diversion berm	No change
Sewage treatment	Accommodate 280-persons Discharge to tundra or TIA	Accommodate 400 persons Discharge to tundra or TIA
Explosives	Explosives storage and Manufacturing Facility	No change
Miscellaneous buildings and infrastructure	Various	Upgrades as required. Vent raises and access road.
Item	**Approved under Madrid Bulk Sample 2BB-MAE1727**	**Request for Amendment No. 2 Type A Water Licence 2AM-DOH1323**
Madrid North Facilities, Infrastructure and Activities		
Ore mined	Approximately 50,000 t bulk sample from Madrid North	12,501,000 t
Mining Method	-	Underground/Crown pillar recovery
Fuel Storage (Portal, vent raise and power station)	75,000 L/60,000 L	3 @ 1.5 ML
Power Generation	2 self-contained units at 750 MW (within Sea-Can)	3.6 MW (3 units @ 1.2 MW each) Two wind turbines Nominal capacity of 4.2 MW each
Waste rock stockpile	285,000 t 158,000 m^3	646,000 t 359,000 m^3
Ore stockpile	50,000 t 28,000 m^3	50,000 t 28,000 m^3
Explosives use	Not specified	4,700 kg/day
Water management	Surface water collected in contact water pond and discharged to tundra	Contact water ponds - discharge to tundra or TIA Mine water (saline) directed to Doris mixing box and discharged to Roberts Bay
Contact water pond	7,900 m^3 8,350 m^2	15,100 m^3 13,900 m^2
Concentrator	No plant	Concentrator capacity of 1,200 tpd Mill maintenance shop Warehouse/reagent storage Backhaul of detox tailings to Madrid
Tailings	No tailings	Tailings pipeline and service road from Madrid North concentrator to Doris TIA
Miscellaneous buildings and infrastructure	Various	Upgrades as required. Vent raises and access road.
Madrid South Facilities, Infrastructure and Activities		
Ore mined	Approximately 50,000 t bulk sample from Madrid South	991,000 t
Mining Method	-	Underground/Crown pillar recovery

Item	Approved under Madrid Bulk Sample 2BB-MAE1727	Request for Amendment No. 2 Type A Water Licence 2AM-DOH1323
Waste rock stockpile (used for backfill of mine)	500,000 t 276,000 m^3	826,000 t 459,000 m^3
Ore stockpile	55,000 t 31,000 m^3	Additional 5,400 t Additional 3,000 m^3
Explosives use	Ammonium Nitrate and Fuel Oil	4,500 kg/day
Contact water pond 1	15,000 m^3 12,300 m^2	No change
Water management	Surface water collected in contact water pond and discharged to tundra	Contact water ponds - discharge to tundra or TIA Mine water (saline) directed to Doris pump house and discharged to Roberts Bay
Contact water pond 2	900 m^3 920 m^2	2,300 m^3 1,720 m^2
Fuel Storage - Diesel	60,000 L	75,000 L
Power generation	3 self-contained units at 750 KW (within Sea-Can)	No additional units
Miscellaneous buildings and infrastructure	Mine equipment shops, compressor building, office trailer, emergency trailer, brine mixing facility, laydown areas, air heating units	Upgrades as required. Vent raise and access road.
Madrid-Boston All Weather Road		
Madrid to Boston AWR	-	All-weather road construction 14 water crossings including 8 bridges and 6 culverts
Quarries	-	Twenty quarry sites identified along AWR
Wind Turbines (Boston)	None	Two Wind Turbines 4.2 MW each

2.2 2AM-BOS----

TMAC requests the proposed scope of 2AM-BOS--- for use of water and disposal of waste at the Boston site include the activities and facilities listed in Table 2 (as outlined in TMAC's December 2017 application). TMAC requests that Type B Licence 2BB-BOS1217 be maintained for ongoing exploration activities of the Boston deposit.

Table 2. Proposed Scope of 2AM-BOS----

Item	Approved under 2BB-BOS1727	Request for 2AM-BOS---
Ore mined	-	5,104,000 t
Mining method	Underground Bulk Sampling	Underground/Crown pillar recovery
Fuel Storage - Diesel	6 @ 77,000 L 2 @ 33,000 L	Diesel - 5 @ 1.5 ML
Fuel Storage – Jet fuel	Drums within seacan	No change
Power Station	Not specified	8 gen-set units @ 1.2 MW and building Emergency power – 750 KW gen-set Two wind turbines Nominal capacity of 4.2 MW each (along AWR)
Quarries	Not specified	Quarry AD and Quarry AJ used for site development
Overburden stockpile	None	54,100 m^3
Waste rock stockpile(used for backfill of mine)	Waste rock used as construction material	628,000 t 349,000 m^3
Ore stockpile	Bulk sample	7,000 t 3,900 m^3

Item	Approved under 2BB-BOS1727	Request for 2AM-BOS---
Explosives use	Not specified	2,770 kg/day Explosives storage and manufacturing facility
Accommodations	65 people	300 people
Process Plant	None	Capacity of 2,400 tpd (includes CTP)
Tailings Management Area (TMA)	None	TMA sized for 5.1 Mt (Dry stacked)
Water management	Surface water and wastewater effluent discharged to tundra	Surface water from contact water ponds re-used in processing plant or if it meets discharge criteria discharged to tundra or to Aimaokatalok Lake
Contact water ponds	Containment pond	CWP #1 and TMA pond sized for 100-year precipitation event and maximum daily snowmelt, CWP #2 sized for 100-year precipitation event and maximum daily snowmelt plus 10 day water treatment
Potable Water Supply Aimaokatalok Lake	100 m^3/day using pump house	Domestic – 33,000 m^3/year Industrial – 450,000 m^3/year Pump house and water treatment plant
Water storage	Not specified	50,000 L
Sewage Treatment Plant	Discharge to tundra	Discharge to tundra or to Aimaokatalok Lake
Waste management	Incinerator for site waste Temporary storage of waste Waste transported to Doris or Roberts Bay for disposal	Incinerator for site waste Temporary storage of waste Landfarm Non hazardous landfill Waste transported to Doris or Roberts Bay for disposal
Airstrip	Winter air strip Exploration all-weather strip	All-weather air strip (1,524 m) Airstrip building
Miscellaneous buildings and infrastructure	Various	Upgrades as required. Vent raises and access road.

3.0 CIRNAC COMMENT RESPONSES

On July 18, 2018, TMAC received correspondence from CIRNAC regarding their review of TMAC June 19, 2018 submissions. TMAC's June 19 submission addressed CIRNAC comments and TMAC commitments raised during the May 2018 Technical Meeting in Cambridge Bay. Specifically, the July 18, 2018 CIRNAC correspondence provided their position on Phase 2 financial security and CIRNAC's responses to information provided by TMAC for six (6) commitments made during the Technical Meeting. TMAC's follow up response to CIRNAC comments regarding each of these six (6) commitments is provided in the sub-sections below. TMAC anticipates financial security to be discussed with CIRNAC at the PHC and prior to the Water Licence Final Hearing (date to be determined).

3.1 COMMITMENT #1

'Commitment 1 - INAC-Rec-16 - Scope of all licences for Hope Bay Project' relates to CIRNAC clarification on how the new and amended licences would overlap with the four (4) existing licences on the Hope Bay Belt.

TMAC acknowledges that CIRNAC stated it has no concerns regarding the scope of 2BE-HOP1222.

With respect to CIRNAC's suggestion that surface regional exploration continue in the Boston Area under the 2BE-HOP1222 exploration licence, TMAC notes that the exploration in the Boston Area is in a different watershed than those covered under 2BE-HOP1222 and remains of the view that surface exploration in the Boston Area should continue under 2BB-BOS1727. Given that there is some physical overlap between the existing 2BB-BOS1727 and the proposed 2AM-BOS, TMAC agrees that careful consideration must be given to reclamation requirements to ensure that TMAC is not required to bond for these facilities under both licences.

CIRNAC states in its submission:

- "Presently, CIRNAC does not see the necessity for keeping the 2BB-BOS1727 licence if, following their bulk sample, TMAC decide to enter operations at Boston using a potential 2AM-BOS---- licence"
- "CIRNAC would also prefer if the scope of licence 2BB-MAE1727 were incorporated into an amended type A".

TMAC would like to reemphasize that TMAC is planning to carry out bulk sample programs at Boston and Madrid and continue ongoing exploration of the region under Type B Licences in parallel with production at the Doris Mine and (if approved) the Phase 2 mines. As stated in our previous submissions, the water use required to proceed with the surface and bulk sample exploration activities is below the Type A water licence threshold. As exploration activities are subject to changes on short notice, it is important to maintain the procedural flexibility that is provided in the Type B Water Licences.

TMAC would like to clarify that a bulk sample at Boston or Madrid may occur on several portions of the deposits in parallel with production mining on other portions of the deposits. A primary intent of the advanced exploration programs will be to examine the complex geology of the zone being studied, metallurgy of the ores, determine the mine methods for economic extraction of the ore for development plans and proving out reserves over several kilometres of mineralized zones of deposits to support decision making. It is anticipated that this exploration work will need to continue at Madrid and Boston while TMAC is in operations under its Phase 2 Type A licences. This activity is related to, but separate from, production mining. In TMAC's view this approach is consistent with the approach taken for other production mines in Nunavut and is consistent with the requirements of the legislation.

TMAC would also like to clarify to CIRNAC that the site layout at Madrid North proposed under the Phase 2 amendment is not "located to the south east of what is permitted by the 2BB-MAE1727 licence" as stated by CIRNAC in its July 18, 2018 correspondence. The proposed Phase 2 Madrid North site and the approved Madrid North site for the purpose of a bulk sample under 2BB-MAE1727 are essentially overlapping as shown in Figure 1 and further described TMAC's December 9, 2016 correspondence regarding the 2BB-MAE---- Madrid Advanced Exploration Program Type B Water Licence application. This correspondence can be found on the NWB Pubic Registry here.

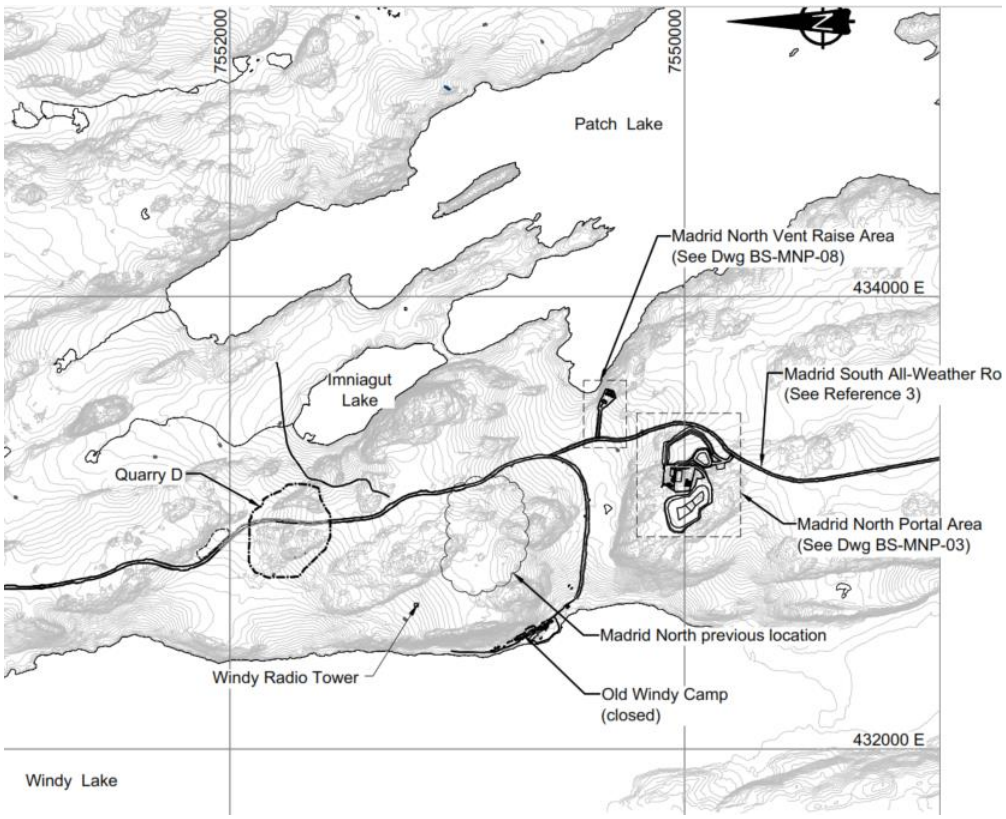

Figure 1. Proposed Location of Madrid North Bulk Sample

3.2 COMMITMENT #2

'Commitment 2 - INAC-Rec-11 - Hydrodynamic model changes following changes to water treatment plant effluent quality for arsenic' relates to CIRNAC review of a memo provided by TMAC regarding water treatment plant effluent concentration of 0.1 mg/L for arsenic. CIRNAC agrees with TMAC's conclusions in their July 18, 2018 correspondence. Therefore, TMAC now considers this item closed.

3.3 COMMITMENT #3

'Commitment 3 - INAC-Rec-2, 4, 5, 6 & 9 - Potential failure modes and long term maintenance requirements following closure' relates to a summary of closure design and performance uncertainties provided by TMAC to CIRNAC. Based on the CIRNAC response in its July 18, 2018 correspondence, TMAC now considers this issue with CIRNAC closed.

3.4 COMMITMENT #4

'Commitment 4 - INAC-Rec-3 - Arsenic loading under potential geomembrane failure post-closure at Boston Tailings Management Area' relates to estimating the potential arsenic loading to Aimaokatalok Lake in the event of a worst-case scenario of 10% of geomembrane liner being degraded following closure. Based on the CIRNAC response in its July 18, 2018 correspondence, TMAC now considers this issue with CIRNAC closed.

3.5 COMMITMENT #5

'Commitment 5 - INAC-Rec-15 - Impact of saline water spill on tundra' relates to analysis of potential project impacts in the event of a saline water spill by truck or pipeline. Based on the CIRNAC response in its July 18, 2018 correspondence, TMAC now considers this issue with CIRNAC closed.

3.6 COMMITMENT #6

'Commitment 6 - INAC-Rec-19 - Transport of Madrid mine water' relates to updating the Groundwater Management Plan to include the transport method of Madrid mine water. Based on the CIRNAC response in its July 18, 2018 correspondence, TMAC now considers this issue with CIRNAC closed.