95 Wellington Street West
Suite 1010, P. Box 44
Toronto Dominion Centre
Toronto, Ontario M5J 2N7
416-628-0216

June 10, 2017

Karen Kharatyan
Acting Manager of Licencing
Nunavut Water Board
PO Box 119
Gjoa Haven, NU X0B 1J0

Water Licence No. 2 BB-MAE1727 Request for Amendment with respect to Part C (Reclamation Security Provisions)

Dear Mr. Kharatyan;

Further to your letter to us of June 2, 2017, please find enclosed:

- A completed Application for Water Licence Amendment;
- Incorporation documentation and list of TMAC Resources Inc. Officers and Directors;
- Nunavut Impact Review Board decision of June 24, 2016; and
- Summary of Amendment Application (translations to follow).

Lawson Lundell forwarded payment of the $30 Amendment Application Fee and $30 Water Use Deposit to the Nunavut Water Board (Board) on June 5, 2017 on our behalf.

As time is of the essence with respect to this application, TMAC requests that the Board process this amendment request as soon as possible.

Sincerely,

John Roberts
Vice President, Environmental Affairs
TMAC Resources Inc.

cc: Karen Costello, INAC
John Roesch, KIA

Summary of Amendment Application

TMAC Resources Inc. (TMAC) received Type B Water Licence No. 2BB-MAE1727 on May 23, 2017 (the Licence). The Licence authorizes TMAC to use waters and/or deposit waste at the Madrid Advanced Exploration Project (the Project), which includes both Madrid North and Madrid South.

The Licence currently requires TMAC to post reclamation security under Part C, Item 1 for the Project in the amount of $7,131,000 (the Total Project Reclamation Security) within 30 days of the issuance of the Licence. Further to our letter to the Nunavut Water Board (Board) of May 31, 2017, TMAC does not currently plan to undertake any component of the Project prior to October 1, 2018. Specifically, activities included in the Madrid North component of the Project are not currently planned to commence prior to October 1, 2018. Activities included in the Madrid South component of the Project are not planned to commence prior to 2019.

To the extent any exploration work will be undertaken in the Project area in the interim, such activities will continue to be authorized by Type B Water Licence No. 2 BE-HOP1222.

Because no Project activities are commencing prior to October 1, 2018, TMAC wishes to defer posting the Total Project Reclamation Security. In its letter of June 2, 2017, Board staff has advised TMAC that an application for amendment to the Licence is required.

TMAC also requests that the Board give consideration to the following potential Licence amendments:

- In future, TMAC anticipates it will request Board approval to schedule posting security under the Licence so that TMAC is not required to prematurely bond for significant Project activities which are deferred to future work plans (such as Madrid South). Accordingly, TMAC requests that the Board consider whether amendments to the Licence are necessary in order to permit the Board to approve a “staged” posting of the Total Project Reclamation Security in future.

- TMAC has identified the potential for double bonding under the Licence. TMAC requests that the Board consider whether amendments to the Licence are necessary in order for the Board to potentially approve reductions in the amount of security required to be furnished and maintained with the Minister in future where equivalent security will be posted and furnished with the KIA.

TMAC anticipates the Board would consult both the KIA and the Minister prior to granting any changes to reclamation security required under the Licence.

In consideration of the above, TMAC requests the Board consider the following amendments to Part C of the Licence.

1. The Licensee shall, ~~within thirty (30) days of issuance of this licence~~ thirty (30) days prior to the commencement of the Madrid Advanced Exploration Project furnish and maintain with the Minister, in a form that is satisfactory to the Minister, reclamation security:

(a) in the amount of $7,131,000; or

(b) in an amount determined by the Board in accordance with Part C, Item 6 to be sufficient to secure the Madrid Advanced Exploration Project closure and reclamation costs estimated for the coming year.

2. The Licensee shall provide to the Board for assessment and approval in writing, within ninety (90) days of issuance of this Licence, a revised and updated cost estimate for the closure of the Madrid Advanced Exploration Project. The revised estimate shall include Care and Maintenance Costs.

3. The Licensee shall furnish and maintain such further or other amounts of security as may be required by the Board, based on the updated estimate of reclamation liability. The estimate shall be calculated using the most recent version of RECLAIM, its equivalent or other similar method approved by the Board, in accordance with principles of the INAC "Mine Site Reclamation Policy for Nunavut" (2002)".

4. Upon the Project entering into or being in Care and Maintenance, the Licensee shall submit to the Board for approval in writing, an updated estimate of total mine closure restoration liability, as above, within six (6) months of entering into Care and Maintenance and every three (3) years thereafter.

5. The Licensee shall submit to the Board for approval in writing, at least three (3) years following approval of the Licence and prior to September 30, 2020, and then in September 30, 2025, and again at least twelve (12) months prior to Closure, an updated estimate of the total mine closure restoration liability.

6. The Licensee may submit to the Board for approval in writing, a written request for an adjustment to the amount and/or timing of security outlined in Part C, Item 1. The submission shall include supporting evidence to justify the request. Where the Licensee files evidence, in writing with the Board and with notice to the Minister and the Kitikmeot Inuit Association that the Licensee will furnish and maintain security with the Kitikmeot Inuit Association in an amount sufficient to secure all or part of the Madrid Advanced Exploration Project closure and reclamation costs, the Board may reduce the amount of security required to be held by the Minister under Part C, Item 1.

7. The security deposit under Part C, Item 1 shall be maintained until such time as the Minister is satisfied that the Licensee has complied with all provisions of the approved Abandonment and Restoration Plan. This clause shall survive the expiry of this Licence or subsequent renewals.

Application for Water Licence Amendment

Document Date: April 2013

Application Submission Date: 06/06/2017
Month/Day/Year

P.O. BOX 119
GJOA HAVEN, NUNAVUT
XOB 1J0
TEL: (867)360-6338
FAX:(867)360-6369

kNK5 wmoEp5 vtmpq
NUNAVUT IMALIRIYIN KATIMAYIT
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

DOCUMENT MANAGEMENT

Original Document Date: April 2010

DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 7	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)	New NWB logo; request for background information; and change to Block 24	April 2013
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYIT
OFFICE DES EAUX DU NUNAVUT

APPLICATION FOR WATER LICENCE AMENDMENT

The applicant is referred to the NWB's Guide 7: *Licensee Requirements Following the Issuance of a Water Licence* for more information about this application form.

Where possible, provide background information regarding the original licence application or attach previously submitted information.

EXISTING LICENCE NO: 2BB-MAE-1727

1. LICENSEE CONTACT INFORMATION

Is the licensee the same as that referred to on the existing licence?

X Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB. **An amendment will only be issued in the name of the current licensee in the absence of assignment of the licence.**

If the licensee is the same, but the name of the licensee has changed, attach a certificate of name change.

Name:

Address:

Phone: _____
Fax: _____
e-mail: _____

2. LICENSEE REPRESENTATIVE CONTACT INFORMATION – If different from Block 1.

Name:

Address:

Phone: _____
Fax: _____
e-mail: _____

(Attach authorization letter.)

3. NAME OF PROJECT

Has the name of the project changed?

☐ Yes X No

If Yes, indicate the name of the project including the name of the location: _____

4. LOCATION OF UNDERTAKING

Does the proposed amendment change the location of the amended undertaking?

☐ Yes X No

Provide the project extents and camp locations. Identify proposed changes.

Project Extents

NW:	Latitude: (° ’ ” N)	Longitude: (° ’ ” W)
NE:	Latitude: (° ’ ” N)	Longitude: (° ’ ” W)
SE:	Latitude: (° ’ ” N)	Longitude: (° ’ ” W)
SW:	Latitude: (° ’ ” N)	Longitude: (° ’ ” W)

Camp Location(s)

Latitude: (° ’ ” N) Longitude: (° ’ ” W)

5. MAP

Does the proposed amendment change the locations of any of the main components of the undertaking?

☐ Yes X No

Attach a topographical map, indicating the main components of the undertaking. Identify proposed changes.

NTS Map Sheet No.: _____ Map Name: _____ Map Scale: _____

6. NATURE OF INTEREST IN THE LAND

Does the proposed amendment change the nature of the interest in the land?

☐ Yes X No

If Yes, indicate changes. _____

Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

Sub-surface

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _____ Date of expiry: _____

Surface

☐ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Commissioner's Land Use Authorization
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Other _____

Date (expected date) of issuance: _____ Date of expiry: _____

Is the name of the entity(s) holding authorizations the same as that considered in the existing water licence?

X Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB.

Name of entity(s) holding authorizations:
_____

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Indicate the land use planning area in which the existing project is located.

☐ North Baffin
☐ South Baffin
☐ Akunniq
☐ Keewatin
☐ Sanikiluaq
X West Kitikmeot

Does the proposed amendment change the land use planning area?

☐ Yes X No

If yes, indicate the land use planning area in which the amended undertaking is located.

☐ North Baffin
☐ South Baffin
☐ Akunniq
☐ Keewatin
☐ Sanikiluaq
☑ West Kitikmeot

Was a land use plan conformity determination required from NPC prior to the issuance of the existing water licence?

☐ Yes X No Note project is located in area with no approved land use plan

If Yes, indicate date issued and attach copy. _____

Does the proposed amendment change the original NPC conformity determination or the need to obtain one?

☐ Yes X No

If Yes, indicate date issued (or expected) and attach a copy. _____
If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required.

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Was a screening determination required from NIRB prior to the issuance of the existing water licence?

X Yes ☐ No

If Yes, indicate date issued and attach copy. June 24, 2016

Does the proposed amendment change the original NIRB screening determination or the need to obtain one?

☐ Yes X No

If Yes, indicate date issued (or expected) and attach a copy. _____
If No, provide written confirmation from NIRB confirming that a screening determination is not required.

9. DESCRIPTION OF UNDERTAKING

Does the proposed amendment change the description of the undertaking?

☐ Yes X No

List and attach plans and drawings or project proposal. Identify proposed changes.

10. OPTIONS

Does the proposed amendment change any of the alternative methods and locations that were considered to carry out the project?

☐ Yes X No

Provide a brief explanation of the alternative methods or locations that were considered to carry out the project. Identify proposed changes.

11. CLASSIFICATION OF PRIMARY UNDERTAKING

Indicate the primary classification of undertaking for the existing licence by checking one of the following boxes:

☐ Industrial ☐ Agricultural
X Mining and Milling (includes exploration/drilling/exploration camps)
☐ Conservation
☐ Municipal (includes camps/lodges) ☐ Recreational
☐ Power ☐ Miscellaneous (describe below):
_____

Does the proposed amendment change the classification of primary undertaking?

☐ Yes X No

If Yes, indicate the primary undertaking of the amendment:_____

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be updated and submitted with an Application for Amendment. Indicate which SIG(s) are applicable to your application.

☐ Hydrostatic Testing
☐ Tannery
☐ Tourist / Remote Camp
☐ Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil
☐ Onshore Oil and Gas Exploration Drilling
☐ Mineral Exploration / Remote Camp
☐ Advanced Exploration
☐ Mine Development
☐ Municipal
☐ General Water Works
☐ Power

n/a

12. WATER USE

Indicate, using the boxes below, the types of water use(s) approved in the existing licence.

X To obtain water for camp/ municipal purposes
X To obtain water for industrial purposes
☐ To cross a watercourse
☐ To alter the flow of, or store water
☐ Other: _____
☐ To divert a watercourse
☐ To modify the bed or bank of a watercourse
☐ Flood control

Does the proposed amendment change the type(s) of water use(s)?

☐ Yes X No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of water use(s) noting any water use(s) that are to be added, continued, or removed.

☐ To obtain water for camp/ municipal purposes
☐ To obtain water for industrial purposes
☐ To cross a watercourse
☐ To alter the flow of, or store water
☐ Other: _____
☐ To divert a watercourse
☐ To modify the bed or bank of a watercourse
☐ Flood control

13. QUANTITY OF WATER INVOLVED

Does the proposed amendment change the source of water? ☐ Yes X No

Indicate the water source(s). Identify proposed changes.:

_____
(show location(s) on map)

Does the proposed amendment change the quality of the water source and/or its available capacity?

☐ Yes X No

Describe the quality of the water source(s) and the available capacity(s). Identify any changes.:_____

_____

Does the proposed amendment change the overall quantity of water to be used?

☐ Yes X No

Provide the overall estimated quantity to be used. Identify proposed changes. : _____ m^3/day

Does the proposed amendment change the quantity of water to be used from each source?

☐ Yes X No

Provide the estimated quantity(s) of water to be used from each source. Identify proposed changes. :

_____

Does the proposed amendment change the quantity of water to be used for each purpose?

☐ Yes X No

Provide the estimated quantities to be used for each purpose (camp, drilling, etc.). Identify proposed changes.:

_____

Does the proposed amendment change the method(s) of extraction? ☐ Yes X No

Describe the method(s) of extraction. Identify proposed changes. :_____

Does the proposed amendment change the quantity(s) of water returned to source(s)?

☐ Yes X No

Estimated quantity(s) of water returned to source(s). Identify proposed changes. : _____ m^3/day

Does the proposed amendment change the quality(s) of water returned to source(s)?

☐ Yes X No

Describe the quality(s) of water(s) returned to source(s). Identify any changes. : _____
_____

14. WASTE

Check the appropriate box(s) to indicate the types of waste(s) approved in the existing licence.

X Sewage
☐ Solid Waste
☐ Hazardous
☐ Bulky Items/Scrap Metal
☐ Animal WasteG
☐ Other (describe):_____
☐ Waste oil
X Greywater
☐ Sludges
☐ Contaminated soil and/or water

Does the proposed amendment change the type(s) of waste(s) to be generated or deposited?

☐ Yes X No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of waste(s) to be generated and/or deposited noting the addition, removal or continued generation and/or disposal of waste(s).

☐ Sewage
☐ Solid Waste
☐ Hazardous
☐ Bulky Items/Scrap Metal
☐ Animal Waste
☐ Other (describe):_____
☐ Waste oil
☐ Greywater
☐ Sludges
☐ Contaminated soil and/or water

15. QUANTITY AND QUALITY OF WASTE INVOLVED

Does the proposed amendment change the quantity(s) of the types of wastes involved?

☐ Yes X No

Does the proposed amendment change the composition(s) of the types of wastes involved?

☐ Yes X No

Does the proposed amendment change the method(s) of treatment for the types of waste involved?

☐ Yes X No

Does the proposed amendment change the method(s) of disposal for the types of waste involved?

☐ Yes X No

If Yes to any of the above, describe the proposed changes: _____

_____

For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method

16. OTHER AUTHORIZATIONS

Does the proposed amendment change the need for other authorizations in addition to the sub-surface and surface land use authorizations provided in Block 6?

☐ Yes X No

If Yes, indicate any additional authorizations required, which authorizations are no longer required, and which authorizations continue to be required.

For each provide the following:

Authorization: _____

Administering Agency: _____

Project Activity: _____

Date (expected date) of issuance: _____ Date of expiry: _____

17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES

Does the proposed amendment change the predicted environmental impacts of the undertaking or the mitigation measures?

☐ Yes X No

Describe direct, indirect, and cumulative impacts related to water and waste. Identify any changes.

18. WATER RIGHTS OF EXISTING AND OTHER WATER USERS

Was compensation paid and/or an agreement(s) for compensation been entered into with any existing or other users of water during consideration of the existing licence?

☐ Yes X No

If Yes, provide the names, addresses and the nature of water use by those persons or properties.

Does the proposed amendment adversely affect any known persons or property including those that hold licences for water use in precedence to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature?

☐ Yes X No

If Yes, provide the names, addresses and the nature of water use of those persons or properties.

Advise the Board if compensation has been paid and/or an agreement(s) for compensation has been reached with any existing or other water users with respect to the proposed amendment.

19. INUIT WATER RIGHTS

Was compensation paid/ or an agreement(s) for compensation been entered into with any Designated Inuit Organization (DIO) during consideration of the existing licence?

☐ Yes X No

If Yes, which DIO(s) _____

Does the proposed amendment substantially affect the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL)?

☐ Yes X No

If Yes, advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more DIO(s) with respect to the proposed amendment.

20. CONSULTATION - Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

n/a

21. SECURITY INFORMATION

Does the proposed amendment change the financial security assessment?

☐ Yes X No

Does the proposed amendment change the estimate of the total financial security for final reclamation?

☐ Yes X No

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken. Identify any changes in the financial security assessment resulting from the proposed amendment.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut,* Indian and Northern Affairs Canada, 2002.

As per the request outlined in the cover letter to this application, TMAC is requesting a change in the timing that security will be required to be posted, as the Project is not planned to commence until October 2018. TMAC is also requesting a general provision be added to Part C which confirm that the Board may revise timelines for posting security under Part C at its discretion.

22. FINANCIAL INFORMATION

Is the statement of financial security the same as that considered in the existing water licence?

X Yes ☐ No

Provide an updated statement of financial security.

If the applicant is a business entity please answer the questions below:

Is the list of the officers of the company the same as those considered in the existing water licence?

X Yes ☐ No

Provide a list of the officers of the company.

Is the Certificate of Incorporation or evidence of registration of the company name the same?

X Yes ☐ No

Attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

23. STUDIES UNDERTAKEN TO DATE

List and attach updated studies, reports, research etc.

n/a

Provide a compliance assessment and status report including a response to any inspector's reports. The licensee must contact the NWB for licence specific direction in completing the assessment and report.

n/a

If in non-compliance, a licence may not be issued until compliance is achieved. If in non-compliance, attach plans/reports for consideration. Application will not be processed if significant issues of non-compliance exist.

24. PROPOSED TIME SCHEDULE

When are proposed amendments scheduled to be undertaken: ASAP

Does the proposed amendment change the time schedule considered in the existing licence for any phase of development?

X Yes ☐ No

Indicate the start and completion dates for each applicable phase of development (construction, operation, closure, and post closure). Identify proposed changes.

The Proposed Time Schedule is as set out in the original 2014 Water Licence Application, with a revised start date of October 1, 2018.

Construction
Proposed Start Date: October/ 2018 (month/year) Proposed Completion Date:_____ (month/year)

Operation
Proposed Start Date:_____ (month/year) Proposed Completion Date:_____ (month/year)

Closure
Proposed Start Date:_____ (month/year) Proposed Completion Date:_____ (month/year)

Post - Closure
Proposed Start Date:_____ (month/year) Proposed Completion Date:_____ (month/year)

For each applicable phase of development indicate which season(s) activities occur.

Construction
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Operation
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Post - Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

25. PROPOSED TERM OF LICENCE

On what date does the existing licence expire? May 22, 2027

Is the Licensee applying for a combined renewal and amendment of the existing licence?

☐ Yes X No

If Yes, indicate the proposed term of the renewal (maximum of 25 years): _____

Requested date of renewal issuance: _____ (month/year) Requested Expiry Date: _____ (month/year)

(The requested date of renewal issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

26. ANNUAL REPORTING

Will the proposed amendment change the content of annual reports or the annual report template?

☐ Yes X No

If Yes, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

27. CHECKLIST

The following must be included with the application for Amendment for the water licensing process to begin.

Completed Application for Water Licence Amendment form.

X Yes ☐ No If no, date expected _____

Information addressing Supplement Information Guideline (SIG), where applicable (see Block 11)

☐ Yes X n/a due to nature of amendment

Compliance Assessment / Status Report (see Block 23).

☐ Yes X n/a due to nature of amendment

Indication of Renewal Requirement (see Block 26)

X Yes ☐ No If no, date expected _____

English Summary of Amendment Application.

X Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Amendment Application.

☐ Yes X No If no, date expected As soon as available _____

Application fee of $30.00 CDN (Payee Receiver General for Canada).

X Yes ☐ No If no, date expected _____

Water Use Fee Deposit of $30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

X Yes ☐ No If no, date expected _____

28. SIGNATURE

Name (Print)	Title (Print)	Signature	Date
M. John Roberts	Vice President, Environment		June 10, 2017

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name	Incorporation Date
2348005	TMAC RESOURCES INC.	2012/10/30

Jurisdiction
ONTARIO

Corporation Type	Corporation Status	Former Jurisdiction
ONTARIO BUSINESS CORP.	ACTIVE	NOT APPLICABLE

Registered Office Address

95 WELLINGTON STREET WEST

Suite # 1010
TORONTO
ONTARIO
CANADA M5J 2N7

Mailing Address

NOT AVAILABLE

Date Amalgamated	Amalgamation Ind.
NOT APPLICABLE	NOT APPLICABLE
New Amal. Number	**Notice Date**
NOT APPLICABLE	NOT APPLICABLE
	Letter Date
	NOT APPLICABLE
Revival Date	**Continuation Date**
NOT APPLICABLE	NOT APPLICABLE
Transferred Out Date	**Cancel/Inactive Date**
NOT APPLICABLE	NOT APPLICABLE
EP Licence Eff.Date	**EP Licence Term.Date**
NOT APPLICABLE	NOT APPLICABLE

Number of Directors Minimum	Number of Directors Maximum	Date Commenced in Ontario	Date Ceased in Ontario
00001	00010	NOT APPLICABLE	NOT APPLICABLE

Activity Classification

NOT AVAILABLE

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Corporate Name History	Effective Date
TMAC RESOURCES INC.	2012/10/30

Current Business Name(s) Exist: NO

Expired Business Name(s) Exist: NO

Administrator:

Name (Individual / Corporation)	Address
ANDREW ADAMS	2423 CARRINGTON PLACE OAKVILLE ONTARIO CANADA L6J 7R6

Date Began	First Director
2013/03/12	NOT APPLICABLE

Designation	Officer Type	Resident Canadian
DIRECTOR		Y

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

JOAO
P.S.
CARRELO

Address

95 WELLINGTON STREET WEST
P.O. BOX 44
Suite # 1010
TORONTO
ONTARIO
CANADA M5J 2N7

Date Began	First Director	
2015/06/25	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		N

Administrator:
Name (Individual / Corporation)

RUSS

CRANSWICK

Address

7701 EAST 8TH AVENUE

DENVER
COLORADO
UNITED STATES OF AMERICA 80230

Date Began	First Director	
2014/04/28	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		N

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

FRANK

DAVIS

Address

33 EDGEVALLEY DR

TORONTO
ONTARIO
CANADA M9A 4N8

Date Began	First Director	
2013/03/12	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		Y

Administrator:
Name (Individual / Corporation)

RANDY

ENGEL

Address

5892 SOUTH LAUREL PLACE

LITTLETON
COLORADO
UNITED STATES OF AMERICA 80123

Date Began	First Director	
2013/03/12	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		N

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

DAVID

FALEY

Address

5653 SOUTH FULTON WAY

GREENWOOD VILLAGE
COLORADO
UNITED STATES OF AMERICA 80111

Date Began	First Director	
2013/03/12	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		N

Administrator:
Name (Individual / Corporation)

CATHARINE

FARROW

Address

1640 GRAVEL DR

HANMER
ONTARIO
CANADA P3P 1R7

Date Began	First Director	
2013/01/01	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
OFFICER	CHIEF EXECUTIVE OFFICER	

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

CATHARINE
FARROW

Address

1640 GRAVEL DR

HANMER
ONTARIO
CANADA P3P 1R7

Date Began	First Director	
2013/03/12	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		Y

Administrator:
Name (Individual / Corporation)

RONALD
P
GAGEL

Address

5188 ROTHESAY CT

MISSISSAUGA
ONTARIO
CANADA L5M 4Y3

Date Began	First Director	
2013/01/01	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
OFFICER	CHIEF FINANCIAL OFFICER	

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

JOHN
LYDALL

Address

30 SECOND ST

OAKVILLE
ONTARIO
CANADA L6M 3R4

Date Began	First Director	
2013/03/12	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		Y

Administrator:
Name (Individual / Corporation)

ANGUS
TERRANCE
MACGIBBON

Address

27 FIRST ST

OAKVILLE
ONTARIO
CANADA L6M 3R4

Date Began	First Director	
2012/10/30	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
DIRECTOR		Y

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

ANGUS
TERRANCE
MACGIBBON

Address

27 FIRST ST

OAKVILLE
ONTARIO
CANADA L6M 3R4

Date Began	First Director	
2013/01/01	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
OFFICER	CHAIRMAN	

Administrator:
Name (Individual / Corporation)

JULIA

MICKS

Address

5 VIAMEDE CRES

NORTH YORK
ONTARIO
CANADA M2K 2A7

Date Began	First Director	
2013/04/22	NOT APPLICABLE	
Designation	**Officer Type**	**Resident Canadian**
OFFICER	VICE-PRESIDENT	

CORPORATION PROFILE REPORT

Ontario Corp Number

2348005

Corporation Name

TMAC RESOURCES INC.

Administrator:
Name (Individual / Corporation)

GORDON

MORRISON

Address

10 NORTH SHORE RD

FIELD
ONTARIO
CANADA P0H 1M0

Date Began

2013/01/01

First Director

NOT APPLICABLE

Designation

OFFICER

Officer Type

PRESIDENT

Resident Canadian

Administrator:
Name (Individual / Corporation)

ELIZABETH
ANN
WILKINSON

Address

45 GLENADEN AVENUE

TORONTO
ONTARIO
CANADA M8Y 2L4

Date Began

2015/08/24

First Director

NOT APPLICABLE

Designation

OFFICER

Officer Type

VICE-PRESIDENT

Resident Canadian

CORPORATION PROFILE REPORT

Ontario Corp Number	Corporation Name
2348005	TMAC RESOURCES INC.

Last Document Recorded

Act/Code	Description	Form	Date
CIA	ANNUAL RETURN 2015	1C	2016/07/10 (ELECTRONIC FILING)

THIS REPORT SETS OUT THE MOST RECENT INFORMATION FILED BY THE CORPORATION ON OR AFTER JUNE 27, 1992, AND RECORDED IN THE ONTARIO BUSINESS INFORMATION SYSTEM AS AT THE DATE AND TIME OF PRINTING. ALL PERSONS WHO ARE RECORDED AS CURRENT DIRECTORS OR OFFICERS ARE INCLUDED IN THE LIST OF ADMINISTRATORS.

ADDITIONAL HISTORICAL INFORMATION MAY EXIST ON MICROFICHE.

NOTICE OF INDICATION FOR
12.10.2(b) DETERMINATION REPORT
NIRB FILE NO.: 12MN001

NWB File No.: 2BB-MAE----

June 24, 2016

To:

Tracey McCaie
Manager Land Administration
Indigenous and Northern Affairs Canada
P.O. Box 100
Iqaluit, NU X0A 0H0

Geoff Clark
Director, Lands, Environment & Resources
Kitikmeot Inuit Association
P.O. Box 360
Kugluktuk, NU X0B 0E0

Karén Kharatyan
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Sent via Email

Re: Notice of Indication for TMAC Resources Inc.'s "Madrid Advanced Exploration Program" NLCA 12.10.2(b) Application, NIRB File No. 12MN001

Dear Sirs and Madam:

Enclosed is the Nunavut Impact Review Board's (NIRB) 12.10.2(b) Determination Report to the Honourable Minister Carolyn Bennett, to President Stanley Anablak, and Chairperson Thomas Kabloona, for TMAC Resources Inc.'s (TMAC) "Madrid Advanced Exploration Program" application in the Kitikmeot Region, Nunavut.

The Nunavut Land Claims Agreement (NLCA), Section 12.10.2 states the following:

> 12.10.2 "*Notwithstanding Section 12.10.1, where a project proposal has been referred for review pursuant to Part 5 or 6, approvals or licences for exploration or development activities related to that project may be issued if*

(a) the activity falls within Schedule 12-1; or

(b) the activity can, in the judgement of NIRB, proceed without such a review."

The NIRB has assessed TMAC's application for the "Madrid Advanced Exploration Program" to be allowed as an exception from the NIRB's Review of the Phase 2 Hope Bay Belt project proposal (12MN001). In assessing the application, the NIRB considered potential ecosystemic and socio-economic impacts and further took into consideration the comments from relevant authorities and communities.

The enclosed report signed on June 24, 2016 by Elizabeth Copland at Arviat, NU has been issued to Indigenous and Northern Affairs Canada, the Kitikmeot Inuit Association, and the Nunavut Water Board and is subject to the terms and conditions contained herein being imposed upon the Proponent through licences, authorizations and relevant legislation.

The NIRB is aware of the authority of each of the aforementioned government departments and Inuit organization to regulate the terms and conditions attached to the enclosed 12.10.2(b) Determination Report. As such, the NIRB requests that those agencies responsible for issuing authorizations for the "Madrid Advanced Exploration Program" application send a hardcopy of the permit or licence with the NIRB's file number referenced on the document to the NIRB office in order to complete our files. In addition, the NIRB requests that copies of any subsequent inspection reports related to the project proposal be sent to the NIRB.

Please be advised that the enclosed determination applies only to the exploration and/or development activities as described within the "Madrid Advanced Exploration Program" application and is subject to the implementation of the Board's recommendations as described within the report.

Should you have any questions or require additional clarification, please contact me directly by telephone at (867) 983-4611 or by email at tarko@nirb.ca.

Sincerely,

Tara Arko
Director, Technical Services
Nunavut Impact Review Board

cc: John Roberts, TMAC Resources Inc.
Alex Buchan, TMAC Resources Inc.
Luigi Torretti, Kitikmeot Inuit Association
Phase 2 Hope Bay Belt Distribution List

Enclosure: NIRB 12.10.2(b) Determination Report (NIRB File No.: 12MN001)

12.10.2(b) DETERMINATION REPORT
NIRB FILE NO.: 12MN001

NWB File No.: 2BB-MAE----

June 24, 2016

To:

The Honourable Carolyn Bennett
Minister of Indigenous and Northern Affairs
House of Commons
Ottawa, ON K1A 0A6

cc:

Mr. Stanley Anablak
President
Kitikmeot Inuit Association
P.O. Box 18
Cambridge Bay, NU X0B 0C0

Mr. Thomas Kabloona
Chairperson
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Sent via email, fax and regular post

Re: <u>12.10.2(b) Determination for TMAC Resources Inc.'s "Madrid Advanced Exploration Program" project proposal, NIRB File No. 12MN001</u>

Dear Ms. Carolyn Bennett:

On December 31, 2014 the Nunavut Impact Review Board (NIRB or Board) received an application from TMAC Resources Inc. (TMAC) pursuant to section 12.10.2(b) of the Nunavut Land Claims Agreement, for an exception from the NIRB's ongoing Review of TMAC's Phase 2 Hope Bay Belt project (NIRB File No.: 12MN001) for specific exploration and/or development activities referred to as "the Madrid Advanced Exploration Program project proposal". This

report shall serve as the NIRB's determination regarding the Madrid Advanced Exploration Program project proposal (the Exception Application) and is provided to all responsible authorities for their consideration during the subsequent processing of any required licences, permits or approvals.

LEGAL FRAMEWORK

The NIRB is governed by the provisions of the Nunavut Land Claims Agreement (NLCA), which was negotiated based on and reflecting the following objectives:[1]

- *to provide for certainty and clarity of rights to ownership and use of lands and resources, and of rights for Inuit to participate in decision-making concerning the use, management and conservation of land, water and resources, including the offshore;*
- *to provide Inuit with wildlife harvesting rights and rights to participate in decision-making concerning wildlife harvesting;*
- *to provide Inuit with financial compensation and means of participating in economic opportunities; and,*
- *to encourage self-reliance and the cultural and social well-being of Inuit.*

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the NLCA as follows:

> *In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.*

Part 10 of Article 12 of the NLCA states:

12.10.1 No licence or approval that would be required in order to allow a proposed project to proceed shall be issued in respect of a project that is to be screened by NIRB until the screening has been completed and, if a review pursuant to Part 5 or 6 is to be conducted, until after that review has been completed and a NIRB project certificate has been issued by NIRB pursuant to these provisions.

Exceptions

12.10.2 Notwithstanding Section 12.10.1, where a project proposal has been referred for review pursuant to Part 5 or 6, approvals or licences for exploration or development activities related to that project may be issued if:

(a) the activity falls within Schedule 12-1; or

[1] Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty The Queen in Right of Canada

In previous cases involving requests for the Board to exercise its jurisdiction under this section, the Minister expressly noted the Board's role with respect to the consideration and granting of an exception from Review as follows:

> *The discretion to consider and subsequently grant exceptions under 12.10.2 of the Agreement rests with the Board and should only be exercised after careful consideration.*[2]

Reflecting the Board's jurisdiction under this aspect of the NLCA, upon accepting the application under Article 12, Section 12.10.2(b), the NIRB conducted a thorough review of the technical matters pertaining to the Exception Application, and now provides the Board's determination to the respective authorizing agencies regarding whether they can proceed to issue the required licences or approvals either in whole, or in part, to the exploration and development works described in the Exception Application independently of the conclusion of the Review of the related project. It should be noted that a determination by the NIRB to allow specific exploration and/or development activities to proceed independently of the Review of the related project under section 12.10.2(b) does not affect the requirement for the Proponent to subsequently obtain any licences, permits or approvals required to undertake any of the excepted activities.

Further, the NIRB's consideration and determination in respect of a section 12.10.2(b) exception application is in no way an indication of the likely outcome of the Review process associated with the related project to which the exception application activities are related. Neither does the NIRB's determination in relation to this Exception Application affect the Board's ultimate determination regarding whether the related project under Review should be allowed to proceed, nor the potential issuance of a NIRB Project Certificate under the NLCA, Article 12, section 12.5.12 following the final decision of the Minister of Indigenous and Northern Affairs.

NIRB ASSESSMENT AND DECISION

After a thorough assessment of all materials provided to the Board, in accordance with the primary objectives as described above, the determination of the Board pursuant to Section 12.10.2(b) of the NLCA is to approve the exception of the activities included in TMAC's Exception Application from the NIRB's ongoing Review of TMAC's "Phase 2 Hope Bay Belt" project proposal (NIRB File No. 12MN001).

This determination applies only to the exploration and/or development activities as described within the Madrid Advanced Exploration Program project proposal and is subject to the implementation of the Board's recommendations as set out in more detail in this report.

PROCEDURAL HISTORY: BACKGROUND

[2] Excerpt from the September 13, 2011 correspondence of the Minister of Aboriginal Affairs and Northern Development referring the Meliadine Gold Project (NIRB File No. 11MN034) to the NIRB for public Review and noting that the Project Proposal included a request for the NIRB to consider the construction of an All-Weather Road as an exception from the requirement for Review under the NLCA 12.10.2.

PROCEDURAL HISTORY: BACKGROUND

On December 8, 2011 the NIRB received the Phase 2 Hope Bay Belt project proposal from then-Proponent Hope Bay Mining Limited (HBML), and subsequently on January 12, 2012 the NIRB received a referral for screening from the Kitikmeot Inuit Association (KIA). The proposed Phase 2 Hope Bay Belt project proposal is located in the Kitikmeot Region, an area that does not currently have an approved land use plan in place; therefore, a conformity determination from the Nunavut Planning Commission was not required at that time for this file. The NIRB assigned the Phase 2 Hope Bay Belt project proposal file number 12MN001 and commenced screening pursuant to Article 12, Part 4 of the NLCA.

On February 24, 2012 the NIRB issued its screening decision report to the Honourable John Duncan, then-Minister of Aboriginal Affairs and Northern Development, which recommended pursuant to NLCA Section 12.4.4(b) that the Phase 2 Hope Bay Belt project required a Review under Part 5 or 6 of Article 12 of the NLCA. On May 30, 2012 the Minister referred the Phase 2 Hope Bay Belt project to the NIRB to conduct a Review to assess the ecosystemic and socio-economic impacts of the proposal pursuant to Article 12, Part 5 of the NLCA. In addition, pursuant to Section 12.5.1 of the NLCA, recognizing that the associated Doris North Gold Mine project (Doris North project) had recently been placed into care and maintenance, the Minister noted his expectation that the Board's Review would continue so long as the Proponent remained actively engaged in the review process.

Pursuant to Section 12.5.2 of the NLCA, on December 14, 2012 the NIRB issued its *Guidelines for the Preparation of an Environmental Impact Statement for Hope Bay Mining Ltd.'s Phase 2 Hope Bay Belt Project (NIRB File No. 12MN001)* (the Guidelines) to HBML. On March 8, 2013 the NIRB received notice that TMAC Resources Inc. had acquired the Hope Bay Gold Project, which included both the Doris North Gold Mine Project and Phase 2 Hope Bay Belt project proposal from HBML. On August 15, 2014 the NIRB received further correspondence that TMAC expected to continue with the Phase 2 Hope Bay Belt project Review through the future submission of a Draft Environmental Impact Statement.

PROCEDURAL HISTORY: CURRENT APPLICATION

On December 31, 2014 the Nunavut Impact Review Board (NIRB or Board) received an application from TMAC Resources Inc.'s (TMAC or the Proponent) for proposed works and activities in support of the Madrid Advanced Exploration Program project proposal (the Exception Application), pursuant to NLCA Section 12.10.2(b). On January 15, 2015 the NIRB issued correspondence to the Proponent noting that receipt of a formal request from an authorizing agency to screen the proposed works would be required for the NIRB to commence its assessment of the Exception Application. On March 24, 2015 the NIRB received a referral from the Nunavut Water Board for a Type "B" water licence associated with the Exception Application. This was followed on June 1, 2015 by a request from the Kitikmeot Inuit Association to screen the aforementioned application "under Article 12, Part 4 of the NLCA along with the provision of additional information on the program's design and operation".[3]

3 Kitikmeot Inuit Association Letter NIRB Re Comments, June 1, 2015.

Consequently, the NIRB commenced its assessment of the Madrid Advanced Exploration Program project proposal (the Exception Application) pursuant to NLCA Section 12.10.2(b). On June 3, 2015 the NIRB circulated notice of receipt of the Exception Application and invited comments from interested parties with a request for submissions to be received on or before June 24, 2015.

As any activities excepted under NLCA Section 12.10.2(b) would be considered for approval separately from the NIRB's Review of TMAC's Phase 2 Hope Bay Belt project proposal, parties were asked to provide comments and advice to the Board regarding the following issues:

- A determination of whether Parties agree/disagree with the conclusions in the Exception Application regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination,
- A determination of whether or not conclusions in the Exception Application are supported by the analysis – and reasons to support the determination,
- A determination of whether appropriate methodology was utilized in the Exception Application to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable),
- An assessment of the quality and presentation of the information in the Exception Application, and
- Any comments regarding: the expressed need for and required timing of the proposed exceptions as presented; the permanence of proposed infrastructure; the reversibility of potential impacts; and the potential need for associated security bonding.

On or before June 24, 2015 comments regarding TMAC's Exception Application were received from the following parties:

- Kitikmeot Inuit Association (included with its referral)
- Government of Nunavut
- Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada)
- Environment Canada (now Environment and Climate Change Canada)
- Fisheries and Oceans Canada
- Natural Resources Canada
- Transport Canada

On July 20, 2015 the NIRB provided TMAC with an opportunity to address comments received and requested TMAC response by August 7, 2015; however, on August 1, 2015 TMAC informed the NIRB it would require until August 21, 2015 to develop its response. On August 24, 2015 TMAC provided its response to parties' comments noting that it expected to provide additional supporting materials for its socio-economic assessment by September 15, 2016 which were subsequently received by the NIRB on September 16, 2015. On October 1, 2015 the NIRB provided parties with an opportunity to review and comment on TMAC's response to comments with final comment submissions to be provided by interested parties on October 14, 2015.

On or before October 14, 2015 final comments were received from the following parties:

- Kitikmeot Inuit Association
- Government of Nunavut
- Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada)

On October 23, 2015 the NIRB provided a final opportunity for TMAC to address comments received regarding the Exception Application with the response provided by November 2, 2015. On October 28, 2015 TMAC submitted a request to the NIRB for additional time to meet with agencies and deliver a detailed response to technical review comments by November 30, 2015. On November 30, 2015 TMAC informed the NIRB that it required additional time to complete discussions on issues raised by parties during the comment period, and that it expected to submit its response on February 16, 2016. On December 3, 2015 the NIRB responded to the extension request and noted it was willing to accept TMAC's requested for additional time as it was the responsibility of the Proponent to provide the Board the required information to allow a complete assessment under 12.10.2(b) of the NLCA. Additionally, the NIRB noted that it expected that the additional time would enable TMAC to provide sufficient information for the Board to complete its decision

On February 16, 2016 the NIRB received TMAC's response to parties' final comments and on February 18, 2016 the NIRB requested confirmation from TMAC as to whether or not the submission was complete. On March 1, 2016 TMAC confirmed in correspondence that the response was complete.

PROPOSED ACTIVITIES AND SCOPE OF ASSESSMENT

TMAC's Madrid Advanced Exploration Program project proposal (the Exception Application) included one (1) new Type "B" water licence with the Nunavut Water Board (NWB), and as the proposed program would occur on Inuit Owned Land, the Kitikmeot Inuit Association (KIA) requested the NIRB conduct an assessment for the issuance and maintenance of KIA Land Use Licences associated with the Exception Application.

The Doris North Gold Mine project (NIRB File No. 05MN047) is a mining operation located approximately 125 kilometres (km) south of Cambridge Bay and 150 km north of Omingmaktok (Bay Chimo) near Melville Sound in the West Kitikmeot region of Nunavut. Originally reviewed by the NIRB pursuant to NLCA Article 12, Part 5, the Doris North Gold Mine Project was approved to proceed on March 2006 subject to the terms and conditions of NIRB Project Certificate No. 003 as issued on September 15, 2006. Although the majority of infrastructure for the Doris North Gold Mine project has since been constructed, no mining and/or milling has occurred to date and in the summer of 2015 TMAC recommenced construction at the Doris North Project site.

On December 9, 2013 the NIRB and the Nunavut Water Board (NWB) received an application from TMAC to amend the Project and specified terms and conditions in Project Certificate No. 003. Between December 2013 and June 2015, TMAC considered technical comment

submissions and requests for clarification from the NIRB and the NWB, and revisited and refined the scope of the modifications to the Project that were being requested.

On June 13, 2016 the NIRB completed its Review of TMAC's proposed amendments to the Doris North Gold Mine project and associated Project Certificate No. 003 under the Nunavut Land Claims Agreement Section 12.8.2(b), and submitted its recommendations to the Minister of Indigenous and Northern Affairs (the Minister) that the amendment should proceed. The Board is currently awaiting the Minister's response to its recommendations before issuing an amended Project Certificate for the Doris North project.

As noted previously, the Phase 2 Hope Bay Project Proposal (NIRB File No. 12MN001) is currently under Review by the NIRB pursuant to NLCA Article 12, Part 5 and consists of the proposed development of both the Madrid and/or Patch and Boston mineral deposits, approximately 9 kilometres (km) and 80 km south of the Doris North Project, respectively.

The Madrid and Boston deposits are located on the same greenstone belt as the Doris North Project which spans approximately 80 km in length and between 7 and 20 km wide. Ongoing since 1994, Mineral exploration programs inclusive of prospecting and diamond drilling within the areas associated with the Phase 2 Hope Bay Belt Proposal have been completed by various project proponents. Existing site infrastructure and/or approved infrastructure within the proposed development area for the Phase 2 Hope Bay Belt project proposal includes:

- All-weather airstrip at the Boston exploration area and helicopter pad at the Windy exploration site;
- Seasonal construction and/or operation of winter ice strips on Windy Lake and Aimaokatalok Lake;
- Boston Camp with capacity for up to 60 people;
- Windy Camp with capacity for up to 180 people (currently dismantled and not in operation);
- Doris North to Windy Camp all-weather road;
- Seasonal construction/operation of Doris North to Boston winter road; and
- Three existing and/or approved quarry sites along the Doris North to Windy all-weather road.

The scope of TMAC's Madrid Advanced Exploration Program project proposal includes components related to undertaking continued exploration and a bulk sampling program located on Inuit Owned Land over a 10-year period. At the Madrid deposit, TMAC proposed to move up to 50,000 tonnes of bulk ore at the Madrid North site, and later the same amount from the Madrid South deposit for sampling. The Madrid North bulk sample would provide increased understanding of two (2) additional sub-deposits, "Naartok" and "Suluk", while bulk sampling at Madrid South would do the same for the "Patch 14" and "Wolverine" sub-deposits. Exploration activities at each site would consist of four (4) components – diamond drilling, underground development, test stoping, and bulk sampling of the ore and would encompass the following activities:

- Utilization of existing infrastructure associated with the Doris North Gold Mine project:
    - Camp facilities to support up to 70 personnel required to undertake the advanced exploration activities;
    - Mill to process the ore samples;
    - Tailings Impoundment Area to store waste water trucked from Madrid North and South;
    - Landfill and hazardous waste areas, particularly if closure and remediation becomes required for the Madrid Advanced Exploration Program infrastructure;
    - Fuel tank farms; and
    - Airstrip and Roberts Bay dock facility for transport of personnel and supplies.

- Utilization of existing infrastructure at the Madrid/Boston exploration areas:
    - Borrow and rock quarry facilities: existing quarries A, B and D along the Doris-Windy all-weather road;
    - All-weather access road previously constructed between Doris North and Windy Lake for transportation of personnel, ore, waste, fuel, and supplies; and
    - Future mobilization of existing exploration camp infrastructure should it become necessary.

- Construction of additional facilities at North and South Madrid:
    - Two (2) access portals and ramps for underground operations – one at Madrid North, and one at Madrid South;
    - 4.7 km extension of the existing all-weather access road originating from the Doris North Gold Mine to the Windy exploration area (Madrid North) to the Madrid South deposit, with associated access road turn-offs;
        - Development of a winter road from Madrid North to access Madrid South until all-weather access road has been constructed;
    - Borrow and rock quarry facilities, two (2) quarries referenced as G and H;
    - Waste and ore stockpiles; and
    - Water and waste management structures.

- Undertaking of advanced exploration access to aforementioned deposits through:
    - Continue field mapping and sampling, as well as airborne/ground/downhole geophysics;
    - Diamond drilling from the surface and underground; and
    - Bulk sampling through underground mining methods.

SUMMARY OF COMMENTS RECEIVED

The following provides a *summary* of the comments and concerns received during the public commenting periods for this file based on topic of concern. Please refer to Appendix A of this determination to review parties' comment submissions in their entirety.

Kitikmeot Inuit Association

The Kitikmeot Inuit Association (KIA) noted in its referral to the NIRB that it had undertaken an

assessment of the NWB application and found that it did not contain sufficient information regarding specific project components, and as a result expected to withhold approval of the Type "B" water licence until the NIRB process was complete. The KIA noted that additional information would be required on the following items to properly assess the impacts of the proposal, specifically:

- How the added processing at the Doris North mill would affect the water use and water licence for the Doris North mine;
- Existing conditions and design of proposed infrastructure, specifically existing groundwater flow, water balance, chemistry, and permafrost of the development area; slope alternatives for waste rock piles; hydrological designs; use of liners and berms on site; and use of flocculants;
- Approximate numbers of people to be housed in each camp, and dates when Windy Camp is expected to open;
- The numbers of vehicles and frequency of travel expected along the Doris North to Windy road related to the bulk sample proposal;
- Updated management plans pertaining to the Madrid project; and
- Identification and discussion of cumulative effects.

Summary of Comments received on/before June 24, 2015

Government of Nunavut

The Government of Nunavut (GN) had several concerns regarding the expressed need for, and timing of, the proposed exceptions, as well as the permanence of proposed infrastructure, and the reversibility of potential impacts.

- Concerned that the existing Doris North Gold Mine project infrastructure and systems planned for use by the Madrid Advanced Exploration Program are part of an ongoing re-assessment and thus the NIRB and interveners cannot confirm whether the additional capacity requirements are reflected in the revised amendment application or assess the adequacy.
- Data used in the analysis was for the original Doris North Gold Mine project assessment baseline studies conducted from 1995 to 2006, and as there was no indication provided that a Draft Environmental Impact Statement for Phase 2 Hope Bay Belt is forthcoming; the GN also noted serious concerns with the quality of the baseline information that would be available to support the ongoing Review of the project. Additionally, the Review would effectively be limited from exploring and assessing design level mitigations to manage the potential impacts of the Madrid Advanced Exploration Program.
- Noted concerns regarding how the amendment to the Doris North project (NIRB File No: 05MN047) and the Phase 2 Hope Bay Belt could be considered separate and distinct given both were being assessed by the NIRB simultaneously.
    - GN further noted that since the Madrid program is a stand-alone project with different project timelines, separate management plans should be required to

capture the long-term potential effects.

- Recommended the NIRB take a precautionary approach in determining if the proposed activities can be excepted from the Review of the Phase 2 Hope Bay Belt project.
- Noted the following impacts should be considered in a precautionary approach:
    - Habitat lost in relation to the minimal herd habitat requirement is needed.
    - Potential impacts to Windy Lake from runoff at the proposed Madrid North project site as the pollution control pond, waste rock pile, and ore stock pile are at the top of the cliff leading to Windy Lake.
    - The development of several locations along Hope Bay Belt has the potential for cumulative effects along with other development in the Kitikmeot region and that cumulative effects would be more appropriately addressed through the Part 5 Review but not under a 12.10.2(b) exception process.
    - The presence of project activities should not prohibit access for traditional uses.
    - Restated its conclusion on the 2013 Doris North Annual Report that wildlife cameras provide incidental data and should not be relied on for baseline or monitoring data collection.
- The GN recommended:
    - That muskox be considered a valued ecosystem component for the Program.
    - The best management practices noted in the application are suitable for interaction of wildlife within the Project footprint only and that wildlife experience effects at greater distances, and as a result recommend that comprehensive mitigation measures and best management practices be developed to reduce the potential impact (i.e., updated management plans be submitted for review prior to the NIRB making its recommendation on this exception proposal).
    - A detailed archaeological assessment is required for the footprint of the project, however only preliminary assessment details were provided in the application.
- The GN requested:
    - A discussion of the potential socio-economic impacts and benefits of TMAC's proposed activities and how it planned to manage these during operations in the event the activities were permitted to proceed, and additional opportunity to review any additional information should be provided. The cumulative effects of concurrent operations at Doris North Gold Mine should be considered.
    - TMAC provide additional information regarding assessments of potential impacts on in-migration to surrounding communities, the subsequent effects on housing and housing demand, and the capacity of communities to meet present and future housing needs.

<u>Aboriginal Affairs and Northern Development Canada</u>

Aboriginal Affairs and Northern Development Canada (AANDC; now Indigenous and Northern Affairs Canada) identified its concerns that:

- TMAC's proposal provided limited analysis of data regarding alternatives assessment, potential environmental impacts, mitigation measures, and significance of impacts or adequate monitoring measures.
- The Madrid program was proposed to rely on Doris North infrastructure; however the activities would fall outside the scope of Project Certificate No. 003.

- That some Madrid project components (e.g., two portals and waste rock storage pad) could be considered permanent pre-development infrastructure for the Phase 2 project proposal.
- Considered that authorization required for the Madrid Advanced Exploration Program to proceed, and be undertaken concurrently with the Phase 2 Hope Bay Belt Part 5 Review and the 12.8.2 Doris North Project Certificate reconsideration, could potentially interfere with an accurate and thorough assessment of the environmental and socio-economic impacts of the related projects currently under review, and that the 12.10.2(b) exception process may not be the appropriate process to review the proposed activities associated with the Project.

- AANDC also noted the following deficiencies in the application:
  - Baseline information was presented in general terms and at a high level and as a result it was not clear how it was used to inform the analysis of potential project impacts.
  - Baseline studies, such as a hydrogeological field investigation, have yet to be conducted at Madrid North.
  - The NIRB Part 5 Review of the Doris North project in 2005/2006 did not include an assessment of impacts or suggested mitigation measures for the additional activities associated with the Project; recommend the NIRB follow the precautionary principle in approving the 12.10.2(b) exception without first revisiting the Doris North Project Certificate (No. 003) to include these additional activities.
  - The potential impacts from the change in scope of the Doris North project to accept waste water from the Madrid area into the Doris North Tailings Impoundment Area have not been fully addressed in an impact assessment.
  - The application provided limited analyses to support conclusions made regarding the assessment of potential impacts and many conclusions which provided mitigation measures were based on unsubstantiated assumptions.
  - Socio-economic impacts had not been assessed nor has sufficient socio-economic information been provided in the submission.
    - Requested clarification on the total number of anticipated person years of employment required to undertake the activities of the program as it would be helpful for reviewers to determine whether this project could be considered a “Major Development Project” under Section 26.1.1(b) of the NLCA.
  - AANDC was unable to make a determination regarding the appropriateness of methodology utilized in application given that little information was provided outlining the methodology employed. Further mitigation measures presented appear to be qualitative and subjective in nature, with vague descriptions of measures to be taken for potential impacts.
- AANDC was concerned with the reliance of the Madrid Advanced Exploration Program on Doris North project infrastructure, including use of the mill, tailings impoundment area, camp facilities and waste discharge:
  - The proposed shared use of existing project infrastructure renders it difficult to separate independent project components and sufficiently assess the potential impacts for each respective project.

- Referencing potential valued ecosystemic components specific to the Doris North project to determine impacts and mitigation measures to apply to the Madrid program may not be appropriate, considering the program is associated with the distinct Phase 2 Hope Bay Belt project.

Environment Canada

Environment Canada (EC; now Environment and Climate Change Canada) was of the opinion that the scope and nature of activities included in the application constitute significant steps toward the development of an operational mine; therefore EC suggested that the proposed activities remain within the ongoing NIRB Part 5 Review of the Phase 2 Hope Bay Belt project.

Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) agreed with the conclusions presented by TMAC regarding the proposed culvert installation and water withdrawal, especially with regard to the alternatives assessment, projected environmental impacts, proposed mitigations, significance of impacts and monitoring measures.

Natural Resources Canada

Natural Resources Canada (NRCan) commented on components of the application related to explosives storage, quarry rock characterization, and permafrost and terrain stability.

- Recommended that TMAC's explosive supplier should be required to obtain a new licence for the proposed explosives mixing and storage facility and if required for explosives storage in other locations serving the Doris North mine and the Madrid Advanced Exploration Program.
- NRCan stated that the application did not contain sufficient information on:
  - Explaining how the Doris North project infrastructure would accommodate the additional materials and waste products that may result from the Madrid Advanced Exploration Program project proposal, especially in combination with possible changes to the Doris North project.
  - The supplemental information included general information in relation to permafrost, however site specific baseline information has not been provided and TMAC had not indicated whether site-specific geotechnical and geophysical investigations would be undertaken to support siting and design infrastructure.
  - Site specific information related to groundwater quality and quantity was not been provided in the exception application, therefore it was unclear whether the groundwater mitigation measures and management plans provided would take into account the potential groundwater inflows that may result from modifications to the Doris North project.

Transport Canada

Transport Canada (TC) noted that the proposed project activities for the Madrid Advanced Exploration Program would not require a regulatory decision from TC.

Summary of Proponent's Response to Comments received from Parties on/before June 24, 2015

On July 20, 2015 the NIRB provided an opportunity for the Proponent to respond to the concerns raised during the first public commenting period and the following is a summary of the Proponent's response to concerns as received on August 21, 2015. Please refer to Appendix B to review TMAC's response to comments in its entirety.

TMAC outlined the steps of development of a mine and provided information regarding the following:

- Confirmation of location of bulk sample depths and potential for saline ground water.
    - Madrid North would be within permafrost and anticipating a dry mine (very little groundwater seepage).
- A package outlining the predicted socio-economic impacts of the Project.
- Information regarding the ability of the Tailings Impoundment Area and mill at the Doris North Gold Mine project for the processing of the bulk samples.
- A reduction of anticipated ore to be sampled to 21,000 tonnes through the mill.
- Information regarding the association between the Doris North Gold Mine Project and the Madrid bulk sample.
- Information regarding public consultations.
- Information regarding mitigation and monitoring plans such as the Wildlife Mitigation and Monitoring Plan and Surface Water Management Plan.

Summary of Comments received on/before October 24, 2015

Kitikmeot Inuit Association

KIA responded that it still had some outstanding concerns:

- Requirement for rationale and/or additional information of: existing site groundwater flow, water balance, chemistry, slope alternatives for waste rock piles; use of 25% allowance of snowfall within design calculations; fish water crossing techniques, specific engineering and operational details, and cumulative effects;
- Details and commitments from TMAC regarding reclamation of the Madrid Advanced Exploration Program; and
- Requested copies of updated plans for review (e.g., Wildlife Mitigation and Monitoring Plan, Water Management Plan).

Government of Nunavut

GN submitted comments that:

- Re-stated its recommendation to the NIRB to take a very precautionary approach in determining if the proposed activities could be excepted from the Review of the Phase 2 Hope Bay Belt project.

- Noted that the memorandum provided by TMAC was the same as was provided for the Doris North Amendment, and restated concerns on the oversimplification of information presented in the assessment.
- Noted that it had concerns regarding the assessment of potential socio-economic effects memorandum submitted September 16, 2015, specifically:
    - The education and training baseline information included information collected as part of personal communication, which may not be accurate of region wide responsibilities or represent accurate statistics.
    - Limited information provided on Inuit training, employment, and educational attainment with no corresponding mitigation for specific variables as a result of assumptions that impacts in this area would be entirely within the positive spectrum.
    - Lack of a proposed communication plan.

Aboriginal Affairs and Northern Development Canada

AANDC provided the following comments:

- Was of the opinion that TMAC's proposal provided limited analysis of data regarding alternatives assessment, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures.
- Remained concerned that the proposed project used infrastructure at the previously approved Doris North Gold Mine (NIRB File No. 05MN047, Project Certificate No. 003) which potentially compromised the impact assessment of the two proposed projects.
- Noted concern for additional information regarding the undertaking of proposed activities.

Summary of Proponent's Response to Comments received from Parties on/before October 24, 2015

On February 16, 2016 the NIRB received the Proponent's response to parties comments submitted on or before October 24, 2016 which is summarized here. Please refer to Appendix C to review TMAC's response to comments in its entirety.

- TMAC committed to take waste rock slope suggestions under advisement;
- Outlined documents that would be provided during the subsequent permitting process for the Type B water licence should the project proceed, including discharge of water onto the tundra;
- TMAC noted best practices regarding drilling and water management;
- Reiterated its position that bulk sampling is a normal and expected part of mine development in Canada and Nunavut, is commonly permitted and proceeds prior to production mining in Nunavut. TMAC outlined that again that the information provided in the application and previous response to comments was sufficient for a screening level assessment; and
- Committed to having applicable management plans and the Aquatic Effects Monitoring program in place 90 days prior to the commencement of construction.

After a thorough assessment of all materials provided to the NIRB for the Exception Application, it is the opinion of the Board that the proposed activities in TMAC's Madrid Advanced Exploration Program project proposal should not cause significant adverse impacts or public concern if allowed to proceed apart from the ongoing Review of the Phase 2 Hope Bay Belt Project – provided the NIRB's project-specific terms and conditions are implemented.

The NIRB's assessment included consideration of the following general items:

1. **Rationale, objective, implications of the proposed activities on the feasibility of the related project undergoing Review**

The Proponent provided its rationale and justification for excepting the Madrid Advanced Exploration Program project proposal from the Review of the related Phase 2 Hope Bay Belt project by noting that the proposed project activities involve a bulk sample at the Madrid North and South sites, that are required to determine the feasibility of developing the Madrid area as proposed within the Phase 2 Hope Bay Belt project (NIRB File No. 12MN001). TMAC noted that bulk sample activities are standard advanced exploration undertakings required in advance of developing a mine, are commonly done in Nunavut, and are required to establish the geologic, mineralization and metallurgical conditions of the area to inform calculations of the economic viability of developing a proposed deposit. The Proponent detailed that the Madrid Advanced Exploration Program would be supported through existing facilities at the Doris North Gold Mine, in addition to extending the current Windy Lake all-weather access road to the Madrid South site. Finally, TMAC noted that due the Madrid Advanced Exploration Program activities are typically completed by companies during advanced exploration stages, and further that approval of the exceptions application would not fetter the Board's decision of the proposed Phase 2 Hope Bay Belt project.

AANDC and EC noted concerns that the scope and nature of the proposed project activities for the Madrid Advanced Exploration Program may not be a fit for consideration as an exception due to the proposal including undertakings considered significant steps toward the development of a mine and better assessed as part of the ongoing Part 5 Review for the Phase 2 Hope Bay Belt project. AANDC further noted in its comments that due to the scale of the activities being proposed, the undertaking may not be suitable as being excepted from the Review process, and specifically justified the conclusion considering the following proposed activities:

> "*...mining 10 km underground and milling up to 120,000 tonnes of ore and a 10 year lifespan, could be seen as an excessive bulk sample program resulting in a product being produced and revenue generated, and could be considered a stand-along mining operation.*"

The KIA, GN, AANDC, and NRCan noted the lack of sufficient information provided by TMAC within the Exceptions Application, which limited agencies ability to identify impacts from the Madrid Advanced Exploration Program or ensure a thorough assessment of the proposal, specifically:

- The GN and AANDC noted that a general lack of information in the Exception Application also raised concerns regarding understanding the specific impacts of the activities proposed as distinct and separate from the Phase 2 Hope Bay Belt and Doris North Gold Mine projects. AANDC noted specifically that the lack of discussion on the methodology of the Proponent's impact assessment resulted in a lack of assurance in the conclusions and sufficiency of mitigation proposed. In addition, the amount of reliance on and integration to Doris North infrastructure does not allow parties to understand the impacts of the new components and assess if the mitigation is sufficient.
- The KIA, GN, and AANDC requested various mitigation and monitoring plans (e.g., Wildlife Mitigation and Monitoring Plan and Management Plans) either be updated or provided in draft form that were specific to the Madrid Advanced Exploration Program.
- Parties noted that despite the scope of undertaking including trucking of ore, wastes, and waste water from the Madrid site to the Doris site, as well as supplies and workers being transported between the Doris and Madrid sites, traffic statistics had not been provided for vehicle movement between the Doris and Madrid sites. As a result, parties were not able to sufficiently understand the level of impacts and reasonable mitigation measures that would be required.

In response to the deficiencies identified by parties, TMAC noted in its response to comments that it considered the information provided in the application sufficient for assessment of advanced exploration level activities. TMAC further noted that as the Madrid Advanced Exploration Program would be linked to other developments in the area, it had provided reasonable detail on the impacts and mitigation measures proposed, and could not provide the actual draft plans due to the number of assessments ongoing which created opportunities for too many drafts to be in circulation. The Proponent noted that it expected to incorporate the mitigation measures proposed in the Exception Application into the appropriate plan as the exploration proceeded, as plans require updating according to the water licence, and as necessary due to the length of time proposed for the program.

2. The permanence of proposed structures

AANDC noted concern that the infrastructure proposed in the scope of the Exception Application could be considered permanent as defined in the NIRB's Guide 9, section 6.3, specifically the construction and use of an all-weather road to Madrid South, the development of two (2) portals for both Madrid North and Madrid South, waste rock storage pads and the generation of tailings. In AANDC's view, these project components could be considered permanent pre-development infrastructure for the Hope Bay Phase 2 project as some of the components could likely continue to be used should the project be approved.

DFO noted that it considered the installation of the culverts to be permanent since they would be present for the length of the project and through to closure.

The GN noted that given the permanence of infrastructure, it had serious concerns about the quality of the baseline information that would be available to support the ongoing review of the Hope Bay Belt Phase 2 project.

In the Exception Application and responses to comments, TMAC indicated that many components of the proposed Madrid Advanced Exploration Program, such as waste rock piles, portals, laydown areas, borrow pits and rock quarries, as well as the additional all-weather access road to the Madrid South site, are located in areas proposed for infrastructure development for the Phase 2 Hope Bay Belt project, would be used throughout the Project lifecycle, and therefore considered permanent. Additionally, TMAC noted the use of existing infrastructure whenever possible to reduce the footprint should be considered to be an asset to the Project and reduced cumulative impacts.

TMAC included the Closure and Reclamation Plan for the Madrid Advanced Exploration Program in its application which detailed that if the Phase 2 Hope Bay Belt project were not allowed to procced, TMAC would conduct site closure and remediation activities to establish stable chemical and physical conditions at the site. Should the site close, TMAC would remove culverts from any access road and restore natural drainage, but that the access road would otherwise remain intact. TMAC further committed to ensuring that the remediation would preserve the future use and aesthetics of Project areas following reclamation and meet the requirements of all levels of government, landowners, local communities and regulatory bodies.

3. **Alternative uses of proposed structures or materials if the related project under Review was not to be approved**

TMAC indicated that some proposed infrastructure could be left in place after closure following a consultation with all interested parties should the Phase 2 Hope Bay Belt project (NIRB File No. 12MN001) not be allowed to proceed.

AANDC noted that the proposal provided a limited analysis of data regarding alternatives assessment and thus was not able to make a determination as to whether it is in agreement or disagreement with TMAC's conclusions.

DFO noted that based on its review of the proposed culvert installation and water withdrawal, DFO agreed with the conclusion presented in the application regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures.

4. **Significance of potential ecosystemic and socio-economic impacts**

The size of the geographic area for the Exception Application is approximately 23 square kilometres and would occur in an area with no particular identified ecosystemic sensitivity such as parks or protected areas. The Proponent has noted that there has been a long history of activity in the area of the also indicated that while work had not yet been completed on areas of historical, cultural or archaeological significance it would be completing the reports and would be following the recommendations.

- Administrative Conditions:
  - To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-5, and 47.
- Ecosystem, wildlife habitat and Inuit harvesting activities:
  - Potential negative impacts to terrestrial wildlife due to additional traffic, and associated vehicle noise, from movement of supplies and personnel between the Madrid and Doris sites, and transport of ore to the Doris North site for processing at the mill. The Proponent has committed to updating the existing Wildlife Monitoring and Mitigation Plan in place for the Doris North Gold Mine to include the Madrid Advanced Exploration Program, and submit in September 2016. Appropriate terms and conditions have also been recommended (see term and conditions 16-18, 20-23, and 27-29).
  - Potential negative impacts to water quality, snow and ice from storage of fuel and drilling additives, and drilling activities. The GN also noted potential negative impacts to Windy Lake from runoff at the Madrid North project site as the pollution control pond, waste rock pile, and ore stock pile are at the top of the cliff leading to Windy Lake. The Proponent has provided a comprehensive Spill Contingency Plan and will require a Type "B" water licence from the Nunavut Water Board. Appropriate terms and conditions have also been recommended (see term and conditions 6 through 14).
  - Potential negative impacts to caribou and caribou calving habitat as well as muskox from drilling activities as well as daily transport of personnel, fuel and equipment to drill sites via the all-weather access road as well as potential helicopter activity in the area due to continued exploration. Minimum flight altitudes and seasonal restrictions have been recommended (see term and condition 16-18 and 24-26).
  - Potential negative impacts to wildlife and wildlife habitat and migratory birds from conducting program activities. This includes potential impacts from noise and dust generated from ground or aerial geophysical survey, prospecting and diamond drilling activities, from daily transport of personnel, fuel and equipment to project sites by helicopter to drill sites. Further, cumulative impacts have also been identified. The following terms and conditions are recommended to mitigate the potential adverse impacts: 19 through 23.
  - Potential negative impacts to surface and ground water quality and quantity, and fish and fish habitat from storage and use of fuel and drilling additives from bulk sample activities. Further, the potential negative impacts are also issues relevant for consideration by the Nunavut Water Board. In addition, the following terms and conditions are recommended to mitigate the potential adverse impacts to waterbodies in addition to ensuring no wastes enter surrounding lakes or waterbodies from drilling activities: 39 through 42.
  - Potential negative impacts to vegetation, soils and land from storage and use of fuel and drilling additives, drilling, development of the additional road, installation of culverts, and quarrying activities in addition to the noise and dust generated. Some of the undertakings are temporary and would be remediated according to the provided Closure

and Reclamation Plan, the road culverts would be removed and natural drainage restored, but otherwise the road would stay intact. The following terms and conditions are recommended to mitigate the potential adverse impacts to the land in addition to ensuring that transportation occurs only during appropriate conditions and that site remediation activities are undertaken: 8-15 and 27-42.

- Socio-economic effects on northerners:
  - Potential positive impact as Proponent has committed to hiring locally and this Project could extend the amount of time TMAC is mining in the area. Term and condition 45 is recommended to ensure that the affected community and organizations are informed about the project proposal and to mitigate any concerns that may arise from the project activities.
  - Potential negative impact due to project activities interfering with traditional land use as Proponent is working in an area that can be accessed for hunting. Term and condition 46 has been recommended to address this.
- Technological innovations for which the effects are unknown:
  - Not a concern for this Project proposal.

In considering the above factors combined with the implementation of appropriate mitigation measures required to limit the potential adverse environmental and social effects of the activities, works and undertakings proposed in the Exception Application, the Board has concluded that is appropriate to except the Madrid Advanced Exploration Program from the Review of the related project. The net effect of this determination is that the exploration and development activities in the Madrid Advanced Exploration Program can now proceed to the licensing and permitting processes of the responsible authorities.

The Board highlights that as the Board has based its decision regarding the Exception Application on the conclusion that the potential for adverse ecosystemic and socio-economic effects associated with the proposed Madrid Advanced Exploration Program can be mitigated as identified by the Proponent, commenting parties and the Board, the Board has appended terms and conditions to this decision that describe the mitigation measures that must be implemented by the Proponent in order to carry out the excepted activities.

The Board recognizes that the assessment for a new major mining development is typically preceded by assessments for earlier phases of development, such as exploration, advanced exploration and bulk sampling, which can result in the Board requiring additional time to develop a clear picture of the scope of what is being proposed. A proponent's phased development plans for its properties involve multiple exploration and mine development plans, with corresponding applications at various stages in the regulatory process, and the Board is required to reasonably assess the cumulative effects associated with all reasonably likely development in a given area at the time. Further, the Board notes that for this type of phased or incremental development it is becoming very important that project proponents take an integrated approach to project development that, to the greatest extent possible, focuses on

minimizing the footprint and disturbance associated with the various project phases as these are being planned and carried out.

As the saline groundwater from the proposed project activities are to be deposited in the reclaim pond of the Tailings Impoundment Area of the Doris North project, the Board also notes that any change to that disposal method would be required to be updated in all project plans used for monitoring both projects.

It should also be noted that as the focus for activities, works and undertakings to be considered under Article 12, Section 12.10.2(b) is on the exploration and development phase of activities, works and undertakings associated with a project under review, the focus of the mitigation measures issued by the Board at this time for the Madrid Advanced Exploration Program as described in the Exception Application is on the conduct of this phase of the program in advance of the completion of the Board's review of the Phase 2 Hope Bay Belt project proposal. The Board recognizes that if the Board's review of the Phase 2 Hope Bay Belt project proposal were to result in the Board issuing a project certificate to authorize the Phase 2 project proposal to proceed, the activities, works and undertakings under the Madrid Advanced Exploration Program as they are integrally linked to the Phase 2 project proposal could become subject to additional terms and conditions as may be considered necessary by the Board at that time.

5. Public concern

The Board notes no significant public concern was expressed during the public commenting period for this file.

6. Posting of security/performance bonds

The Board notes that TMAC has estimated its reclamation liability for the work proposed to be inclusive of all current liabilities at Madrid North and South, at $7,131,000.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending that the following or similar project-specific terms and conditions be imposed upon the Proponent by authorizing agencies in accordance with their jurisdiction under the applicable relevant legislation:

General

1. TMAC Resources Inc. (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall forward copies of all permits obtained and required for this project to the Nunavut Impact Review Board (NIRB) prior to the commencement of the project.
3. The Proponent shall operate in accordance with all commitments stated in correspondence provided to NIRB and other authorizing agencies, including the following:
    a. Application to the Nunavut Water Board – December 31, 2014

b. TMAC response to comments including attachments – August 21, 2015, September 16, 2015, and February 16, 2016.

4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

5. The Proponent shall ensure that all project personnel and contractors are made aware of the Project Terms and Conditions and are provided with training and/or advice on how to implement these measures.

Water Use

6. The Proponent shall not extract water from any fish-bearing waterbody unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams should not be used for water withdrawal unless approved by the Nunavut Water Board.

7. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless authorized by the Nunavut Water Board.

Fuel and Chemical Storage

8. The Proponent shall, unless otherwise authorized by the Nunavut Water Board, locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent its release into the environment.

9. The Proponent shall, unless otherwise authorized by the Nunavut Water Board, ensure that re-fuelling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body.

10. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.

11. The Proponent shall use secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) sufficient to safely contain 110% total volume, when storing barreled fuel and chemicals at all locations. Appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) must be readily available during any transfer of fuel or hazardous substances, as well as at vehicle-maintenance areas and drill sites.

12. The Proponent shall inspect and document the condition of all fuel caches and large fuel tanks on a weekly basis. All fuel and chemical storage containers must be clearly marked with the Proponent's name and examined for leaks immediately upon delivery.

13. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.

14. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

Waste Disposal

15. The Proponent shall keep all garbage and debris in bags placed in a covered metal container or equivalent until disposed of at an approved facility. All such wastes shall be kept inaccessible to wildlife at all times.

Wildlife - General

16. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
17. The Proponent shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
18. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

Migratory Birds and Raptors Disturbance

19. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metre buffer around the nests). If active nests of any birds are discovered (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.

Aircraft Flight Restrictions

20. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum altitude of 610 metres above ground level unless there is a specific requirement for low-level flying, which does not disturb wildlife and migratory birds.
21. The Proponent shall ensure that aircraft maintain a vertical distance of 1000 metres and a horizontal distance of 1500 metres from any observed groups (colonies) of migratory birds. Aircraft should avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.
22. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
23. The Proponent shall advise all pilots of relevant flight restrictions and enforce its application over the project area, including flight paths to/from the project area.

Caribou and Muskoxen Disturbance

24. The Proponent shall cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area.
25. The Proponent shall not block or cause any diversion to caribou migration, and shall cease activities likely to interfere with migration such as airborne geophysics surveys, drilling or movement of equipment or personnel until such time as the caribou have passed.
26. During the period of May 15 to July 15, when caribou are observed within 1 kilometre of project operations, the Proponent shall suspend all operations, including low-level over

flights, blasting, and use of snowmobiles and all-terrain vehicles outside the immediate vicinity of the camps. Following July 15, if caribou cows or calves are observed within 1 kilometre of project operations, the Proponent shall also suspend all operations in the vicinity, including low-level over flights, blasting, and use of snowmobiles and all-terrain vehicles, until caribou are no longer in the immediate area.

All-Weather Road and Ground Disturbance

27. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.
28. The Proponent shall implement suitable erosion and sediment suppression measures on disturbed areas before, during and after construction in order to prevent sediment from entering any water body.
29. The Proponent shall ensure that all construction and road vehicles are fitted with standard and well-maintained noise suppression devices and engine idling is minimized.

Aggregate Removal within Existing Quarries

30. The Proponent shall use water or other non-toxic and biodegradable additives for dust suppression as necessary to maintain ambient air quality without causing water to pool or runoff.
31. The Proponent shall not remove any material from below the ordinary high water mark of any lake or stream.
32. The Proponent shall not deposit or permit the deposit of sediment into any water body.

Establishment of New Quarries

33. The Proponent shall clearly stake and flag pit and quarry boundaries so they remain visible to other land users.
34. The Proponent shall locate quarry/pit facilities so as to avoid all recreational sites and public use areas, and to protect unique geographical features and natural aesthetics.
35. The Proponent shall ensure there is no obstruction of natural drainage, flooding or channel diversion from quarry/pit access, stockpiles, or other structures or facilities.
36. The Proponent shall ensure that silt fences/curtains are installed down gradient of any quarry activities.
37. The Proponent shall maintain an undisturbed buffer zone between the periphery of quarry sites and the high water mark of any water body that is of an adequate distance to ensure erosion control.
38. The Proponent shall locate screening and crushing equipment on stable ground, at a location with ready access to stockpiles.

Drilling

39. The Proponent shall not allow any drilling wastes to spread to the surrounding lands or water bodies.

40. If an artesian flow is encountered, the Proponent shall ensure the drill hole is immediately plugged and permanently sealed.

Restoration of Disturbed Areas

41. The Proponent shall remove all garbage, fuel and equipment upon abandonment.

42. The Proponent shall complete all clean-up and restoration of the lands used prior to the end of each field season and/or upon abandonment of site.

Marine Resupply

43. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including waste water) or sediment into any marine waters, and shall manage wastes on board the vessel prior to final disposal at approved port facilities.

Other

44. The Proponent shall conduct archaeological/paleontological surveys as deemed appropriate by the Government of Nunavut-Department of Culture and Heritage for all project areas where physical land disturbance will occur, prior to such disturbances occurring.

45. The Proponent should, to the extent possible, hire local people and consult with local residents regarding their activities in the area and available Inuit Qaujimaningit that can inform project activities.

46. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

47. Any activity related to this application, and outside the original scope of the project as described in the application, will be considered a new project and should be submitted to the NIRB for Screening.

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Annual Report

1. The Proponent shall submit a comprehensive annual report to the Nunavut Impact Review Board by April 30 of each year of permitted activities, beginning April 30, 2017. The annual report must contain the following information:

    a) A summary of activities undertaken for the year, including:
        - a map showing the infrastructure developed during the year;
        - a map showing the approximate location of drill sites;
        - a map showing the location of the fuel cache;
        - a description of local hires, contracting opportunities and initiatives;
        - flight altitudes, frequency of flights and anticipated flight routes; and
        - site photos.

    b) A work plan for the following year, including any progressive reclamation work undertaken;

c) A summary of community consultations undertaken throughout the year, providing copy of materials presented to community members, a description of issues and concerns raised, discussions with community members and advice offered to the company as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal;

d) A log of instances in which community residents occupy or transit through the project area for the purpose of traditional land use or harvesting. This log should include the location and number of people encountered, activity being undertaken (e.g., berry picking, fishing, hunting, camping, etc.), date and time; and any mitigation measures or adaptive management undertaken to prevent disturbance;

e) A discussion of issues related to wildlife and environmental monitoring, including the number of cease-work orders required as a result of proximity to caribou and any other wildlife;

f) A brief summary of updates to the Wildlife Mitigation and Monitoring Plan made during the year, any situation requiring implementation of mitigation measures, the results obtained, and a summary of the results of implementation. In addition, the Proponent shall maintain a record of wildlife observations while operating within the project area and include it as part of the summary report. The summary report based on wildlife observations should include the following:

   i. Locations (i.e., latitude and longitude), species, number of animals, a description of the animal activity, and a description of the gender and age of animals if possible.

   ii. Prior to conducting project activities, the Proponent should map the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests in the project area, and identify the timing of critical life history events (i.e., calving, mating, denning and nesting).

   iii. Additionally, the Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites.

g) An analysis of the effectiveness of mitigation measures for wildlife;

h) Summary of any heritage sites encountered during the exploration activities, any follow-up action or reporting required as a result and how project activities were modified to mitigate impacts on the heritage sites;

i) Summary of its knowledge of Inuit land use in/near the project area and explain how project activities were modified to mitigate impacts on Inuit land use; and

j) A summary of how the Proponent has complied with conditions contained within this Decision, and all conditions as required by other authorizations associated with the project proposal.

2. The Proponent may choose to satisfy its reporting requirements for the ongoing activities associated with the Madrid and Boston exploration areas through reporting required under Project Certificate No. 003 for the Doris North Gold Mine. Monitoring results, including the

identification of impacts and discussion of associated mitigation or adaptive management undertaken by the Proponent must be clearly delineated between mining at Doris North and ongoing exploration activities at Madrid or Boston.

Fuel and Chemical Storage Reporting

3. Prior to the commencement of any project activities, the Proponent shall provide the NIRB with precise locations of proposed fuel cache/storage sites along the road routing and in support of any related activities (e.g. quarrying, baseline/data collection, etc.).
4. The Proponent shall update its Spill Contingency Plan to include the up to date emergency contact numbers for the Government of Nunavut-Department of Environment (867-975-4644) and the Manager of Pollution Control and Air Quality (867-975-7748).
5. The Proponent shall implement the recommendations found in the 2003 CCME Guidance Document PN 1326 entitled "Environmental Code of Practice for Above Ground and Underground Storage Tank Systems containing Petroleum Product and Allied Petroleum Products".

Transport of Waste/Dangerous Goods Reporting

6. The Proponent shall ensure that a waste manifest accompanies the shipment of all waste oil/grease and is registered with the Government of Nunavut Department of Environment (GN-DoE). Contact the Manager of Pollution Control and Air Quality at (867) 975-7748 to obtain a manifest if hazardous waste will be generated during project activities.
7. The Proponent shall ensure that an export manifest or the appropriate transportation of dangerous goods (TDG) documentation accompany all potential hazardous samples and/or materials that are transported off site.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Bear and Carnivore Safety

1. The Proponent review the bear/carnivore detection and deterrent techniques outlined in "Safety in Grizzly and Black Bear Country" which can be down-loaded from this link: http://www.enr.gov.nt.ca/_live/documents/content/Bear_Safety.pdf. Note that some recommendations in this manual are also relevant to polar bears. There is a DVD about polar bears and safety available from Nunavut Parks at the following link http://www.nunavutparks.com/english/visitor-information/suggested-resources.html and a "Safety in Polar Bear Country" pamphlet from Parks Canada at the following link http://www.pc.gc.ca/eng/pn-np/nu/auyuittuq/visit/visit6/d/i.aspx.
2. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Kugluktuk, phone: 867-982-7450 or 7451).

Species at Risk

3. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link: http://epe.lac-bac.gc.ca/100/200/301/environment_can/cws-scf/environmental_assessment-ef/ea_best_practices_2004_e.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Winter Roads/Trails

4. If ice bridges are constructed, the Proponent follow the mitigation measures outlined in Fisheries and Oceans Canada's Operational Statement for Ice Bridges, available at the following internet address: http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/provinces-territories-territoires/nu/index-eng.htm.
5. Cutting or filling of crossing approaches below the high water mark will require prior review and approval by Fisheries and Oceans Canada - Fish Habitat Management Branch.

Kitikmeot Inuit Association

6. The Kitikmeot Inuit Association (KIA) should consider imposing strict mitigation measures and/or conditions upon the Proponent pursuant to the Inuit Owned Lands License in regard to fuel and chemical storage, water conditions, ground disturbance and wildlife on Inuit owned land.
7. The KIA should consider the importance of conducting regular Land Use Inspections while the project is in operation. The Land Use Inspections should be focused on ensuring the Proponent is in compliance with the conditions imposed through the Access to Inuit Owned Lands Permit.

Nunavut Water Board

8. The Nunavut Water Board (NWB) should consider imposing mitigation measures, conditions and monitoring requirements pursuant to the Water Licence, which require the Proponent to respect the sensitivities and importance of water in the area. These mitigation measures, conditions and monitoring requirements should be in regard to use of water, snow and ice; waste disposal; ice road construction; access infrastructure and operation for camps; drilling operations; spill contingency planning; abandonment and restoration planning; and monitoring programs.

REGULATORY REQUIREMENTS

The Proponent has applied for, or will require, the following authorizations for the proposed exploration and/or development activities:

- Type B Water Licence – Nunavut Water Board (*application in process*)

The Proponent is also advised that the following legislation may apply to the project:

1. The *Fisheries Act* (http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html).

2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (http://www.canlii.org/ca/sta/n-28.8/whole.html).

3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (http://laws-lois.justice.gc.ca/eng/acts/M-7.01/).

4. The *Species at Risk Act* (http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html). Attached in **Appendix C** is a list of Species at Risk in Nunavut.

5. The *Wildlife Act* (http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html) which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.

6. The *Nunavut Act* (http://laws-lois.justice.gc.ca/eng/acts/N-28.6/). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix D**.

7. The *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act* (http://www.tc.gc.ca/eng/tdg/safety-menu.htm), and the *Canadian Environmental Protection Act* (http://laws-lois.justice.gc.ca/eng/acts/C-15.31/). The Proponent must ensure that proper shipping documents accompany all movements of dangerous goods. The Proponent must register with the Government of Nunavut, Department of Environment Manager of Pollution Control and Air Quality at 867-975-7748.

8. The *Aeronautics Act* (http://laws-lois.justice.gc.ca/eng/acts/A-2/).

9. The *Arctic Waters Pollution Prevention Act* (http://laws-lois.justice.gc.ca/eng/acts/A-12/).

10. The *Canada Shipping Act, 2001* (http://laws-lois.justice.gc.ca/eng/acts/C-10.15/).

11. The *Marine Liability Act* (http://laws-lois.justice.gc.ca/eng/acts/M-0.7/).

12. The *Navigation Protection Act (NPA)* (http://laws-lois.justice.gc.ca/eng/acts/N-22/index.html).

13. The Proponent shall undertake quarrying in accordance with the *Nunavut Mining Safety Ordinance* and the *Territorial Quarrying Regulations* (http://www.canlii.org/en/ca/laws/regu/crc-c-1527/latest/crc-c-1527.html) or equivalent.

Other Applicable Guidelines

14. The Proponent shall practice progressive reclamation in accordance with the restoration guidelines outlined in Aboriginal Affairs and Northern Development Canada's *Northern Land Use Guidelines Pits and Quarries* (http://www.aadnc-aandc.gc.ca/eng/1100100023585).

Validity of Land Claims Agreement

Section 2.12.2
Where there is any inconsistency or conflict between any federal, territorial and local government laws, and the Agreement, the Agreement shall prevail to the extent of the inconsistency or conflict.

Dated June 24, 2016 at Arviat, NU.

Elizabeth Copland, Chairperson

Attachments: Appendix A: Public Comment Submissions
Appendix B: Proponent Responses
Appendix C: Species at Risk in Nunavut
Appendix D: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

Appendix A
Public Comment Submissions

HESL Review of Madrid Advanced Exploration Program, Hope Bay Belt, Kitikmeot Region					
Authorities	**TC #**	**Reference to Comments. All comments are based on "Type B Water Licence Application Supplemental Information Report" unless otherwise noted.**	**Subject**	**Issue / Concern or Information Deficiency and Rationale:**	**Technical Comment/ Information Request:**
KitIA	1	Section 4.0, Page 4-2	Use of Doris North Mill to Process Bulk Samples	Approximately 800 tonnes of ore/day will be generated from each of Madrid South and Madrid North which will be milled and processed at Doris North. The TIA is not yet completed and the Supplemental Report states that "There are plans to construct a dam at the south end of Tail Lake (South Dam) to increase the capacity of the impoundment area to meet the needs for the Doris North Project. Once fully constructed, the TIA will have the capacity to process the ore from the currently permitted Doris North Project mine and process the bulk sample ore from the Madrid Advanced Exploration Program."	Please discuss how the increased milling needs will affect the required water for the Doris North Mill operating under the Hope Bay Phase 1 Water License. Please confirm that the TIA will be expanded to meet the needs of the currently permitted Doris North Project mine and process the bulk sample ore from the Madrid Advanced Exploration Program.
KitIA	2	Section 4.2.7, 4.3.7. Appendix 4-A, Appendix 8A Section 4.1.1 and 4.1.2 and 5.2	Pollution Control Pond Capacity	The pollution control pond (PCP) at Madrid North is designed to capture flow from the overall drainage area plus 25% of the annual snow coverage and 100-year 24 hour storm event. This is collectively a 15,100 m^3 capacity. We are concerned that the pond has not been built to accommodate 100% of the annual snow coverage in conjunction with other water inputs. This may result in insufficient capacity should a large storm event occur during freshet. This is despite some removal of water for use in the brine mixing facility, the 50 m^3 holding tank, etc. A similar design is used for the primary and secondary PCPs at Madrid South. We understand that water is transported from the PCP to the TIA when >10% capacity is reached. However, it is unclear from Appendix A Table 1 if all sources of contact water and other inputs are accounted for in the contact water volumes reporting to the PCP.	TMAC should provide rationale why the pond is build to handle 25% of the annual snow coverage rather than 100%. This rationale should be accompanied with a discussion of the Doris North TIA treatment capacity.
KitIA	3	Section 4.2.10.3	Holding capacity design for 25% annual snow coverage	TMAC indicates that a double-walled fuel storage tank at each location will be placed into a lined containment facility and designed to accommodate 110% of the tank volumes plus 10% of the fuel transport truck a 1 in 100 year 24 hour storm event and 25% of the annual snow coverage. TMAC has designed the holding capacity for 25% of the annual snow coverage rather than 100% similar to the PCPs.	See KitIA-2. TMAC should provide rationale why the pond is build to handle 25% of the annual snow coverage rather than 100%.
KitIA	4	Section 4.4.1	Documentation of Diamond Drilling Chemicals	In 2011, drilling at the Boston site released large quantities of brine to the environment that were only detected by an AANDC inspector. Chemicals used during drilling activities include calcium chloride (salt) used to prevent freezing of the water in the hole, Visco which is used as a lubricant in the hole, linseed soap for cleaning of drill string components, and heavy grease to prevent seizure of drill rods to each other. TMAC reports that small quantities of each will be stored with each drill.	Please provide details on monitoring and management of drilling chemicals during operations in all seasons. These details should include a spill response plan applicable to exploration drilling activities. These may be included in an update to the Doris North Type A License Spill Contingency Plan as indicated in Table 8.1-1.
KitIA	5	Section 6.3.2, Section 7.3, Section 10.4.3, Appendix 7-A	Groundwater Chemistry Assumptions and Lack of groundwater data	There is no site-specific Madrid baseline for groundwater quality or quantity. Groundwater on site is stated to be saline with TDS similar to seawater. This has not been confirmed with site specific groundwater samples and is important at the South Madrid Site where a talik is thought to be present (Sec. 10.4.3). The absence of a site-specific baseline prevents accurate estimates of mine water effluent quality and quantity. TMAC states (Sec. 10.4.3.) "The rate of inflow into mine workings is dependent on the location and extent to which bulk sample mining within these zones occurs. Potential effects to the quality of groundwater are introduced by mining within these unfrozen zones." The absence of a baseline does not provide a means to test for chnages in the future. The statement that *"Groundwater quality for this area is assumed based on data from Doris and Boston areas. Both areas have saline groundwater at relatively shallow depths in the respective taliks. There is no reason to believe these areas are any different than the Madrid South Bulk Sample.* (App 7-A, Sec 2.3)" does not provide adequate evidence water quality in the Doris and Boston areas are applicable to Madrid South.	Please collect groundwater samples to confirm groundwater chemistry in the Madrid area. Alternatively, please provide evidence showing that groundwater data from the Doris and Boston areas are applicable to the salinity and mineralogy of the Madrid site.
KitIA	6	Section 6.3.2, Section 7.3, Section 10.4.3, Appendix 7b Section 2.1	Unsubstantiated Groundwater Inflow Assumptions and Lack of thermal data	TMAC has provided estimates of groundwater inflow between 16 to 1073 m3 / day but has chosen to use 500 m3 / day as input into the water balance (Appendix 7-A Table 2). Water management will require an accurate water balance and the ability to manage worst case scenarios. Use of an intermediate value as input into the water license may underestimate the quantity of groundwater requiring management on site (if 500 m3/day is too low) or, alternatively, underestimate the amount of freshwater make up needed (if 500 m3/day is too high), thus challenging the 300 m3/day threshold for a Type B Water Licence . This concern is further highlighted by the lack of site specific permafrost information for Patch 14 and the Wolverine deposits and the likelihood of taliks adjacent to Wolverine Lake (p. 5-2 " It is anticipated that the Madrid South underground activities will intercept groundwater when operating in areas of taliks." This deficiency will make it impossible to assess if project related changes to groundwater flow regimes occur or have been mitigated (10.4.3).	Please provide a discussion of the variance in estimated groundwater inflows to the site and implications to the water balance and subsequent requirement for freshwater. This is critical given how close TMAC's estimate of freshwater use is to the NWB Type A threshold of 300 m^3/day. Please commit to confirming groundwater quality and quantity at the Madrid South site prior to any further development. AND Please collect thermal data for the Madrid site prior to development activities. This will be used to inform the presence of taliks in the area and assist in modeling groundwater flow regimes.

Authorities	TC #	Reference to Comments. All comments are based on "Type B Water Licence Application Supplemental Information Report" unless otherwise noted.	Subject	Issue / Concern or Information Deficiency and Rationale:	Technical Comment/ Information Request:
KitIA	7	Section 6.1	Type A Threshold Water Use	Water use is estimated to peak at 295 m^3/day, which is within 2% of the threshold for a Type A water license as per the NWB. TMAC has estimated daily peak water use very close to the threshold; yearly freshwater use is also provided. The NWB does not use yearly water use as the threshold and so we are concerned TMAC will view the estimated peak freshwater use as a mean value rather than an absolute value. We are further concerned that 295 m^3/day will be sufficient to meet TMACs needs. Further to this point, we are concerned with the accuracy of the freshwater use estimate given the absence of groundwater data.	Please provide an estimate of how frequently freshwater use will reach the peak value and how often it will exceed it. We do not see an occasional exceedance as need for a Type A license, but TMAC should discuss implications of exceeding their peak value and the accuracy of their estimate in the absence of groundwater data. Continued exceedances of the 300 m^3/day may necessitate a Type A License for Madrid North and South including formal NWB hearings. AND Please confirm the demand for make up water by providing a) the total water use including a discussion of uncertainty b) the amount to be made up of contact water or reused water and c) the amount to be made up by freshwater takings.
KitIA	8	Section 6.4.3	Fate of Drill Brines	TMAC states *"Excess brine generated during the drilling process will be removed from the drill site and deposited onto waste rock piles, into Pollution Control Ponds, or discharged to the TIA."* This does not outline the conditions under which each fate would be used.	Please provide details on the decision rules to be used to determine the three alternatives for disposal of drill brines.
KitIA	9	Section 7.2	Fate of Non-compliant Quarry Water	TMAC states that non-compliant quarry water would be sent to the Doris North TIA for treatment or reused through the PCP. We are concerned addition of non-compliant water contaminated by an unknown source (pending investigation as outlined in Section 7.2) may overwhelm the dilution capacity of the PCP requiring shipment of a greater quantity of water to the Doris North TIA for treatment. Similarly, what is the response time for laboratory analysis needed to make a decision as to treat the quarry water at the TIA or add it to the PCP.	Please provide details on the fate of drill brines under differing conditions. Specifically we request details that would precede TMACs three stated potential fates for drill brines - the waste rock piles, PCPs and the TIA and how decisions would be influenced by laboratory response times . AND Please provide a discussion of how much truck traffic would be required to transport effluent from the PCPs to the TIA.
KitIA	10	Section 7.3	Fate of excess inflowing groundwater	TMAC states excess ground water will be transported to the PCP where it will presumably be spread to the tundra as per Section 7.2. Application of saline contact water to the tundra may increase the potential for permafrost degradation, alter vegetation communities and create channelized flows to adjacent surface waters.	Please provide decision rules and criteria for disposal of PCP water to the tundra or the TIA that will ensure protection of the tundra.
KitIA	11	Section 8.1, Table 8.1-1	Updated Plans	We note that several management plans currently in implemented under the Doris North Type A license will be updated to accommodate activities associated with Madrid North and South. Specific examples of updates include 1) an Updated Wildlife Monitoring and Management Plan to accommodate increased truck traffic between the two project footprints, 2) Updates to the Water Management Plan to accommodate treatment of non-compliant water from the Madrid PCPs and quarries, 3) Updated Spill Contingency Plan as per KIA-4, etc.	We request an additional review period prior to *"60 days prior to the commencement of construction"* or after the next annual plan update to assess the adequacy of TMACs changes to the varied plans to accommodate activities at Madrid North and South.
KitIA	12	Section 9.2	Outdated Reclaim Model	Costs for closure and reclamation have been estimated using a NWB approved Microsoft Excel spreadsheet consistent with the principles of the RECLAIM 6.1 model. We note that this is not the most recent version of RECLAIM and may provide a more or less conservative estimate than what is currently accepted.	Please provide a discussion of how assumptions have changed between RECLAIM 6.1 and 7.0. Costs should be adjusted to reflect any more conservative assumptions present in version 7.0 that were not incorporated into the Microsoft Excel spreadsheet.
KitIA	13	Section 6.1.2, Section 6.1.3, Section 6.3.2, Table 7.1-1, Appendix 7b Section 2.2	Inconsistencies in water balances	Groundwater is not expected to contribute to the Madrid North water budget (6.1.1) as the excavation is in permafrost (6.3.2). TMAC then states that contact water will be reused for makeup water. Alternatively Madrid South underground activities may intercept groundwater (6.3.2) but is not mentioned in the water balance (6.1.2). TMAC states that the remaining water requirements will be made up by the same sources as from Madrid North. The *"Water Balance Summary"* in Appendix 7b section 2.2 does not provide sufficient detail to assess if the water requirements will be sufficiently addressed without violating the 300 m3 / day threshold for a Type A license.	TMAC should explicitly state how inflowing groundwater will contribute to the water balance in Madrid South beyond outlining differences in wastewater generation (Table 7.1-1).
KitIA	14	Section 7.4, Table 7.4-1, Appendix 7-A Table 1, Appendix 8-A	Application of Contact Water to Tundra	Table 7.4-1 outlines effluent quality limits for discharge to the tundra based on MMER and the Doris Mining and Milling Licence 2AM-DOH1323 for discharges to the tundra. We note that these limits do not include salinity which may be of concern due to unsubstantiated groundwater inflow predictions. Further to this, MMER effluent quality criteria are designed to be protective of aquatic life when discharged through an engineered structure to surface water where dilution will occur. TMAC has not provided sufficient detail to provide assurance aquatic life will not be impacted through PCP discharges from the Madrid project. Application of effluent to tundra may create preferential flow paths resulting in degradation of the tundra and a reduction in terrestrial based mitigation prior to contact water reaching the productive nearshore area of surface waters 31 m away.	Please provide: 1) Effluent discharge quality limits for salinity as part of Table 7.4-1. Specifically limits for TDS and chloride as they are shown to be elevated in Appendix 7-A Table 1. 2) More information regarding how and where effluent will be applied to the tundra. For example, will it be through an engineered diffuser structure to prevent creation of preferential flow paths? 3) Establish nearshore monitoring stations to ensure application of compliant PCP effluent to the tundra is protective of aquatic life. These monitoring stations should take into account the application method and natural flow regimes of the area. Specific stations should be established to capture the influence of the Primary Madrid North PCP and the Primary and Secondary PCPs at Madrid South. 4) Outline the monitoring program to track any changes to permafrost resulting from application of contact water to the tundra. Insufficient detail is provided for monitoring in Appendix 8-A Sections 6 and 7.
KitIA	15	Appendix 7-B	Pollution Control Pond Water Quality Predictions	TMAC has not provided water quality predictions for the PCPs. This information is necessary to assess the volume that will be compliant for discharge to the tundra and non-compliant that will be shipped to the TIA for treatment.	Please provide monthly modeled water quality for each of the three PCPs over the duration of project life.

Authorities	TC #	Reference to Comments. All comments are based on "Type B Water Licence Application Supplemental Information Report" unless otherwise noted.	Subject	Issue / Concern or Information Deficiency and Rationale:	Technical Comment/ Information Request:
KitIA	16	Section 8.1, Table 8.1-2	Pollution Control Pond Sampling Frequency	We note that TMAC has proposed monthly water quality sampling for the pollution control ponds during discharge. This may be too infrequent to detect changes in PCP water quality or to discontinue tundra application prior to excessive non-compliant discharge to the receiving environment.	Please increase the sampling frequency of PCP water quality during discharge to once weekly. Results of PCP water quality should be compared with nearshore water quality monitoring results as recommended in KIA-14. TMAC should also provide PCP water quality trigger values that would cease discharge to the tundra as well as a trigger to cease based on channelization or development of preferential flow paths in the tundra to surface water.
KitIA	17	Section 10, Memo Directed to NIRB	Exemption from NIRB Screening	TMAC has indicated in their memo to the NIRB and in Section 10 of the Supporting Document that the project is not predicted to have to have any longterm adverse impacts to the environment. For this reason and *"pursuant to NLCA Schedule 12-1(5)...Section 13.7.3"* are exempt from public hearings.	HESL's review on behalf of the KitIA has identified significant uncertainty in the predictions associated with the Madrid Project. We advise that the KitIA withhold their approval of the Type B Water License until the NIRB has issued their decision regarding screening. This uncertainty may also be sufficient to elevate TMACs application from a Type B to a Type A water license as per the NWBs license threshold criteria.

June 24, 2015

Kelli Gillard
Technical Advisor
Nunavut Impact Review Board
P.O Box 1360
Cambridge Bay, NU X0B 0C0

Sent VIA Email: info@nirb.ca

RE: NIRB File No. 12MN001: Request for Public Comment Regarding TMAC Resources Inc.'s Application for NLCA 12.10.2(b) Exception

Dear Ms. Gillard,

On behalf of the Government of Nunavut (GN), I would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments regarding the TMAC's 12.10.2 Exception Application pertaining to the Proposed Hope Bay Belt 2 Mine Proposal.

The GN has reviewed the proponent's submission and provides our detailed comments in the attached Appendix.

Should you have any questions regarding this submission, please contact me at 867-975-7830 or by email at asimonfalvy@gov.nu.ca

Sincerely,

[Original Signed by]

Agnes Simonfalvy
Avatiliriniq Coordinator

Appendix

General Comments

The GN has several concerns regarding the expressed need for, and timing of, the proposed exceptions, the permanence of proposed infrastructure, and the reversibility of potential impacts.

The activities described by the Proponent in the "Madrid Advanced Exploration Program" project proposal include the use of existing Doris North project infrastructure and systems, including:

- Test milling and processing of ore will be undertaken at the Doris North Project mill.
- Portable toilets and/or Pacto units with waste will be transported to Doris North Project camp for inclusion in its sewage treatment plant.
- Any contact water not meeting discharge criteria will be transported for disposal in Doris North Project – Tailings Impoundment Area (TIA).
- Hydrocarbon contaminated snow and soil/overburden will be transported to Doris North Project camp for treatment and/or backhaul offsite for appropriate treatment/disposal.
- Explosives will be managed at the existing Doris North Project storage facility.
- Wastes will be disposed of as appropriate at the Doris North Project waste management facilities.
- Hazardous wastes will be transferred to designated areas at Doris North Project and disposed of offsite in accordance with currently approved waste management plans.

It is important to note that the Proponent is also in the process of submitting a revised application for amendments to the Doris North Project Certificate and Type A Water License. As the GN understands it, the proposed amendments to the Doris North project are to accommodate more intensive and lengthier mining operations. According to the Proponent's 2013 amendment application, the following infrastructure changes were proposed:

- expansion of wastewater treatment plant and water use at Doris Camp (from 180 to 360 person capacity);
- expansion of waste rock and ore storage pad at the Doris Mine site;
- expansion of laydown area at Roberts Bay;
- from time to time and as needed, use of accommodation barges frozen into Roberts Bay;
- preserving ability to freeze in fuel in Roberts Bay;

- changing mining rate from 720 tons/day to 1,000 tons/day with a milling rate of 800 tons/day (yearly average), and with potential to take mining rate to 2,000 tons/day and milling rate to 1,800 tons/day;

- accessing all mineralized zones accessible via the existing Doris North Portal, resulting in a 2 to 4 year extension of mine life; and

- sending saline groundwater and talik water encountered as part of accessing additional resources via the Doris North Portal to the Tailings Impoundment Area (TIA), and send excess TIA water to Roberts Bay via a subsea pipeline and diffuser rather than the discharge to Doris Creek, which flows to Roberts Bay.

The GN is concerned that the Doris North project infrastructure and systems planned for use by the Madrid Advanced Exploration Program are part of an ongoing review which is currently awaiting the submission of a revised amendment application. As such, the NIRB and Interveners cannot confirm whether the additional capacity requirements are reflected in the revised amendment application nor assess their adequacy.

There is no indication that a draft Environmental Impact Statement for the Hope Bay Belt Phase 2 project is forthcoming. If the proposed activities are allowed to proceed, given the permanence of infrastructure, the GN has serious concerns about the quality of the baseline information that will be available to support the ongoing review of the project. Further to this, the review will effectively be limited from exploring and assessing design level mitigations to manage the potential impacts of the project.

This situation also raises a larger concern with the perceived separation of the Doris North and Hope Bay Belt Phase 2 projects. If the Madrid Bulk Sample activities proposed for exception from a NIRB Review of the Hope Bay Belt Phase 2 project are reliant on infrastructure and systems included in the NIRB Review of the Doris North project, in what way can the two projects be considered separate and distinct? The GN understands that there are operational efficiencies motivating this application; however, from a procedural perspective their approval will significantly complicate the ongoing review of both projects.

The GN recommends that the NIRB take a very precautionary approach in determining if the proposed activities can be excepted from Review of the Hope Bay Belt Phase 2 project given the above-mentioned circumstances and implications.

Environmental and Human Health Comments

The proposed land use activities are significant. Below is a list of activities that constitute an intensification of development on the landscape:

- Increase of activity at the site is reflected by the large amount of underground and surface equipment needed (*Supplemental Report, Section 4, Tables 4.2-1 and 4.2-2*).

- Traffic on the all-weather road to support this program.

- 4.7 km extension of the all-weather road to the Madrid South location.

- Habitat loss of 25 hectares.
- Additional volume intake from Windy Lake and Patch Lake will serve as a source of water for the Madrid South location.
- Windy camp relocation.
- Increase in fuel storage with 75 000 L and 60 000 L tanks at Madrid North and Madrid South.
- The transportation of chemical and hazardous materials to support the exploration activities increases the risk of spills in the environment.

Potential Environmental Impacts

The Hope Bay Belt runs north to south and is 80 km long and 7 to 20 km wide. The development of several locations along the belt (Doris North, Madrid North, Madrid South, and Boston) proposes a cumulative effect where habitat loss and disturbance will result along the belt. At a larger scale, the Hope Bay Belt Project has the potential for cumulative effects along with other development in the Kitikmeot region. There are several mineral development projects in the region. Examples include the Sabina Back River Project (Part 5 Review process), WPC Resources Inc.'s Hood River exploration Project (NIRB 14EN033 Part 4 Screening), Jericho mine (post-closure monitoring), among others. Cumulative effects would be addressed through the Part 5 Review process for the Phase 2 Hope Bay Belt Project proposal but not under a 12.10.2 (b) exception process.

The increase in footprint of the Hope Bay Belt Project and degradation of the vegetation results in habitat loss and a peripheral zone of avoidance. The current percentage of the potential wintering ground of each caribou herd (Beverly, Ahiak, Dolphin and Union) lost due to the Hope Bay Belt Project proposal is currently unknown. Therefore, a precautionary approach to habitat lost in relation to the minimal herd habitat requirement is needed.

One population of muskox extends from the east side of the Coppermine River to the Queen Maud Gulf which includes the Project area, but muskox are not proposed as a species to monitor. Caribou, such as the Dolphin and Union herd, the Beverly herd, and the Ahiak herd are found in close proximity of the Project area during the winter season. More information from the DOE caribou collar program is expected to shed light on the interaction between the development activity and displacement of caribou.

Since muskox and caribou are found in the project area, the Hope Bay Belt is also a harvest area. Nunavummiut travel frequently from March to May in the area using the sea-ice to facilitate and bridge the communities of Bathurst Inlet, Umingmaktok, and Cambridge Bay. The presence of project activities should not prohibit land access for traditional uses.

There is a potential for impacts to Windy Lake from runoff at the Madrid North proposed project site because the pollution control pond, waste rock pile, and ore stock pile are at the top of a cliff leading to Windy Lake (*see Supplemental Report, Section 4, Figure 4.2-1*).

Baseline Information

Referring to *Appendix 5, Table 1.1-1 Baseline studies Relevant to the Madrid Advanced Exploration Project Type B Water Licence Application (as of June 30, 2014)* and using the wildlife section of the table as an example, the baseline studies range in date from 1995 to 2006 and the methodology used was specific to the Doris North Project. These baseline studies are now at least ten years old. Terrestrial wildlife information is time sensitive in particular those relating to the abundance, distribution, and habitat use. As the information ages and the activities in the Hope Bay Belt increase, the reliability of the effects assessment and management plans based on the effects assessment declines. Consistent and updated baseline wildlife information is essential for effective mitigation.

In the *Supplemental Report, Section 10.5.2 Terrestrial Fauna* the six Valued Ecosystem Components (VECs) identified during the Doris North Project were again used for this project proposal (caribou, wolverine, grizzly bear, upland breeding birds, waterfowl, and raptors). The GN would recommend the inclusion of muskox as a VEC. The inclusion of muskox would be consistent with the GN's review of the Doris North 2013 Annual Report due to the incidental observations of muskoxen being as high as those for caribou. Recent mapping of muskox distribution show that muskox respond heavily to disturbance by establishing a radius around settlements.

Monitoring Measures

In *Appendix 5, Section 3.2.1 Ungulates* the Proponent states it will use wildlife cameras to monitor wildlife movements near the Madrid Advanced Exploration Program operations. As the GN stated previously in comments on the Doris North 2013 Annual Report, cameras are not a suitable means for evaluating impacts on wildlife, nor a suitable method for monitoring wildlife. Cameras provide incidental observations of wildlife, and wildlife interaction with infrastructure and should not be relied on for baseline or monitoring data collection. The GN would like to mention that the Proponent is now contributing to the monitoring of the Dolphin and Union caribou herd under a Contribution Agreement to fulfill the current NIRB Project Certificate No. 003 Term and Condition No. 27. Such joint monitoring for other wildlife (such as other caribou herds, muskox, and carnivores) is encouraged.

Management Plans

In the *Supplemental Report, Section 8, Monitoring and Management Plans*, the Proponent states management plans for the Doris North Project will be updated. However, the GN does not judge that an update of the current management plans is adequate. As the Madrid Advance Exploration Program is a stand-alone project with a different project timeline, separate management plans should be required to capture the long-term potential effects. The Proponent stated the management plans will be updated at least 60 days prior to the execution of the proposed activities associated with the Madrid Advanced Exploration proposal. It is difficult to assess the effectiveness of management plans that have not been updated and provided as part of the application for this Project proposal comment request.

The best management practices listed in the *Supplemental Report, Section 10.5.2, Terrestrial Fauna* are for the interaction of wildlife within the project footprint. Wildlife experience effects far from project

locations so more comprehensive mitigation measures and best management practices are recommended to be developed to reduce the potential impacts.

If NIRB recommends this exception application to proceed, the GN recommends the updated management plans be submitted for review before NIRB makes its recommendation on this exception proposal.

Uncertainty

There are a number of uncertainties associated with this Project proposal. It is difficult to assess the adequacy of the proposal due to the following issues:

1. The Part 5 Review of the Phase 2 Hope Bay Belt Project proposal is currently at the environmental impact statement (EIS) guidelines stage. The Proponent intends to submit a Draft Environmental Impact Statement (DEIS) in the fourth quarter of 2015. There is currently no EIS to review in the context of this 12.10.2 (b) application so there is the tendency to rely on Doris North Project information which underwent a separate Part 5 Review Process.

2. The Madrid Advanced Exploration Program relies on Doris North infrastructure but with the upcoming Doris North Project Certificate Amendment submission and the switch from care and maintenance to operations this summer, the current management plans the Proponent intends to use for this project proposal may be revised significantly.

3. Existing Doris North management plans that are applicable to the Madrid Advanced Exploration Program proposal will be updated 60 days prior to the commencement of construction. This does not give the interested parties a chance to review and comment during the 12.10.2 (b) exception application comment request period regarding the adequacy of the plans.

Conclusion

This 12.10.2 (b) exception request has the potential to alter the baseline conditions and interfere with the Part 5 Review of the Phase 2 Hope Bay Belt Project proposal. As the Madrid Advanced Exploration Program is a related but distinct Project and this Project constitutes a significant increase in activity for a period of ten years the exception request should be rejected and the Madrid Advanced Exploration Program reviewed under the Part 5 Review process underway for the Phase 2 Hope Bay Belt Project proposal.

Socio-Economic Comments

With respect to the socio-economic environment the GN is unable at this time to provide comments relating to the Proponent's conclusions, methodology, quality, and presentation of information as the topic is almost entirely omitted. While the Proponent does indicate a number of socio-economic baseline studies have been carried out, which may support the Project, there is no presentation of data, impact predictions, or proposed management plans.

The GN requests that the Proponent provide a meaningful discussion of the potential socio-economic impacts and benefits of their proposed activities and how they plan to manage them in their operations

in the event the activities are permitted to proceed. The cumulative effects of concurrent operations at Doris North should be considered. This information should be included as an addendum to the Proponents application and distributed for review by Interveners before the NIRB makes their determination.

The GN recommends the following valued socio-economic components be included in any addendum and/or future application made by the Proponent:

1. Employment and training opportunities;

2. Local business opportunities; and

3. Community wellness

(for example, the impact on existing infrastructure in nearby communities including hotel accommodations, impacts to housing and effects of in-migration, and the potential for increased use of alcohol and drugs associated with increased disposable income accrued by local residents employed at the proposed project)

Nunavut Housing Corporation

The GN, Nunavut Housing Corporation (NHC), has not received any information from the Proponent regarding assessments of potential impacts on in-migration to surrounding communities, the subsequent effects on housing and housing demand, and the capacity of communities to meet present and future housing needs. Without further information regarding the potential impacts of the proposed Project on population growth and its corresponding effects on housing in the region, the GN, NHC cannot accurately plan for allocation of public housing and homeownership programs.

The GN, NHC is able to provide updated baseline information regarding housing demand in the Kitikmeot so that the Proponent may better assess the anticipated impacts of the program for project proposals such as this.

Culture and Heritage

The Project archaeologist has done a preliminary assessment of the Madrid Exploration area but there are no details regarding the footprint of the development available and a detailed archaeological assessment is required.

Nunavut Regional Office
P.O. Box 100
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Your file - Votre référence
12MN001
Our file - Notre référence
CIDM # : 923066

June 24th, 2015

Kelli Gillard
Technical Advisor, Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Re: **Request for Public Comment Regarding TMAC Resources Inc.'s Application for NLCA 12.10.2(b) Exception**

Dear Ms. Gillard,

On June 3, 2015 the Nunavut Impact Review Board (NIRB) invited interested parties to comment on TMAC Resources Inc.'s (TMAC) application for a Nunavut Land Claims Agreement (NLCA) 12.10.2(b) exception for a bulk sampling project, the Madrid Advanced Exploration Program, to its Hope Bay Phase 2 Project currently undergoing an NLCA Part 5 Review.

The scope of the proposed activities and developments at the site include:

- Bulk sample of up to 60,000 tonnes of ore from each of the Madrid North and Madrid South site, for a bulk sample total of up to120,000 tonnes of ore over 10 years;
- Bulk sampling will include underground mining, for a total of 5.2km of underground mining at Madrid North and 4.5 km at Madrid South;
- Waste rock storage pads to accommodate approximately 275,000-300,000 tonnes of waste material at Madrid North, and approximately 225,000-250,000 of waste material at the Madrid South site, for a total of 500,000-550,000 tonnes of waste material storage capacity;
- Construction and use of a 4.7 km all-weather road;
- Use of infrastructure at the Doris North project site for milling, tailings, accommodations for 70 people, landfill, hazardous waste storage areas, airstrip, fuel tanks farm and Roberts Bay marine laydown/dock facility;
- Diamond drilling from both the surface and underground;
- Field mapping and sampling, and airborne/ground/downhole geophysics.

The NIRB has produced guidance documents for proponents and interested parties that outline the procedures and criteria used in their review of project proposals. The NIRB's Guide 9 (currently in draft form) provides guidance with regards to exception from the review process [Section 12.10.2(b) of the NLCA] which Aboriginal Affairs and Northern Development Canada (AANDC) has used to direct the following comments as per the NIRB's request:

***A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination*;**

AANDC is of the opinion that TMAC's proposal provides a limited analysis of data regarding alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate

monitoring measures, and thus is not able to make a determination as to whether it is in agreement or disagreement with the conclusions made. Baseline information presented in the application has been provided in general terms and at a high level, and it is not clear how it was used to inform the analysis of potential project impacts. There remain outstanding baseline studies to be conducted as well, such as a hydrogeological field investigation at Madrid North (Environmental Baseline Studies, Appendix 5 Pt 3). Additionally, socio-economic impacts arising from the proposed activities specific to the Madrid Advanced Exploration Program have not been assessed nor has sufficient socio-economic information been provided in the submission.

Shared Project Infrastructure

Throughout the application material, references are frequently made to the utilization of Doris North project infrastructure, their potential impacts, and associated mitigation measures. AANDC has concern regarding the reliance of the Madrid Advanced Exploration Program activities on Doris North project infrastructure to complete the program, including use of the mill, Tailings Impoundment Area (TIA), camp facilities, and wastewater discharge, among others. The Doris North Project Certificate No.:003 covers activities scoped into the Part 5 Review of the proposed Doris North Project. AANDC is of the opinion that the proposed activities of the Madrid Advanced Exploration Program relying on Doris North infrastructure fall outside the scope of the Project Certificate No.:003. For example, Section 2.1 of the Doris North Project Certificate states that the project is "expected to operate for 24 months, [and] process 458,000 tonnes of ore"; however, the Madrid Advanced Exploration Program expects to operate for at least 36 months, have a project lifespan of 10 years, and would process over 25% of the total ore[1] described in the Doris North Project.

Information found in the baseline study of Section 2-12, states that "*Groundwater within the Madrid Advanced Exploration Program area has been identified as saline, with a salinity (total dissolved solids) content similar to seawater (Roscoe Postle Associates Inc. 2013)"*. The Madrid Advanced Exploration Program proposes to discharge waste water into the Doris North TIA if it fails to meet criteria to discharge onto the tundra. There are potential impacts with the disposal of saline groundwater into the Doris North TIA and subsequent discharge into the environment that have not been sufficiently addressed. AANDC notes that the potential impacts from this change in scope of the Doris North Project to accept waste water from the Madrid area into the Doris North TIA have not been fully addressed in an impact assessment.

AANDC is concerned that using Doris North project infrastructure beyond what has been reviewed for the scope of the Doris North Project may fail to adequately address the additional potential impacts from the Madrid Advanced Exploration Program. AANDC notes that the NIRB Part 5 Review for the Doris North Project and resultant Project Certificate No.:003 did not include an assessment of impacts or suggested mitigation measures for the additional activities associated with the Madrid Advanced Exploration Program, and recommend the NIRB follow the precautionary principle in approving the 12.10.2 (b) exception without first revisiting the Doris North Project Certificate to include these additional activities.

AANDC is further concerned that the proposed shared use of project infrastructure renders it difficult to separate independent project components and sufficiently assess the potential impacts for each respective project. This may compromise the impact assessment of the Hope Bay Phase 2 Part 5 Review as well as TMAC's proposed 12.8.2 Project Certificate Amendment application for the Doris North Project.

[1] The Madrid Advanced Exploration Program intends to mill up to 120,000 tonnes of ore, whereas the Doris North Project scope was reviewed for 458,000tonnes of ore

The permanence of proposed infrastructure

The infrastructure proposed can be considered "Permanent" under the definition provided by the NIRB in Section 6.3 of Guide 9, in so far as "*permanent components would be used during the exploration and/or development, construction of the related project and also during operation of the related project, and would be decommissioned and remediated during the final closure and reclamation of the related project*". The scope of the Madrid Advanced Exploration Program includes the construction and use of an all-weather road to Madrid South, the development of two portals, 5.2 km in length and 4.5 km in length for Madrid North and Madrid South, respectively, waste rock storage pads, and the generation of tailings. AANDC is of the opinion that these project components could be considered permanent pre-development infrastructure for the Hope Bay Phase 2 project, as components such as the all-weather road and waste rock storage pads are likely to continue to be used should that project be approved.

A determination of whether or not conclusions in the 12.10.2(b) application package are supported by the analysis – and reasons to support the determination;

The application package as submitted provides limited analyses to support conclusions made regarding the assessment of potential impacts, and many conclusions made regarding mitigation measures are based on unsubstantiated assumptions. For example, the discussion of groundwater mitigation measures in Section 10.4.3 of the Main Report states that "*sustained collection of groundwater seeping into the mine will induce a groundwater sink, thereby preventing seepage of contact water into the natural groundwater regime from the underground mine."* It is unclear how this conclusion was drawn, and what evidence was used to corroborate the assumption.

A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable);

AANDC is unable to make a determination regarding the appropriateness of methodology utilized in TMAC's 12.10.2(b) application given that there was little information provided outlining the methodology employed. The summary table of potential impacts and mitigation measures provided in the application offer limited information and no clear approach to determine the significance of impacts or contingency plans should a mitigation measure prove inappropriate. Further, the mitigation measures presented appear to be qualitative and subjective in nature, with vague descriptions of measures to be taken for potential impacts. For example, in Section 10.4.5.1 of the Main Report, the mitigation measures presented for reducing fuel spills simply states "*The possibility of accidental spills or releases will be eliminated or reduced by implementation of current industry management practices, including facilities that incorporate containment, and standard operating procedures*." In AANDC's opinion, the mitigation measures presented require additional detailed information.

The use of baseline data and identification of VEC's associated with the separate Doris North project for the impact assessment of the Madrid Advanced Exploration Program is problematic in that it may not address the potential site-specific impacts resulting from the proposed activities. For example, Section 10.3 of the Main Report states "*For screening purposes of the proposed Madrid Advanced Exploration Program, the identification of environmental impacts considered the identified VECs for the Doris North Project and the potential affects due to the quarry and bulk sampling program*". AANDC is concerned that referencing potential VEC's specific to the Doris North Project to determine impacts and mitigation measures to apply to the Madrid Advanced Exploration Program may not be appropriate, considering the program is associated with the distinct Hope Bay Phase 2 project.

AANDC also notes that from what is described in Section 11 of the Main Report, it is unclear how information obtained from community consultations have been incorporated into the impact assessment.

Any comments regarding the expressed need for and required timing of the proposed exceptions as presented within the 12.10.2(b) application package – and reasons to support any comments made.

AANDC notes that the scale of the proposed activities can be considered a "significant component of the related project under Review", criteria outlined by the NIRB in Guide 9, Section 4. In particular, NIRB's Draft Guide 9, Section 6.7, refers Intervenors to discuss whether the proposed activities exceed the definition of a "Major Project Development" under Section 26.1.1(b) of the NLCA. According to this definition, a Major Development Project "*means any Crown corporation or private sector project that… either entails, within the Nunavut Settlement Area during any five-year period, more than 200 person years of employment, or entails capital costs in excess of thirty-five million dollars, in constant 1986 dollars…*". In the NIRB Part 1 Form, TMAC lists the peak employment of 70 people over 365 days, for a total of 25,550 person days per year, or 70 person years per year. In consideration of this, clarity on the total number of anticipated person years of employment required to undertake the activities of the project may be helpful for reviewers to determine whether this project could be considered a "Major Development Project" under Section 26.1.1 (b) of the NLCA.

In addition, AANDC notes that the scale of the proposed activities, mining close to 10 km underground and milling up to 120,000 tonnes of ore and a 10 year project lifespan, could be seen as an excessive bulk sampling program resulting in a product being produced and revenue generated, and could be considered a stand-alone mining operation.

Whether an approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger Hope Bay mining and milling development proposal currently under review

AANDC takes no position on the issue of whether approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger Hope Bay Phase 2 mining and milling development proposal currently under review, and submits that this issue is one that must be determined by the Board.

AANDC believes that authorization of the proposed activities to proceed concurrently with the Hope Bay Part 5 Review and the 12.8.2 Doris North Project Certificate Amendment could potentially interfere with an accurate and thorough assessment of the environmental and socio-economic impacts of the related projects currently under review, and that the 12.10.2 (b) exception process may not be the appropriate process to review the proposed activities associated with the Madrid Advanced Exploration Program.

AANDC looks forward to collaborating with NIRB, TMAC, and other interested parties during subsequent project review phases. Should you have any questions, please do not hesitate to contact Erika Marteleira via telephone (867-975-4554) or through e-mail at erika.marteleira@aandc-aadnc.gc.ca.

Sincerely,

[Original signed by]

James Neary
Manager, Impact Assessment
Nunavut Regional Office, Aboriginal Affairs and Northern Development Canada

Environment Canada | Environnement Canada

Environmental Protection Operations Directorate (EPOD)
Prairie and Northern Region (PNR)
P.O. Box 1870
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June 22, 2015

EC file: 6100 000 010 /030
NIRB file: 12MN001

Tara Arko
Director, Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay NU X0B 0C0

Via e-mail: info@nirb.ca

RE: Request for Public Comment Regarding TMAC Resources Inc.'s Application for *Nunavut Land Claims Agreement* 12.10.2(b) Exemption

Attention: Tara Arko

Environment Canada (EC) acknowledges receipt of the Nunavut Impact Review Board's (NIRB) correspondence dated June 3, 2015, in which NIRB requests public comment on the request for a Review exemption under 12.10.2(b) of the *Nunavut Land Claims Agreement*, as submitted by TMAC Resources Inc. (the Proponent) for the Phase 2 Hope Bay Belt project proposal. EC's response to this exemption request is below. Additionally, the Proponent is still required to comply with its obligations under relevant legislation; including the *Canadian Environmental Protection Act, 1999;* the pollution prevention provisions of the *Fisheries Act;* the *Migratory Birds Convention Act, 1994;* and the *Species at Risk Act*.

1. It is EC's opinion that the scope and nature of activities included in the exemption request constitute significant steps toward the development of an operational mine. Therefore EC suggests that the proposed activities remain within the scope of the Part 5 Review already underway for this Project.

For further clarification on any aspect of this submission, please contact Michael I. Mohammed at (867)-975-4981 or michael.mohammed@ec.gc.ca

Sincerely,

Michael I. Mohammed
Senior Environmental Assessment Coordinator

cc: Loretta Ransom; Acting Head, Environmental Assessment North (NT & NU), PNR-EPOD
EC Internal Distribution

Fisheries and Oceans Canada
Pêches et Océans Canada

5204-50th Avenue Suite 301
Yellowknife, NT
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June 24, 2015

Your file *Votre référence*
12MN001

Our file *Notre référence*
12-HCAA-CA7-00012

Nunavut Impact Review Board
Attention: Tara Arko
A/Director, Technical Services
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Ms. Arko:

Subject: Request for public comment regarding TMAC Resources Inc.'s application for NLCA 12.10.2(b) exception

Fisheries and Oceans Canada – Fisheries Protection Program (DFO-FPP) would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments on TMAC Resources Inc.'s application for NLAC 12.10.2(b) exception.

DFO-FPP is providing the following comments as requested by the NIRB as they relate to DFO's mandate. Specifically, DFO-FPP has focused our review and comments on the installation of culverts along the proposed all-weather roads, water withdrawal from Windy and Patch Lakes and water withdrawal for the construction of ice roads.

1. A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination;

Overall, based on our review of the proposed culvert installation and water withdrawal, DFO-FPP agrees with the conclusion presented in the application regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures.

The proponent has proposed appropriate mitigation and monitoring measures; including the installation of sediment and erosion control measures and the use of fish screens on water intake structures (DFO- Freshwater intake end of pipe fish screen guideline (1995)). Water withdrawals for the construction of the ice road will follow the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010) and the water withdrawals from Patch and Windy Lakes will be less than 10% of the lake volumes throughout the year.

2. A determination of whether or not conclusions in the 12.10.2(b) application package are supported by the analysis – and reasons to support the determination;

Overall, based on our review of the proposed culvert installation and water withdrawal, DFO-FPP is of the opinion that the conclusions in the 12.10.2(b) application are supported by the analysis.

3. A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable);

It is DFO-FPP's opinion that appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions for the culvert installation and water withdrawal.

4. An assessment of the quality and presentation of the information in the 12.10.2(b) application package;

It is DFO-FPP's opinion that the quality and presentation of the information in the 12.10.2 application was adequate as it relates to the proposed watercourse crossing installation and water withdrawal.

5. Any comments regarding: the expressed need for and required timing of the proposed exceptions as presented; the permanence of proposed infrastructure; the reversibility of potential impacts; and the potential need for associated security bonding.

    a. The permanence of the proposed infrastructure

DFO-FPP's review focused on the installation of culvert, which DFO-FPP consider permanent, since they will be present for the length of the project and through to closure.

    b. The reversibility of the impacts

Based on the information provided in the 12.10.2(b) application, it is DFO-FPP's conclusion that the potential impacts associated with the culvert installation and water withdrawal are reversible.

    c. The need for proposed security bonding

DFO-FPP has no comments regarding security bonding.

If you have any questions, please contact Georgina Williston at our Yellowknife office at 867-669-4927, by fax at 867-669-4940, or by email at Georgina.Williston@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Sincerely,

ORIGINAL SIGNED BY

Julie Dahl
Regional Manager, Regulatory Reviews
Fisheries Protection Program

c.c. Georgina Williston, DFO-FPP

Natural Resources Canada | Ressources naturelles Canada

NIRB file # - 12MN001
NRCan # - NT- 006

June 25, 2015

Kelli Gillard
Technical Advisor, Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Re: Request for Public Comment Regarding TMAC Resources Inc.'s Application for NLCA 12.10.2(b) Exception – Hope Bay Phase 2 Project

Dear Ms. Gillard,

Natural Resources Canada (NRCan) would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments on TMAC Resources Inc.'s application for NLAC 12.10.2(b) exception related to Madrid Advanced Exploration Program for the Hope Bay Phase II project, which is currently undergoing an NCLA Part 5 Review.

NRCan has conducted a review of the project proposal within areas of our mandate and expertise and has the following comments with respect to the NIRB's specific questions outlined below:

1. ***A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination;***
2. ***A determination of whether or not conclusions in the 12.10.2(b) application package are supported by the analysis – and reasons to support the determination;***
3. ***A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable);***
4. ***An assessment of the quality and presentation of the information in the 12.10.2(b) application package; and***
5. ***Any further comments regarding the expressed need for and required timing of the proposed exceptions as presented within the 12.10.2(b) application package – and reasons to support any comments made.***

Canada

Comment #1: Explosives manufacturing storage at the Doris North and Hope Bay Phase II project sites

Information related to explosives use and storage has been provided in section 4.2.10.1 of the SIR. Based on the information provided, explosives used in the Madrid Advanced Exploration Program will be sourced from the Doris North Project Explosives Mixing and Storage Facility, as approved under water licence 2AM-DOH1323. The SIR also indicates that the Doris North project is fully permitted (p.2-3, SIR). Although a licence for the operation of an explosives manufacturing facility was issued by NRCan for the Doris North project in 2007, this licence was allowed to expire in 2009. The previous owner of the Hope Bay Gold Project had constructed the facility but later decided to reconstruct it in another location east of Tail Lake. NIRB's 2012 Site Visit Report confirmed that the construction of the facility had not yet commenced before the mine was placed on care and maintenance.

TMAC's explosives supplier will be required to obtain a new licence under the *Explosives Act* from NRCan's Explosives Regulatory Division for the proposed Explosives Mixing and Storage Facility and if required, for explosives storage in other locations serving the Doris North mine and the Madrid Advanced Exploration Program.

Comment #2: Shared Project Infrastructure

The information submitted to support the exception application indicates that infrastructure at the Doris North project site will be used to support the Madrid Advanced Exploration Program. For example, ore will be processed using the approved Doris North Project processing facility and tailings impoundment area. The tailings impoundment area will also be used to store/process contact water and potentially saline groundwater, should the underground development intercept groundwater when operating in areas of taliks. However, TMAC has not provided sufficient information in the exception application to explain how the Doris North project infrastructure will accommodate the additional material and waste products that may result from the Madrid Advanced Exploration Program (especially in combination with possible project changes to the Doris North project).

Comment #3: Geochemical characterization of ore, waste rock and quarry materials

While the SIR includes a summary of the geochemical characterization of ore, waste rock and quarry materials and a conceptual management plan, NRCan was not able to locate supporting reports (that would include the methods used to collect data, the data, and the analyses) that would generally be reviewed in order to provide comments on the appropriateness of the conclusions, potential environmental effects, mitigation measures and management plans. As such, NRCan has no comments to provide.

Comment #4: Permafrost and Terrain Stability

The supplemental information includes general information in relation to permafrost however site specific baseline information has not been provided and TMAC has not indicated whether site-specific geotechnical and geophysical investigations will be undertaken to support final siting and design of infrastructure (e.g. waste rock storage, borrow sites and quarries, underground mine development, etc.) that is proposed for the Madrid Advanced Exploration Program.

Comment #5: Groundwater

TMAC has indicated that it is anticipated that the Madrid South underground facilities may intercept saline groundwater. The SIR indicates that "*Estimates of the groundwater inflow when operating in these areas ranges from 16 to 1,703 m3/day with varying permeability. For the purposes of water management design, variable hydraulic properties of key formations (deep volcanic rock and altered rock) were considered resulting in an estimate of total flow of 500 m3/day. This estimate of flow is used for water balance calculations*"(p.6-4). The SIR further states, "*that water that does not meet threshold criteria will be trucked to the Doris North Project for disposal in the tailings impoundment area*" (p.6-4). Based on NRCan's review of the information, site specific information related to groundwater quality and quantity has not been provided in the exception application.

Additionally, NRCan noted in its information request submission (February 18, 2014) in relation to TMAC's amendment application for the Doris North Project (December 2013) that the original Doris North project proposal was to mine only in permafrost areas, which significantly limited groundwater inflows into the mine, as the permafrost was thought to be impermeable to groundwater flow. However one of the proposed modifications of the Doris North Project (included in the December 2013 amendment application) is to extend underground mining to the Doris Central and Connector deposits. These deposits are within the talik (unfrozen ground) beneath Doris Lake and will cause groundwater to flow into the underground mine. TMAC estimated that groundwater inflows to the Doris North mine to be 3500 m3/day for the first year of mining in the talik under Doris Lake and at 7000 m3/day for the second year. NRCan provided two information requests in relation to groundwater quantity and quality in relation to the December 2013 amendment application for the Doris North project certificate 003.

It is unclear whether the groundwater mitigation measures and management plans in the exception application for the Madrid Advanced Exploration Program take into account the potential groundwater inflows that may result from modifications to the Doris North project.

NRCan appreciates the opportunity to comment on TMAC's exception application. Should you have any questions, please do not hesitate to contact Kate Cavallaro at (613) 996-0055 or by email at Kathleen.Cavallaro@nrcan.gc.ca.

Sincerely,

[Original signed by]

Jess Coulson
A/Director, Environmental Assessment Division
External Relations
Science and Policy Integration
Natural Resources Canada

cc: Rob Johnstone, NRCan (Minerals and Metals Sector)
Matthew Spence, Director General, Northern Projects Management Office

Transport Canada / Transports Canada

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Your File / Votre référence
12MN001
Our file / Notre référence

June 24, 2015

Tara Arko
Director, Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay
NU X0B 0C0

Re: NIRB: 12MN011: Request for Comment to TMAC's 12.10.2 Exception Application pertaining to the Proposed Hope Bay Belt 2 Mine Proposal

Transport Canada (TC) appreciates the opportunity to review the NIRB submission describing the "Madrid Advanced Exploration Program" project proposal associated with its Phase 2 Hope Bay Belt project proposal (NIRB File No.: 12MN001). TC is responsible for transportation policies and programs that promote a safe transportation system, ensuring that they work effectively and in an integrated manner.

Our review consisted of the following documents:

- Nunavut Water Board Type B Water Licence Application
- Type B Water Licence Application Supplemental Information Report and supporting materials and appendices

Transport Canada has conducted a cursory review of the project proposal in accordance with our departmental mandate. Based upon this initial review Transport Canada has concluded that the project activities during the exploration phase will not require a regulatory decision from the department at this time. Thus Transport Canada will not be an interested party in this portion of the project.

Transport Canada appreciates the opportunity to participate in this review and provide comments to the NIRB for your consideration. Should you have any questions pertaining to these comments, please contact me via email at christopher.aguirre@tc.gc.ca or by telephone at (204) 984-2615.

Regards,

A Champagne Gudmundson

Anita Champagne Gudmundson
A/Manager, Environmental Services
Transport Canada

Canada

Final Comments
October 14, 2015

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Kugluktuk

Bathurst Inlet
Kingaok

Bay Chimo
Umingmaktok

Cambridge Bay
Ikaluktutiak

Gjoa Haven
Okhoktok

Taloyoak

Kugaaruk

Kelli Gillard, B.Sc., P. Ag.
Technical Advisor/Monitoring Officer for Doris North
Nunavut Impact Review Board

Sent via e-mail: kgillard@nirb.ca

October 3rd, 2015

Re: TMAC Resources Inc. Comments on Responses to Madrid Advanced Exploration Program, 150908 2BB-MAE.

Dear Kelli Gillard, KIA has reviewed TMAC Resources Inc. comments to prior responses to its submission of the Madrid Advanced Exploration Program.

KIA has compiled some additional responses to TMAC's comments which were presented to the NWB and are as follows:

K1: If waste rock is to be moved in the future, then 2:1 slope is fine. If the waste rock slopes are to be regraded in the future to 2.5 to 3:1, then that shifts reclamation costs to the future. There is less liability to the KIA if final reclamation slopes were placed during operations.

K2: TMAC's response still does not provide rational or explanation for 25% allowance of snowfall. As such, it remains an uncalibrated assumption only and subject to uncertainty. It may be a reasonable assumption but no explanation has been provided.

K4: TMAC's explanation talks of other specifications and such but does not provide specific engineering details to actually assess effectiveness. So for example, a liner tied into bedrock would like require some form of key trench or bentonite/sand cutoff to actually limit seepage under the liner, if thawed. As such, they have not provided proposed details other than to trust some other specification.

K5: TMAC's response assumes that chilled brine drilling will be carried out to assess the overburden and frost affected bedrock depth.

K6: TMAC's response does not state expected water depth, duration or extent of ponding expected during "filled" periods. Without this detail, one cannot assess the risk of thawing occurring.

K7: It would be better to just commit to angle of repose and noted bench widths to prevent future grading liability for the KIA.

K8: The conceptual closure plan of 60 mil HDPE covered with 30 cm of gravel may cause puncture risks, depending upon size if gravel fragments and

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equipment used to place. A less risky but costlier assumption would be HDPE covered by a heavy weight geotextile covered by sand and gravel layer. The KIA would be assuming risks regarding puncture of this cover layer.

K10: TMAC has committed to providing updated closure cost estimates, but has not specifically committed to addressing the perceived limitations noted to the left in earlier review.

K11: A basic map showing locations of areas surveyed and key wildlife features associated with the Madrid project area still not provided. It is not clear whether site specific data have not been collected for all wildlife VECs, or if the area has been surveyed and nothing (site specific) has been found.

K12: KIA finds TMAC's comment acceptable. However, as a note: TMAC states they will provide information on the approximate numbers of people to be housed in each camp when Windy camp is expected to open and the number of vehicles expected to travel along the Doris North to Windy road. This will occur after the evaluation of the project and so avoids the full consideration of this aspect of the project in the screening (see response to K17).

K13: This response is acceptable. If used in the future, the flocculants type proposed should be distributed for reviewed to the KIA and other interested parties prior to permitting its use.

K14: We suggest that updates to the Wildlife Mitigation and Monitoring Plan, including monitoring camera locations (and controls), and other mitigation strategies relevant to Madrid should be submitted by TMAC for review and input by the KIA and other interested parties at least 90 days prior to project construction.

K17: The collective effect of cumulative traffic, mining, and exploration activities from Roberts Bay down to Madrid will push the spatial extent of auditory and visual disturbances southward. Pages 48 - 49, include a short, qualitative cumulative impact assessment that fails to fully consider whether this additional traffic, noise, and visual stimuli expanded to the southern Madrid area will affect wildlife VECs differently than predicted in the original Doris FEIS.

The WMMP (2014) for the Doris project is already showing patterns of seasonal attraction and avoidance of the project by wildlife VECs, which would likely continue to the south in association with the Madrid project. As the N-S linear infrastructure will approach ca. 20 linear km for combined projects, the timing of vehicle use and activity at site, and the potential for effects on wildlife movement, avoidance, and attraction should therefore be considered for the corridor as a whole at some stage in the permitting process.

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This is particularly true as caribou seen in this area during March, April, May and December may belong to the SARA-listed Dolphin and Union herd. Although the Madrid advanced exploration project will add a relatively small road, the 24% increase in the footprint for the Doris North project (from the 57.0 ha predicted in the FEIS to the 72.9 ha measured in 2014), and the southward expansion of activity into the Madrid project area, may benefit from a detailed cumulative effects assessment over the N-S corridor.

Such analyses would capture a spatial scale relevant to mammals with large annual ranges, and would help determine whether additional contributions to cumulative effects monitoring and mitigation efforts are required. The KIA would like to know whether there is a step in the regulatory process wherein TMAC will undertake such a holistic, cumulative effects analysis.

K22: It does seem as though this area conveys surface water only and likely does not support fish passage. However, it is noted that no fish sampling seems to have been completed during peak flows when connection between the two lakes is most likely to occur.

If TMAC commits to following DFO's Measures to Avoid Harm, particularly construction in the dry, appropriate sediment and erosion control measures, and ensuring that the culvert does not impede fish passage during periods of connecting flows, that no impacts to fish would be expected. To support the assertion that fish passage will not be affected, TMAC may also choose to consider post-construction monitoring of the culvert during the high flow period.

KitIA-5: Please provide a comparison between the Suluk groundwater sample and groundwater quality from the Doris and Boston sites. This can be included in section 6.3.2 of the SIR and will satisfy our original technical request until further groundwater samples are collected.

Additionally, please clarify when and where groundwater samples will be collected and what the samples will be analyzed for to confirm the site groundwater chemistry.

KitIA-7: We appreciate that section 6.1.1 of the SIR states that daily peak water use comprising of industrial and domestic needs will total 295 m^3/day. However, MAC's response does not supplant the need for a detailed water balance. We wish to clarify our initial request – please provide a detailed water balance for the project. This water balance should be accompanied with a discussion of uncertainty demonstrating that 295 m3/day is the upper limit to expected daily freshwater requirements.

KitIA-9: TMAC has not provided a discussion on how laboratory response times will influence correct disposal of the fate of drill brines as requested – we reiterate our

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request to TMAC to provide this discussion. We also note that Table 4 in Appendix B as referenced by TMAC provides an evaluation of truck traffic under varying hydraulic conditions but not with respect to transportation needs under varying water quality conditions in the PCP. This discussion would be facilitated by detailed modeling of water quality conditions in the PCPs as per KitIA-15.

KitIA-10: The proposed water quality criteria in Table 7.4-1 of the SIR references concentrations applicable for surface water (Doris Creek) discharges. TMAC's proposed chloride concentrations presented in Table 7.4-1 are of concern. We note the proposed concentrations are in line with the BC water quality guidelines for the protection freshwater aquatic life (150 mg/L chronic, 600 mg/L acute) which are not directly applicable to discharges to land.

We therefore look to the BC Ministry of the Environment and CCME water quality irrigation guidelines for the protection of agriculture for guidance. CCME water quality guidelines for irrigation range from 100 mg/L to 710 mg/L for foliar damage and 180 mg/L to 900 mg/L for rootstock damage, and the BC irrigation guideline is set at 100 mg/L.

Both guidelines can be applied with greater stringency than those for discharges to surface water. We therefore question TMAC's selection of 150 mg/L for maximum average chloride concentrations and 600 mg/L maximum chloride concentration in a grab sample for discharges to the tundra. Lower precipitation at the project site as compared with most of BC and southern Canada represents a decreased capacity to dilute effluent containing this conservative ion.

The relative sensitivity of tundra vegetation compared to agricultural crops is also uncertain and calls for caution. We therefore recommend that the NWB impose a more stringent water quality criterion for discharges to tundra; we recommend a maximum average chloride concentration of 100 mg/L.

KitIA-11: TMAC has repeatedly referred to intended updates to management plans and the AEMP, in its responses to technical comments as indicated in our supporting rationale. We therefore propose that the NWB extend the review period to "90 days prior to the commencement of construction" and require it as a licence condition.

KitIA-13: See KitIA-7 response.

KitIA-14: See KitIA-6 and KitIA-10 responses.

KitIA-15: We reassert our request for modeled monthly PCP results given a) Concerns regarding chloride water quality criteria for discharges to the tundra presented in Table 7.4-1 as outlined in KitIA-10, and b) The final water management plan has not yet been submitted as per TMAC's response to KitIA-14.

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Modelled estimates will inform the feasibility of the proposed discharge scheme, assist in setting achievable and protective discharge compliance limits in the Water Licence and provide increased assurance that TMAC will not need to seek an amendment to the Water Licence in the future.

KitIA-16: Conductivity is a useful surrogate for total dissolved solids. Given TMAC's indication that they will consider real time parameter monitoring of some water quality constituents, measured changes in conductivity can be used as a first component in their PCP mitigation response framework.

Trigger values associated with conductivity will decrease TMAC's response time to changes in PCP water quality necessitating a change in discharge location. For example, should chloride concentrations (from excess brine) increase faster than anticipated in the PCP perhaps due to cryoconcentration, TMAC may need to discontinue discharge to the tundra and commence discharge to the TIA in a timely fashion to avoid noncompliance.

We therefore request that the NWB require TMAC to develop trigger values associated with conductivity and other parameters of concern, and use real time monitoring capability with appropriate notifications to alert operators that trigger values are being approached. We further request that TMAC outline a response framework for when the trigger values are reached.

KitIA-17: See KitIA-7 response.

Yours Truly

John Roesch, P.Eng.
Senior Hope Bay Project Officer
Department of Lands and Environment
Kitikmeot Inuit Association

October 14, 2015

Kelli Gillard
Technical Advisor
Nunavut Impact Review Board
P.O Box 1360
Cambridge Bay, NU X0B 0C0

Sent VIA Email: info@nirb.ca

RE: NIRB File No. 12MN001: Review Response to Comments Submitted by TMAC Regarding the NLCA 12.10.2(b) Exception

Dear Ms. Gillard,

On October 1, 2015 the Nunavut Impact Review Board (NIRB) invited interested parties to review TMAC's responses to the comment submissions pertaining to the NLCA 12.10.2(b) Exception Application related to the Phase 2 Hope Bay Belt 2 project proposal.

The Government of Nunavut (GN) has reviewed the Proponent's responses to comments and is pleased to provide our feedback in the attached Appendix.

The GN looks forward to the continued participation in the review process for TMAC's Phase 2 Hope Bay Belt project proposal. Should you have any questions regarding this submission, please contact me at 867-975-7830 or by email at asimonfalvy@gov.nu.ca

Sincerely,

[Original Signed by]

Agnes Simonfalvy
Avatiliriniq Coordinator

Appendix

Ecosystemic

The GN's comment submission included the request that *"if NIRB recommends this exception application to proceed, the GN recommends the updated management plans be submitted for review before NIRB makes its recommendation on this exception proposal."* The rationale behind this recommendation was that in order for the GN to adequately assess the effectiveness of management plans for the proposed activities, the management plans need to be updated and provided as part of the application.

The Proponent stated in its response that since the Madrid Advanced Exploration Program is proposed to occur under similar conditions as Doris North and would utilize infrastructure, equipment, and personnel from Doris North, the Proponent will update the management plans with Madrid-specific modules after the potential changes related to the Doris North amendment occur. The GN has two issues with the Proponent's response. One, the GN has recommended improvements be made to the Wildlife Mitigation and Monitoring Program (WMMP) for Doris North specifically. The GN is not satisfied with updating the Doris North WMMP with Madrid specific information as the GN's position is that improvements need to be made to the Doris North WMMP document regardless of the Madrid Advanced Exploration Program Project proposal. Second, the addition of Madrid specific information leads to the blending of the Doris North amendment process and the Phase 2 Hope Bay Belt exception process. The Proponent's response did not alleviate the GN's concern with the overlap between the Doris North and Phase 2 Hope Bay Belt projects and ongoing reviews under both projects. This exception application relies on information specific to the Doris North Project while that project is under review during the Doris North Project Certificate amendment process.

The GN re-states its recommendation that the NIRB take a very precautionary approach in determining if the proposed activities can be excepted from review of the Phase 2 Hope Bay Belt Project.

Socio-Economic

The Proponents 'Assessment of Potential Socio-Economic Effects Memorandum' relies on the same effects and mitigation summary and uses the same assessment approach as the 2015 amendment application to modify Project Certificate 004 for Doris North. Accordingly, the GN would like to indicate the same concerns included in our submission to the NIRB on September

18th, 2015 in relation to the Proponents amendment application, specifically information requests GN-01 – GN-08, generally apply to the memorandum as well.

The GN would like to call attention to a related point which is the oversimplification of the socio-economic impacts created by mine developments. By applying an effects and mitigation summary from a 2005 Environmental Impact Statement to the present day indicates that the Proponent has not seriously considered the extent to which the proposed activities may impact and benefit the people of the Kitikmeot and the programs and services offered by the many organizations active in the region. Proper mitigation and benefit enhancement requires the culmination of continuous improvement that can occur over a decade. Without recognizing the developments that have occurred in that time frame seriously impedes the potential quality of a socio-economic impact assessment and management plan.

Specific Comments Re. TMAC Socio Ec Assessment Memo (September 15, 2015)

Section 2.2: The Education and Training baseline information cites personal communication with public school principals in the region for graduation statistics. It is preferable if Proponents acquire statistics from headquarters and specifically the Department of Education's Statistics Coordinator in order to ensure they are receiving the most up to date and accurate statistics. It is also within that positions realm of responsibility to do so, whereas it is not necessarily for principles.

Section 3.1: There is very little information on Inuit training or employment.

Section 4.2.1, Table 4.2-1: There is no corresponding 'mitigation' for 'increased educational attainment' nor is there a proposed communication plan, strategy, etc. It is not sufficient to assume mine development implies the entire spectrum of positive socio-economic impacts. Potential effects need to be substantiated by relevant literature, especially if there is not going to be any mitigation or benefit enhancement measures proposed.

Section 4.2.3: All the indicators that an economist looks for are condensed in the second paragraph of page 28. The Proponent simply states that for all the indicators, the expected results are to surpass those estimated in the 2005 Doris North FEIS: GDP, employment, personal income, government revenue, etc. This is an overs implication given the scope of the activities proposed for exception from greater review.

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Your file - Votre référence
12MN001
Our file - Notre référence
CIDM # : 954795

October 14th, 2015

Kelli Gillard
Technical Advisor, Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Re: **Opportunity for Parties to Review Response to Comments Submitted by TMAC Regarding the NLCA 12.10.2(b) Exception**

Dear Ms. Gillard,

On October 1st, 2015 the Nunavut Impact Review Board (NIRB) invited interested parties to review TMAC Resources Inc.'s (TMAC) responses on the comment submissions received from parties regarding TMAC's application for a Nunavut Land Claims Agreement (NLCA) 12.10.2(b) exception for a bulk sampling project, the Madrid Advanced Exploration Program, to its Hope Bay Phase 2 Project currently undergoing an NLCA Part 5 Review.

Aboriginal Affairs and Northern Development Canada (AANDC) has reviewed the responses provided by TMAC and is appreciative of the additional information. AANDC has the following comments to provide on the responses.

***A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination*;**

After reviewing the proponent responses, AANDC continues to be of the opinion that TMAC's proposal provides a limited analysis of data regarding alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures, and thus is not able to make a determination as to whether it is in agreement or disagreement with the conclusions made. AANDC remains of the opinion that the Madrid Advanced Exploration Program proposal specific analyses of the available baseline data are limited.

Shared Project Infrastructure

AANDC remains concerned that the proposed shared use of project infrastructure creates difficulty in analysing separate independent project components and thus to sufficiently assess the potential impacts for each respective project. This may compromise the impact assessment of the Hope Bay Phase 2 Part 5 Review as well as TMAC's proposed 12.8.2 Project Certificate Amendment application for the Doris North Project.

AANDC recognizes the environmental and economic benefit of using the same infrastructure for the Doris North project and the Madrid Advanced Exploration Program. However, despite TMAC's proposal to use the shared infrastructure within the currently permitted levels, the actual use of the infrastructure of the combined projects (Madrid Advanced Exploration Program and Doris North project) will be greater then what is currently approved in the Doris North project certificate. The environmental, socio-economic and cumulative impact of this additional use of infrastructure has not been assessed. Therefore, the review of the Doris North Amendment proposal could be affected.

The permanence of proposed infrastructure

AANDC remains of the opinion that proposed Madrid Advanced Exploration Program project components could be considered permanent pre-development infrastructure for the Hope Bay Phase 2 project, as components such as the all-weather road and waste rock storage pads are likely to continue to be used should that project be approved.

A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable);

Regarding the socio-economic effects memorandum provided, the socio-economic baseline and impact assessment provided for the Madrid Advanced Exploration Program remains extremely similar in content to the information provided in the Doris North amendment application. In light of this, AANDC shares similar concerns on the information provided in the memorandum as was expressed in the AANDC September 18th, 2015 submission to the Nunavut Impact Review Board as part of the Doris North amendment application. These concerns include the characterization of employment numbers, employment projections, training and education and public consultation, among others. As these issues are currently with the Proponent for response within the Doris North amendment process, it is unclear to AANDC how they are to be addressed within this process for the Madrid Advanced Exploration Program.

Any comments regarding the expressed need for and required timing of the proposed exceptions as presented within the 12.10.2(b) application package – and reasons to support any comments made.

AANDC understands the point of view of the proponent, that the Madrid Advanced Exploration Program should not be considered has a Major Development Project. However, AANDC remains of the opinion that the scale of the proposed activities and the complexity of the project, involving many projects and different simultaneous reviews, could be considered as a stand-alone project.

Whether an approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger Hope Bay mining and milling development proposal currently under review

Although the Hope Bay Phase 2 Review is at an inactive point until the Proponent submits a DEIS, the review is still currently ongoing. The Phase 2 Review and Doris North amendment have not yet concluded, and therefore are occurring concurrently. As noted in the 12.10.2 application and the Proponent's responses, the exact methods for some of the proposed activities are unknown, and won't be known until the Doris North amendment and water licencing steps are completed.

AANDC still believes that authorization of the proposed activities to proceed concurrently with the Hope Bay Part 5 Review and the 12.8.2 Doris North Project Certificate Amendment could potentially interfere with an accurate and thorough assessment of the environmental and socio-economic impacts of the related projects currently under review, and that the 12.10.2(b) exception process may not be the

appropriate process to review the proposed activities associated with the Madrid Advanced Exploration Program.

AANDC looks forward to collaborating with NIRB, TMAC, and other interested parties during subsequent project review phases. Should you have any questions, please do not hesitate to contact Jean Daniel Blouin via telephone (867-975-4741) or through e-mail at JeanDaniel.Blouin@aandc-aadnc.gc.ca.

Sincerely,

[Original signed by]

James Neary
Manager, Impact Assessment
Nunavut Regional Office, Aboriginal Affairs and Northern Development Canada

Appendix B
Proponent Responses

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June 15, 2015

Tara Arko, Director Technical Services
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU X0B 0C0
tarko@nirb.ca

Re: 12MN001 2BB-MAE Madrid Advanced Exploration Program NWB Type B Licence Application – Corrections to NIRB Request for Comment on Application for NLCA 12.10.2(b) Exception

---

Dear Ms. Arko;

Following TMAC's review of the *Request for Comment on Application for NLCA 12.10.2(b) Exception* distributed by NIRB to interested parties on June 3, 2015, with respect to the above-noted NWB Type B Water Licence Application for the Madrid Advanced Exploration Program, TMAC would like to draw NIRB's attention to several items where clarification is required to the *Scope of Application Package* section information provided. In accordance with the Project Description provided in Section 4 of the Supplemental Information Report (SIR), submitted in the December 2014 Application package, TMAC is providing the following clarifications:

Scope of Application Package

- ***"Utilization of existing infrastructure at the Doris North project site (e.g., camp facility for 70 persons, mill and tailings facility, landfill, hazardous waste areas, airstrip, Roberts Bay dock facility and fuel tanks farm);"***

  Clarification: 1) The Doris North project site camp size is currently permitted for 180 persons, as authorized under NWB Type A Licence 2AM-DOH1323. For clarity, the 70 persons anticipated to be needed to execute the Madrid bulk samples will be housed in the existing Doris North Camp. 2) The operations at Madrid do not contemplate use of a landfill at Doris North, but discuss offsite disposal of non-hazardous materials at SIR Section 4.2.11.2. It is anticipated that Madrid operations will take advantage of existing facilities at the Doris North project site as described in the Application and SIR at section 4.1. Should a landfill be authorized for use in future at Doris North, it may be considered if this facility could support management of non-hazardous materials upon closure of the Madrid Program facilities.

- **“Utilization of existing infrastructure at the Madrid/Boston areas (e.g., borrow and rock quarry facilities);”**

  Clarification: There presently are no existing quarries in the Boston area that are planned for inclusion in operations at Madrid North or South. The Application describes at section 4.2.5 of the SIR utilization of permitted and partially developed Quarries A, B and D, along the Doris-Windy All-Weather Road, plus two proposed Quarries G and H. The existing quarries are depicted on Figure 3.5-2 on page 3-6 of the SIR in relation to the proposed Madrid site bulk sample locations.

- **“Construction of camp at Madrid North for up to 290 personnel;”**

  Clarification: There are no plans for construction of a 290 person camp at Madrid North; the application submitted did not propose a new camp facility to support the Madrid Program. As described at section 4.1.4 of the SIR, the existing facilities at Doris North (180 person camp) has adequate capacity to house the 70 workers needed for the Madrid Program. In close proximity to the Madrid North site, is a permitted camp under the NWB “Windy Lake” Type B Regional Exploration Licence 2BE-HOP1222, This site is authorized for a 180 person camp, but there are no immediate plans to construct this camp. The site for the future “Windy camp” is located in Quarry D, which is only partially developed. Figure 4.2-1 on page 4-6 in the SIR depicts the location of the permitted Windy Camp, in relation to the Madrid North site. There are no current plans to construct a camp at this site.

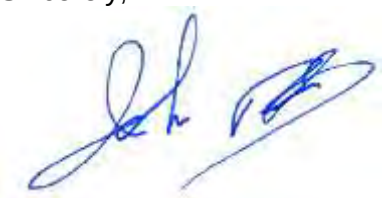
- **“Construction of support infrastructure (e.g., borrow and rock quarry facilities, access portals, ramps, waste and ore stockpiles, water and waste management structures and helicopter pad);”**

  Clarification: There are no plans to construct a helicopter pad to support the Madrid program. The Madrid program will utilize existing facilities at Doris North for both fixed wing and rotary aircraft support. Figure 4.2-1 (Proposed Site Layout for Madrid North) on page 4-6 in the SIR, also depicts infrastructure permitted under NWB Type B Licence 2BE-HOP1222 that includes a helicopter pad in association with the Windy Camp facilities. This permitted infrastructure is in close proximity to but not included in the Application for the Madrid Advanced Exploration Program.

TMAC requests that these clarifications be provided to parties to include with their review of the Type B Water Licence application.

Should you require further information or have any questions about the information provided in this letter, please do not hesitate to contact me at john.roberts@tmacresources.com.

Sincerely,



M. John Roberts
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Hope Bay Project
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cc.
David Hohnstein, Nunavut Water Board

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August 21, 2015

Nunavut Impact Review Board
Attention: Tara Arko
Director, Technical Services
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Ms. Arko,

Re: 12MN001 - Madrid Advanced Exploration Program NLCA 12.10.2(b) Exception - Responses to Comments Received

TMAC Resources Inc. (TMAC) is pleased to provide the enclosed response to the comments provided by Aboriginal Affairs and Northern Development Canada (AANDC), the Department of Fisheries and Oceans (DFO), Environment Canada (EC), the Government of Nunavut (GN), and Natural Resources Canada (NRCan) (collectively, the Parties) in response to your request of June 3, 2015 for comments on TMAC's request for an exemption pursuant to NLCA 12.10.2. As you will recall, this request was triggered by TMAC's application for a Type B Water Licence in respect of its Madrid Advanced Exploration Program (bulk sample).

TMAC provided certain clarifications for NIRB on June 15, 2015 regarding the Madrid Advanced Exploration Program project description. For convenience of the Parties, this correspondence is attached. Party comments and TMAC's corresponding technical responses are tabulated below (Table 1) and supporting materials are attached. As set out in the attached, on some topics TMAC is providing further information shortly under separate correspondence. In addition to providing the enclosed technical responses, TMAC wishes to provide the following general context and rationale which explains why the Madrid Advanced Exploration Program is appropriate to process as an exception pursuant to NLCA 12.10.2.

A. Bulk Sampling is a Stand-Alone Project Development Phase Separate from Production Mining

It is very common in Nunavut (and in the mining industry generally) to run a bulk sample program prior to construction and operation of a production mine. Bulk sampling programs vary in size in order to be representative of the geologic, mineralization and metallurgical conditions

(NI43-101 item 13 and 15). AANDC (2005) acknowledges the need for bulk samples in their policy materials:

> *"Bulk Sampling - Large samples of mineralized material involving hundreds to thousands of tonnes are called bulk samples. These are selected as representative of the potential mineral deposit being sampled. Bulk samples are an integral part of advanced exploration and potential development studies. They are used to test and analyze the metallurgical characteristics to determine whether the substance in question can feasibly be recovered from the mineral deposit. Positive results from a bulk sampling program can lead to further investigation including a feasibility study."*

Such advanced exploration activities provide essential information to ensure that the economic viability of the production mine is confirmed prior to proceeding with full construction. This is a conservative and precautionary approach to project development both from a business and technical perspective. Two Nunavut-specific examples of this approach can be found in Baffinland's Mary River Project and Agnico Eagle's Meliadine Project, which both proceeded with bulk samples in advance of completion of NIRB Part 5 Review of the production mine. As in the case of Mary River and Meliadine bulk sample advanced exploration projects, if Phase 2 is permitted to proceed it will incorporate any relevant Madrid Advanced Exploration Program infrastructure, but significant additional construction would be required in order to mine Phase 2.

B. 12.10.2 Exception under the NLCA is Appropriate for Madrid Advanced Exploration Program

Section 12.10.1 of the NLCA states that, "*No licence or approval that would be required in order to allow a proposed project to proceed shall be issued in respect of a project that is to be screened by NIRB until the screening has been completed and, if a review pursuant to Part 5 or 6 is to be conducted, until after that review has been completed and a NIRB project certificate has been issued by NIRB pursuant to these provisions*."

Because the Madrid area is included within the area covered by the pending Phase 2 Project Proposal under consideration by NIRB (Phase 2), TMAC is seeking a NLCA 12.10.2 exception for the Madrid Advanced Exploration Program activities.

Section 12.10.2 of the NLCA provides that activities related to a Project proposal may be approved pending a Part 5 review where certain conditions are met:

> *12.10.2 Notwithstanding Section 12.10.1, where a Project proposal has been referred for review pursuant to Part 5 or 6, approvals or licenses for exploration or development activities related to that Project may be issued if:*
>
> *a) the activity falls within Schedule 12-1; or*
> *b) the activity can, in the judgment of NIRB, proceed without such a review.*

As acknowledged by NIRB in its letter of June 3, 2015 and in the *draft NIRB Technical Guide Series – Proponents' Guide* (April 2013), NIRB will consider an application for exception in specified circumstances, including "*Permits, licences or approvals required to allow continued*

exploration and/or bulk sampling programs while a related project is undergoing review". As such, the Madrid Advanced Exploration Project is precisely the type of project to which NLCA section 12.10.2 was intended to apply.

In the past, a total of four Type BB exploration licenses have been granted by the NWB for the collection of a bulk sample:

- 2BB-BOS1217 (permitting bulk sample at Boston);
- 2BB-MEA0507 (permitting bulk sample at Meadowbank);
- 2BB-MEL1244 (permitting bulk sample at Meliadine);
- 2BB-MRY1421 (permitting bulk sample at Mary River).

To TMAC's knowledge, no previous bulk sample exploration project in Nunavut has ever been required to undergo a Part 5 review.

C. The Only Federal/ Territorial Permit Required for the Madrid Advanced Exploration Project is a Type B Water Licence

Although the Madrid Advanced Exploration Program falls within Schedule 12-1 of the NLCA, KIA requested on May 29, 2015 that NIRB carry out a screening of the Madrid Advanced Exploration Program (it is noted that the KIA requested that NIRB carry out a screening of the Madrid Advanced Exploration Program rather than a Part 5 review). However, TMAC is of the view that the fact that the activity falls within Schedule 12-1 is indicative of the level of potential disturbance related to the activity. This should be considered by the NIRB in making a determination that the Madrid Advanced Exploration Program may be screened separately from the Phase 2 project proposal and that such screening need not be deferred until after completion of the Phase 2 Part 5 NIRB review.

Schedule 12-1 of the NLCA lists activities that are exempt from the requirement for screening by the NIRB. These include:

1. Land use activities not requiring a permit or authorization from the Government of Canada or Territorial Government.
2. Land use activities requiring only a Class B permit under the *Territorial Land Use Regulations* (SOR/77-210 4 March 1977).
3. Water uses that do not require a public hearing under Section 13.7.3.

Other than the Type B water licence, no additional federal or territorial approvals have been identified in respect of the Madrid Advanced Exploration Program. The work will proceed in accordance with the applicable subsurface approvals, the current Exploration Agreement with Nunavut Tunngavik Inc. (NTI) (which prohibits TMAC from developing a mine until a Production Lease is in place). The work will also proceed in accordance with the surface approvals agreed

to under the Framework Agreement with the Kitikmeot Inuit Association (KIA), as well as the Inuit Impact Benefit Agreement dated March 2015.

The KIA has provided NIRB with a submission to the Nunavut Water Board (NWB) dated April 23, 2015 which includes technical comments on the proposed Madrid Advanced Exploration Program Type B water licence. While these comments are addressed to the NWB, TMAC has included a summary response to these comments for the NIRB's benefit during the screening process. As set out in TMAC's application materials, a water licence issued by the NWB under the authority of the *Nunavut Water and Nunavut Surface Rights Tribunal Act* (*NWNSRTA*) is necessary for any project requiring daily use of water and when wastes are deposited directly or indirectly into any natural body of water. The Type B water licence application for the Madrid Advanced Exploration Program is consistent with *NWNSRTA* regulations wherein water use is between 50 and 300 m^3/day. In the Madrid Advanced Exploration Program application a water volume of 295 m^3/day was requested. TMAC has demonstrated over the past two years that it has the ability to manage water use well within the allowances of its water licenses. Typical average daily surface drill water use for that period was between 5 and 6 m^3/day and water use at the Doris Camp has remained in compliance throughout the period. This value chosen for the Madrid advanced exploration license request is a conservative value, allowing TMAC to be in compliance with the requirements of the license even in cases when for unforeseen reasons the water use may be high on a given day. Should the 295 m^3/day limit be approached, TMAC will curtail water use so it operates in compliance with licence limits.

D. Proceeding Without a Part 5 Review of the Madrid Advanced Exploration Project is Consistent with 12.10.2(b)

The Phase 2 Project Description is for a production mine and does NOT include a bulk sample program. The intent of TMAC's proposed Madrid Advanced Exploration Program is to extract bulk samples from the potentially high-grade underground mineral resources, and test the samples at the Doris North Mill. This will allow adequate resource definition and confirmation of mill processing approaches for the Madrid mineral resources, which are required to validate the economic feasibility of the deposit under NI43-101 regulations and determine how to incorporate the Madrid area into the mine plan for the Phase 2 production mine.

The Phase 2 production mine (if permitted) is *orders of* magnitude larger than the Madrid Advanced Exploration Program. As an example, the Madrid Advanced Exploration Program is expected to collect bulk samples of a maximum of 50,000 tonnes of ore from each of the Madrid North and South deposits while the total tonnage in the two deposits is currently estimated to be approximately 11 million tonnes. In addition, the Madrid Advanced Exploration Program is expected to employ up to a peak of 44 individuals, while Phase 2 is expected to employ up to 400 to 500. The Madrid Advanced Exploration Program would involve only the limited milling required for test purposes (7 days per testing period), and an associated very small volume of tailings. The Madrid Advanced Exploration Program is separate and distinct from the Phase 2 production mine.

A decision to authorize the Madrid Advanced Exploration Program would not authorize Phase 2. While significant additional construction would be required in order to proceed with Phase 2, if

Phase 2 is ultimately permitted to proceed TMAC would reuse the bulk sample facilities to the extent possible. As in the case of the Boston bulk sample, the portal used to access the orebody and collect the samples during the Madrid Advanced Exploration Program would remain in place. This is a similar approach to the other previous bulk sample projects in Nunavut which have proceeded prior to production mining. Retaining and reusing the bulk sample facilities in commercial production represents a savings in material and cost as well as reducing the overall footprint and environmental impact of the ultimately commercially producing site.

Prior to the significant construction that will be required to proceed with Phase 2, several major additional permits and approvals will be required before Phase 2 may proceed. In addition to the completion of the Part 5 NIRB review, Phase 2 will require a Type A Water Licence, a Production Lease from NTI (in accordance with the Advanced Exploration Agreement), a Commercial Lease from KIA (in accordance with the Framework Agreement), as well as additional federal and territorial approvals. It is therefore clear that granting an exception for the Madrid Advanced Exploration Program is not tantamount to a final approval of the Phase 2 production mine.

If the Madrid Advanced Exploration Program is permitted to proceed but Phase 2 is ultimately not permitted to proceed, the Madrid Advanced Exploration Program would be reclaimed in accordance with all applicable legal and regulatory requirements. The Madrid Advanced Exploration Program Application includes a closure plan and cost estimate for the facilities to be returned to a safe and acceptable condition should the orebody be found to be unsuitable for mining, the ore be found unsuitable for processing or if Phase 2 is ultimately not approved by NIRB.

TMAC believes that the baseline information collected to date is suitable for the NIRB to screen impacts associated with advanced exploration activities, and indeed exceeds the level of information that has been considered by NIRB in screening other bulk sample projects within Nunavut. This base of data comprises biological, air quality, water quality, hydrological, hydrogeological, and geochemical information, all of which was available for use in this assessment. These data sources are referenced in the Madrid Advanced Exploration Program Application and many of them are included in monitoring data housed on the NIRB or NWB websites and as such have been subject to previous comment and review by the Parties.

E. Closing

Bulk sampling is a normal and expected part of mine development in Canada and Nunavut, is commonly permitted and proceeds prior to production mining in Nunavut, is a separate and distinct activity from the Phase 2 proposal, requires only a Type B water licence in order to proceed and is permitted under TMAC's agreements with the KIA and NTI. In closing, TMAC would like to reiterate that:

- the Madrid bulk sample project is a reasonable and normally required step in assuring the viability of a mineral orebody, prior to funds being committed to its development ;

- it is normal procedure in Nunavut to carry out bulk sample projects prior to the completion of Part 5 NIRB reviews for production mines on the same deposit ;
- a 12.10.2(b) exception under the NLCA is appropriate in this context as it is contemplated in the legislative and guidance structure of the NIRB's mandate, and that this exception does not fetter or encumber the NIRB through its development ;
- the Type B water license is appropriate for the collection of the bulk samples at the Madrid sites and the water use proposed for the project is adequate and well within TMAC's capacity to manage ; and
- the information provided in these responses to comments and the Madrid Advanced Exploration Program application is adequate for NIRB to screen the effects of the Madrid Advanced Exploration Program.

Should you have any questions regarding the responses, or require any further information, please contact me at john.roberts@tmacresources.com.

Yours sincerely,

M. John Roberts
Vice President, Environmental Affairs
Hope Bay Project
(416) 628-0216

PARTY	PARTY COMMENT	TMAC RESPONSE
1.A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination		
AANDC1	AANDC is of the opinion that TMAC's proposal provides a limited analysis of data regarding Alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures, and thus is not able to make a determination as to whether it is in agreement or disagreement with the conclusions made. Baseline information presented in the application has been provided in general terms and at a high level, and it is not clear how it was used to inform the analysis of potential project impacts. There remain outstanding baseline studies to be conducted as well, such as a hydrogeological field investigation at Madrid North (Environmental Baseline Studies, Appendix 5 Pt 3). Additionally, socio-economic impacts arising from the proposed activities specific to the Madrid Advanced Exploration Program have not been assessed nor has sufficient socio-economic information been provided in the submission.	For a general response regarding the adequacy of the analysis of baseline information and data regarding Alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures, please refer to the attached cover letter from TMAC to the NIRB, dated August 21, 2015. Where specific comments on any of these topics have been provided to NIRB by the Parties, they have been addressed by TMAC below. To clarify the statement made in Appendix 5 Pt 3 Sec 2.4.7: the Madrid North bulk sample is located entirely within permafrost. Additional hydrogeological field investigations are neither planned nor required in order to proceed with the Madrid Advanced Exploration Program. TMAC commits to providing a submission to the NIRB by September 15, 2015 providing further details regarding the socio-economic baseline and assessing socio-economic effects which may arise from the Madrid Advanced Exploration Program.
AANDC2	**Shared Project Infrastructure** Throughout the application material, references are frequently made to the utilization of Doris North project infrastructure, their potential impacts, and associated mitigation measures. AANDC has concern regarding the reliance of the Madrid Advanced Exploration Program activities on Doris North project infrastructure to complete the program, including use of the mill, Tailings Impoundment Area (TIA), camp facilities, and wastewater discharge, among others. The Doris North Project Certificate No.:003 covers activities scoped into the Part 5 Review of the proposed Doris North Project. AANDC is of the opinion that the proposed activities of the Madrid Advanced Exploration Program relying on Doris North infrastructure fall outside the scope of the Project Certificate No.003. For example, Section 2.1 of the Doris North Project Certificate states that the project is "expected to operate for 24 months, [and] process 458,000 tonnes of ore"; however, the Madrid Advanced Exploration Program expects to operate for at least 36 months, have a project lifespan of	**MADRID ADVANCED EXPLORATION PROGRAM USE OF DORIS NORTH MINE INFRASTRUCTURE** Doris North mine infrastructure is not proposed to be utilized for the Madrid Advanced Exploration Program beyond currently permitted levels. Subject to this responses no amendments to any of the Doris North Mine approvals would be required in order to proceed with the Madrid Advanced Exploration Program. The Madrid Advanced Exploration Program has been carefully planned in order to limit further footprint disturbance within the Hope Bay Belt area and as such, has incorporated existing infrastructure on the belt where possible. As such with the exception of mine water and waste rock generated through the Madrid Advanced Exploration Program, waste handling, processing, treatment and storage will occur at Doris North utilizing existing facilities. The Doris North mine routinely operates in compliance, and there is sufficient capacity within the Doris North Mine permits to accommodate handling of the minor additional amounts of waste from the Madrid

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	10 years, and would process over 25% of the total ore described in the Doris North Project. Information found in the baseline study of Section 2-12, states that "Groundwater within the Madrid Advanced Exploration Program area has been identified as saline, with a salinity (total dissolved solids) content similar to seawater (Roscoe Postle Associates Inc. 2013)". The Madrid Advanced Exploration Program proposes to discharge waste water into the Doris North TIA if it fails to meet criteria to discharge onto the tundra. There are potential impacts with the disposal of saline groundwater into the Doris North TIA and subsequent discharge into the environment that have not been sufficiently addressed. AANDC notes that the potential impacts from this change in scope of the Doris North Project to accept waste water from the Madrid area into the Doris North TIA have not been fully addressed in an impact assessment. AANDC is concerned that using Doris North project infrastructure beyond what has been reviewed for the scope of the Doris North Project may fail to adequately address the additional potential impacts from the Madrid Advanced Exploration Program. AANDC notes that the NIRB Part 5 Review for the Doris North Project and resultant Project Certificate No.:003 did not include an assessment of impacts or suggested mitigation measures for the additional activities associated with the Madrid Advanced Exploration Program, and recommend the NIRB follow the precautionary principle in approving the 12.10.2 (b) exception without first revisiting the Doris North Project Certificate to include these additional activities. AANDC is further concerned that the proposed shared use of project infrastructure renders it difficult to separate independent project components and sufficiently assess the potential impacts for each respective project. This may compromise the impact assessment of the Hope Bay Phase 2 Part 5 Review as well as TMAC's proposed 12.8.2 Project Certificate Amendment application for the Doris North Project.	Advanced Exploration Program that can be expected to be generated by additional personnel and activities. The 44 Madrid Advanced Exploration Program personnel will be housed in the currently permitted 180 person Doris North camp and utilize no additional resources than those allowed to be used under the current Doris water license. This is facilitated by using temporary facilities, such as wash cars, for personnel at the Madrid sites rather than permanent facilities. Further, it is not unusual for works permitted under a Type B water licence to utilize adjacent facilities permitted under a Type A water licence, including camp facilities, water use and waste management. For example: • 2BE-HOP1222 relies on some facilities permitted under 2AM-DOH1323; • 1BE-LEP1217 relies on some facilities permitted under 2AM-LUP0914. Utilizing existing, permanent, approved, compliant infrastructure (ie. Doris North mine facilities) supports sustainable development of the Hope Bay Belt as it reduces environmental effects associated with increase in project footprint that would arise from constructing additional and unnecessary infrastructure. **MADRID ADVANCED EXPLORATION PROGRAM <u>CONTACT WATER</u>** As per the water and load balance provided in the Madrid Advanced Exploration Program Application (Appendix 7B, SRK, December 2014 Memo – Hope Bay Project: Madrid Advanced Exploration Project: Water Quality Prediction), it was demonstrated that testing the Madrid Advanced Exploration Program ore through the Doris North mine mill, and adding the estimated volume of saline groundwater flow and other contact water from Madrid North and South will not change the ability to discharge water to Doris Creek in compliance with the current Type A Water Licence terms and conditions. The memo also demonstrates that at closure, the water quality will return to background levels allowing the North Dam to be breached as intended. It is TMAC's view that this analysis shows there is no potential for environmental effects associated with the discharge of waste water from the Madrid Advanced Exploration Program to

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		the tailings impoundment area, and that these data can be considered by NIRB during a screening of the Madrid Advanced Exploration Program. **<u>TAILINGS VOLUME</u>** ***Doris North Mine Tailings Disposal*** The correct volume for Doris North mine subaqueous disposal of tailings is 467,200 t, with a maximum tailings elevation of 24.3 m. This would leave a final water cover of 4 m at closure when the North Dam gets breached and the TIA returns to its natural outflow elevation of 28.3 m. ***Placement of Madrid Tailings*** The water and load balance that was presented with the Madrid Advanced Exploration Program application (Appendix 7B of the application), assessed a condition where the bulk sample ore replaces ore from the Doris North mine, i.e. the total amount of ore being tested in the mill does not exceed the original licensed amount and as a result there is no change in the total tailings volume discharged to the tailings impoundment area). It is noted that no tailings have been produced by the Doris North mine to date. TMAC acknowledges AANDC's discussion of the volume of tailings associated with processing the entire volume of bulk sample proposed to be collected. Theoretically, if, TMAC was to test the anticipated maximum amount of bulk sample ore in addition to the currently licensed ore of 467,200 t for a total of 572,200 t, the maximum elevation of the tailings would be 25.8 m, which leaves a water cover of 2.5 m which is still in excess of the minimum required as per the original assessment. However, TMAC acknowledges that this would exceed the water cover required under the Doris North mine existing approvals, and so the Madrid Advanced Exploration Program will be practically limited by permitted total tailings volume and water covers pursuant to the Doris North Mine Type A Water Licence. TMAC provides the following changes and clarification relating to the sequencing of the Madrid Advanced Exploration Program: • TMAC believes that the entire volume of sample applied for may be required to adequately characterize the economic feasibility of the Madrid North and South deposits.

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		• TMAC now plans to test an initial bulk sample of 21,000 t from each deposit (a total of 21,000 t of ore). • The initial bulk sample from each deposit will be test milled over 3 seven day campaigns of 7,000 t each. • Tailings from the initial bulk sample testing will be placed in the TIA subaqueously in compliance with the current Doris North mine Type A Water Licence. • If the proposed Doris North Project Certificate and Type A Water Licence amendments are ultimately approved by the NIRB and NWB (which provide for expanded TIA capacity and subaerial tailings deposition), and if TMAC needs to test mill more ore to support a further understanding of the deposit, TMAC will test mill the remaining volume of bulk samples utilizing any permitted capacity under the Doris North Project Certificate and Type A Water Licence. The proposed campaign-style ore test runs through the mill of approximately 21,000 t is roughly equivalent to 6% of the total amount of tailings volume currently permitted for the Doris North mine under the existing approvals. This represents a relatively minor amount of additional tailings to be placed in the TIA and will not exceed the total amount that was originally assessed for the Doris North mine. During the Madrid Advanced Exploration Program, TMAC intends to place cyanide leach tailings (following cyanide removal) into the mine as backfill, comingled with the waste rock. This amount of tailings is approximately equal to that produced by the proposed Madrid ore mill testing campaigns, 6%. The Doris Amendment Application (submitted in June 2015) proposes a larger volume of ore processing and tailings deposition than currently permitted at Doris, totalling 2.5 million tonnes. The Amendment application also includes a plan to modify the deposit of tailings to a subaerial deposition scheme from the currently permitted subaqueous system. Adding the total tailings volume from the maximum size of the Madrid Advanced Exploration Program (120,000 t) would result in an additional 7 cm of tailings height over the entire area of the new land form produced by the tailings deposition. This small amount would be readily accepted within the proposed infrastructure of the Amended tailings management plan.

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		Accordingly, under both the current and the Amendment scenario, there is capacity within the TIA to safely accommodate tailings arising from the Madrid Advanced Exploration Program utlilizing the staged approach outlined above.
AANDC3	**The Permanence of Proposed Infrastructure** The infrastructure proposed can be considered "Permanent" under the definition provided by the NIRB in Section 6.3 of Guide 9, in so far as "permanent components would be used during the exploration and/or development, construction of the related project and also during operation of the related project, and would be decommissioned and remediated during the final closure and reclamation of the related project". The scope of the Madrid Advanced Exploration Program includes the construction and use of an allweather road to Madrid South, the development of two portals, 5.2 km in length and 4.5 km in length for Madrid North and Madrid South, respectively, waste rock storage pads, and the generation of tailings. AANDC is of the opinion that these project components could be considered permanent pre-development infrastructure for the Hope Bay Phase 2 project, as components such as the all-weather road and waste rock storage pads are likely to continue to be used should that project be approved.	TMAC understand that components of the Madrid Advanced Exploration Program such as waste rock piles, portals and the access road meet the definition of "permanent" set out in Section 6.3 of Guide 9. Having said that, this is not different from other previously permitted bulk sample projects in Nunavut that have proceeded without Part 5 review. Waste rock piles and portals are necessary and typical components of an advanced exploration program involving bulk sampling underground. The Madrid Advanced Exploration Program project description submitted with the Application includes a description of decommissioning and reclamation of these features. Further, TMAC will post adequate reclamation security for these components, as required by the NWNSRTA and its regulations and the March 2015 Framework Agreement between TMAC and KIA. In the Madrid Advanced Exploration Program, TMAC seeks to utilize existing infrastructure wherever possible to minimize footprint and to minimize the distribution of waste management areas throughout the Hope Bay Belt. Utilizing an all-season road will allow wastes generated from exploration at Madrid South to be managed year-round with existing infrastructure (TIA, WWTP, Incinerators). The all-season-road between Madrid North and Madrid South is essential for efficient, consolidated water and waste management Construction and operation of an all season road during the Madrid Advanced Exploration Program will help reduce the overall footprint of the program. The potential environmental effects associated with use of these components during Phase 2 construction and mining (which TMAC anticipates would require future footprint expansions as well as significantly higher frequency of use for the all weather road) will be included in TMAC's Phase 2 draft FEIS planned for submission to NIRB in Q2 2016.

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DFO1	Overall, based on our review of the proposed culvert installation and water withdrawal, DFO-FPP agrees with the conclusion presented in the application regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures. The proponent has proposed appropriate mitigation and monitoring measures; including the installation of sediment and erosion control measures and the use of fish screens on water intake structures (DFO- Freshwater intake end of pipe fish screen guideline (1995)). Water withdrawals for the construction of the ice road will follow the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010) and the water withdrawals from Patch and Windy Lakes will be less than 10% of the lake volumes throughout the year.	Acknowledged.
2. A determination of whether or not conclusions in the 12.10.2(b) application package are supported by the analysis – and reasons to support the determination		
AANDC4	The application package as submitted provides limited analyses to support conclusions made regarding the assessment of potential impacts, and many conclusions made regarding mitigation measures are based on unsubstantiated assumptions. For example, the discussion of groundwater mitigation measures in Section 10.4.3 of the Main Report states that "sustained collection of groundwater seeping into the mine will induce a groundwater sink, thereby preventing seepage of contact water into the natural groundwater regime from the underground mine." It is unclear how this conclusion was drawn, and what evidence was used to corroborate the assumption.	TMAC believes that the assessment is suitable for the NIRB to screen impacts associated with advanced exploration activities. For further general discussion on adequacy of the baseline data and assessment of effects, please refer to the attached cover letter from TMAC to the NIRB, dated August 21, 2015. TMAC would be pleased to respond to any specific concerns of AANDC with regard to our assessment of potential impacts. With regards to the specific comments regarding groundwater ingress into the underground workings at Madrid South: in a talik environment, ground conditions are typically saturated and surrounded by permafrost, wherein groundwater does not flow. As exploration extends into the talik, pore water in the talik zone is expected to flow along the hydraulic gradient, into the mine. Accordingly, mine water will not flow against the hydraulic gradient into the natural groundwater.
DFO2	Overall, based on our review of the proposed culvert installation and water withdrawal, DFO-FPP is of the opinion that the conclusions in the 12.10.2(b) application are supported by the analysis.	Acknowledged.
3. A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable)		
AANDC5	AANDC is unable to make a determination regarding the appropriateness of methodology utilized in TMAC's 12.10.2(b) application given that there was	**METHODOLOGY**

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	little information provided outlining the methodology employed. The summary table of potential impacts and mitigation measures provided in the application offer limited information and no clear approach to determine the significance of impacts or contingency plans should a mitigation measure prove inappropriate. Further, the mitigation measures presented appear to be qualitative and subjective in nature, with vague descriptions of measures to be taken for potential impacts. For example, in Section 10.4.5.1 of the Main Report, the mitigation measures presented for reducing fuel spills simply states "The possibility of accidental spills or releases will be eliminated or reduced by implementation of current industry management practices, including facilities that incorporate containment, and standard operating procedures." In AANDC's opinion, the mitigation measures presented require additional detailed information. The use of baseline data and identification of VEC's associated with the separate Doris North project for the impact assessment of the Madrid Advanced Exploration Program is problematic in that it may not address the potential site-specific impacts resulting from the proposed activities. For example, Section 10.3 of the Main Report states "For screening purposes of the proposed Madrid Advanced Exploration Program, the identification of environmental impacts considered the identified VECs for the Doris North Project and the potential affects due to the quarry and bulk sampling program". AANDC is concerned that referencing potential VEC's specific to the Doris North Project to determine impacts and mitigation measures to apply to the Madrid Advanced Exploration Program may not be appropriate, considering the program is associated with the distinct Hope Bay Phase 2 project. AANDC also notes that from what is described in Section 11 of the Main Report, it is unclear how information obtained from community consultations have been incorporated into the impact assessment.	TMAC believes that the methodology is suitable for the NIRB to screen impacts associated with advanced exploration activities. TMAC would be pleased to respond to any specific concerns of AANDC with regard to our methodology. Given the proximity of the Madrid advanced exploration program to the Doris Mine (<10 km) and the continuity of ecological and landscape features, TMAC believes it is reasonable and logical to utilize the extensive baseline data and monitoring dataset already collected in respect of the Doris North mine, to inform effects assessment associated with the Madrid Advanced Exploration Program. Further, it should be noted that baseline and monitoring studies for wildlife species were conducted between 2009 and 2014 within a wildlife study area (Figure 1) encompassing the geographical area of the Madrid Advanced Exploration Program, and therefore they are considered appropriate in identifying the effects for this application for the Madrid Advance Exploration Program. A detailed assessment of impacts, including significance determination, is a typical component of the Part 5 review, rather than a screening level assessment. **<u>MITIGATION AND MANAGEMENT PLANNING</u>** Mitigation measures proposed, including mitigation by design, are based on proven measures in place and actively monitored at the Doris North mine. The information provided in the Supplemental Information Report as part of the Madrid Advanced Exploration Program Application package, with respect to mitigation measures and contingency plans, was general and summary in nature and pointed to the suite of detailed management plans already in effect at the Doris North mine (Section 8 of the SIR, Table 8.1-1). The surface exploration program on the Hope Bay belt, the Boston bulk sampling project and the Doris North mine operate under approved management plans required by the NWB and NIRB authorizations as well as KIA approvals. These plans provide comprehensive detail on preventative measures employed to avoid impacts to the environment and people. Contingency planning is integral to the management planning process, and generally the significance of potential impacts has been determined through a formulaic risk assessment process, where each step of each activity is analysed before work is undertaken, the potential risk is evaluated and proper mitigation is identified in advance. Usually the management plans are supported by underlying standard operating procedures that re-enforce proper practices around routine

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		activities such as fuel handling or animal attractant waste management. The management plans have undergone review by Inuit organizations and the regulatory agencies having jurisdiction and where relevant, valuable commentary has been incorporated into subsequent revisions of the plans. Activities at the Madrid Advanced Exploration Program will follow many of the established practices in place at the Doris North mine, and the new modularized format of the TMAC management plans will allow for a section specifically targeting management issues and licence requirements specific to Madrid to be easily incorporated into Belt-wide plans and updated as required. With respect to those aspects of the Madrid Advanced Exploration Program having the greatest potential for environmental impact (i.e. contact water management and waste rock management), detailed plans were provided with the Madrid Advanced Exploration Program Application package at Appendix 8A and 8B, respectively. **INCORPORATING OUTCOMES FROM COMMUNITY CONSULTATIONS** The concept of the Madrid Advanced Exploration Program has been presented at community consultation meetings for several years, starting with the previous project owner/operator HBML. With regards to incorporating information gained from community consultations, key points brought forward by the community and reported in the baseline report submitted with the application include: • Noise; • Place names; and • Access to environmental studies. ***Noise*** TMAC currently has an Approved Noise Abatement Plan in place for the Doris North Mine, and has committed to expanding this plan to include the Madrid Advanced Exploration Program prior to executing the Madrid Advanced Exploration Program. It is reasonable to expect that proven noise abatement measures will be employed at Madrid. This Plan is revisited annually and updated as needed. Updated plans are submitted to the NWB and the NIRB, as appropriate, with Annual Reports. ***Place Names***

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		TMAC has undertaken with the KIA, a Traditional Place Names study, to be applied across TMAC's entire tenure area. Once finalised, traditional place names will be documented and referenced in all future communications including maps, reports and signage. ***Access to Environmental Studies*** While all reporting, including environmental studies, is publically available through the NIRB and the NWB public registries, TMAC recognizes that many community members choose to access information differently. Accordingly, TMAC facilitates access to environmental studies through ongoing community meetings, maintaining an office in Cambridge Bay, participating in social media and providing multilingual descriptions of ongoing activities to folks frequenting the Cambridge Bay office. Further, under TMAC's Inuit Impact and Benefit Agreement (IIBA) with the KIA, TMAC employs a Liaison in Cambridge Bay to assist in the implementation of our agreement in conjunction with the KIA, including being available to Inuit staff to facilitate employment and training provisions, and address employment related concerns. IIBA Implementation is subject to annual reporting, the scheduling of which is to be synchronized with the KIA Annual General Meeting to actively facilitate feedback. Pursuant to the IIBA, a seven member Inuit Environmental Advisory Committee (IEAC) has been established to advise TMAC on Hope Bay environmental management matters. The IEAC consists of Inuit who are familiar with the Hope Bay area, either in their youth, or as a present day harvester. One of the first tasks of the IEAC is to review the current version of the Wildlife Mitigation and Monitoring Program for changes.
DFO3	It is DFO-FPP's opinion that appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions for the culvert installation and water withdrawal.	Acknowledged.
4. An assessment of the quality and presentation of the information in the 12.10.2(b) application package		
AANDC6	Party did not provide comment.	Acknowledged.

PARTY	PARTY COMMENT	TMAC RESPONSE
DFO4	It is DFO-FPP's opinion that the quality and presentation of the information in the 12.10.2 application was adequate as it relates to the proposed watercourse crossing installation and water withdrawal.	Acknowledged.
5. Any comments regarding: the expressed need for and required timing of the proposed exceptions as presented; the permanence of proposed infrastructure; the reversibility of potential impacts; and the potential need for associated security bonding		
AANDC7	AANDC notes that the scale of the proposed activities can be considered a "significant component of the related project under Review", criteria outlined by the NIRB in Guide 9, Section 4. In particular, NIRB's Draft Guide 9, Section 6.7, refers Intervenors to discuss whether the proposed activities exceed the definition of a "Major Project Development" under Section 26.1.1(b) of the NLCA. According to this definition, a Major Development Project "means any Crown corporation or private sector project that either entails, within the Nunavut Settlement Area during any five-year period, more than 200 person years of employment, or entails capital costs in excess of thirty-five million dollars, in constant 1986 dollars…". In the NIRB Part 1 Form, TMAC lists the peak employment of 70 people over 365 days, for a total of 25,550 person days per year, or 70 person years per year. In consideration of this, clarity on the total number of anticipated person years of employment required to undertake the activities of the project may be helpful for reviewers to determine whether this project could be considered a "Major Development Project" under Section 26.1.1 (b) of the NLCA. In addition, AANDC notes that the scale of the proposed activities, mining close to 10 km underground and milling up to 120,000 tonnes of ore and a 10 year project lifespan, could be seen as an excessive bulk sampling program resulting in a product being produced and revenue generated, and could be considered a stand-alone mining operation.	The Madrid Advanced Exploration Program does not meet the definition of Major Development Project under section 26.1.1(b) of the NLCA. However, TMAC and KIA have agreed that the IIBA will apply to the Madrid Advanced Exploration Program. The Madrid Advanced Exploration Program Application indicated a peak workforce estimate of 70 persons. This number represented the maximum conceivable number of workers requiring camp accommodation if total overlap in surface and underground activities occurred during the development of the Madrid North and South bulk samples – however, it must be understood that the workers required for ongoing surface exploration in the Madrid area are not properly included in the personnel that will be added by the underground Madrid Advanced Exploration Program. Estimating the maximum number of personnel required during the greatest possible development schedule overlap resulted in a conservative estimate of bed space requirements to support program without any delays due to camp space restrictions. In reality, the work is expected to develop sequentially with maximum overlap in surface and underground activity occurring during years 3 through 5 with a maximum number of personnel required on site being 48. The following table illustrates the proposed maximum worker numbers by year and development stage for both bulk samples, and totals the highest activity 5 year period (years 2 through 6). After the underground bulk sample is completed, the worker numbers required for Closure and Post Closure decline significantly, and again a maximum has been estimated for planning. The table also incorporates personnel requirements should the need arise to obtain additional information from surface drilling to support the underground work; this is a contingency measure to ensure a maximum number of workers is considered for accommodation planning. The total person years estimated over the 10 year licence period from construction through post-closure of the Madrid Advanced Exploration Program is approximately 230, and the total over the five year period of highest activity (Construction and Operations) is 185 person years. This number is at the top of the range of person years estimated, but does not exceed the threshold of 200 person

<table>
<tr><th>PARTY</th><th>PARTY COMMENT</th><th>TMAC RESPONSE</th></tr>
<tr><td></td><td></td><td>years of employment to categorize the Advanced Exploration Program and a “Major Project” under the definition in the NLCA.

<table>
<tr><th>Year</th><th>Development Stage Description for MN and MS</th><th>Surface Personnel</th><th>Underground Personnel</th><th>Surface Drilling</th><th>Total Persons/yr</th></tr>
<tr><td>1</td><td>Construction MN</td><td>15</td><td></td><td></td><td>15</td></tr>
<tr><td>2</td><td>Construction MN</td><td>15</td><td></td><td>2</td><td>17</td></tr>
<tr><td>3</td><td>Construction MS/Operation MN</td><td>17</td><td>22</td><td>4</td><td>43</td></tr>
<tr><td>4</td><td>Construction MS/Operation MN</td><td>17</td><td>22</td><td>4</td><td>43</td></tr>
<tr><td>5</td><td>Operation MN/ Operation MS</td><td></td><td>44</td><td>4</td><td>48</td></tr>
<tr><td>6</td><td>Closure MN/Operation MS</td><td>10</td><td>22</td><td>2</td><td>34</td></tr>
<tr><td>7</td><td>Closure MN/Closure MS</td><td>10</td><td></td><td></td><td>10</td></tr>
<tr><td>8</td><td>Closure MS/Post Closure MN</td><td>10</td><td></td><td></td><td>10</td></tr>
<tr><td>9</td><td>Post Closure MN/Post Closure MS</td><td>5</td><td></td><td></td><td>5</td></tr>
<tr><td>10</td><td>Post Closure MN/Post Closure MS</td><td>5</td><td></td><td></td><td>5</td></tr>
<tr><td colspan="5">TOTAL over the 10 year Licence Term</td><td>230</td></tr>
<tr><td colspan="5">Peak Numbers during years 2 to 6 with maximum overlap between MN and MS</td><td>185</td></tr>
</table>

<table>
<tr><th></th><th>Madrid North</th><th>Madrid South</th></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>PARTY</th><th>PARTY COMMENT</th><th>TMAC RESPONSE</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th></th><th>Proposed Start</th><th>Proposed Completion</th><th>Proposed Start</th><th>Proposed Completion</th></tr>
<tr><td>Construction</td><td>Year 1</td><td>Year 2</td><td>Year 3</td><td>Year 4</td></tr>
<tr><td>Operation</td><td>Year 3</td><td>Year 5</td><td>Year 5</td><td>Year 6</td></tr>
<tr><td>Closure</td><td>Year 6</td><td>Year 7</td><td>Year 7</td><td>Year 8</td></tr>
<tr><td>Post-Closure</td><td>Year 8</td><td>Year 10</td><td>Year 8</td><td>Year 10</td></tr>
</table>
From the TMAC PFS (2015) the estimated capital cost of the Madrid North and South bulk sample projects is as follows in the table below (in 2015 Canadian $). Using the Bank of Canada’s Inflation calculator (http://www.bankofcanada.ca/rates/related/inflation-calculator/) and converting the totals to 1986 CAD reveals that the cost of the project in 1986$ to be $22.9 million, considerably less than the $35 million threshold for a “Major Development Project” under Section 26.1.1 (b) of the NLCA.
<table>
<tr><th>Summary</th><th>North</th><th>South</th><th>Total</th></tr>
<tr><td>Mine</td><td>27,600,000</td><td>10,000,000</td><td>37,600,000</td></tr>
<tr><td>Infrastructure</td><td>7,900,000</td><td>13,800,000</td><td>21,700,000</td></tr>
<tr><td>Indirect Cost</td><td>300,000</td><td>200,000</td><td>500,000</td></tr>
<tr><td>Totals (2015 CAD)</td><td>35,800,000</td><td>8,600,000</td><td>44,400,000</td></tr>
<tr><td>Totals (1986 CAD)</td><td>18,430,000</td><td>4,230,000</td><td>22,850,000</td></tr>
</table>
In terms of the underground development, TMAC has refined the Madrid Advanced Exploration Program plan to maintain a small footprint and minimize environmental impacts. For example, the majority of the development at Madrid South is planned to occur in the permafrost with only the drifts for the bulk sample planned to occur in the talik so as to minimize the amount of mine water to be managed. This will necessarily result in additional waste rock that must be stored on site. In the event that the Madrid Advanced Exploration Program is successful and the project is ultimately approved for commercial production (following the Phase 2 EIS and successful completion of a Phase 2 Part 5 NIRB review) TMAC’s mine design philosophy will be to
</td></tr>
</table>

PARTY	PARTY COMMENT	TMAC RESPONSE
		maximize waste rock use for backfill. Preliminary mine design evaluated in the PFS (2015) indicated that the Phase 2 mine would be able to accommodate all development waste rock underground as backfill, leaving none on the surface at closure. Bulk sampling is a normal and necessary part of the mine development process. It is particularly important to ensure the ability to mine an orebody and the ability to process the ore in a mill in remote areas where capital costs are high and projects carry many elements of risk. The size of a bulk sample to be collected depends on the size and nature of the orebody. Estimates of up to 1% of orebody can be found in literature and typical practise can result in bulk samples in excess of 100,000 tonnes. Test milling and processing ore is an expected and typical component of bulk sampling and is required in order to assess milling and processing performance and provide metal recovery estimates to inform development economics. Bulk sampling does not involve commercial production and revenue generation, and so is not analogous to a stand-alone mining operation. It is for this reason that the Madrid Advanced Exploration Program application contains a closure plan and cost estimate for reclamation. In the event that the bulk sampling effort is unsuccessful, the facilities will be closed.
DFO5	a. The permanence of the proposed infrastructure DFO-FPP's review focused on the installation of culvert, which DFO-FPP consider permanent, since they will be present for the length of the project and through to closure. b. The reversibility of the impacts Based on the information provided in the 12.10.2(b) application, it is DFO-FPP's conclusion that the potential impacts associated with the culvert installation and water withdrawal are reversible. c. The need for proposed security bonding DFO-FPP has no comments regarding security bonding.	Acknowledged.

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6. Whether an approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger mining and milling project under review.		
AANDC8	AANDC takes no position on the issue of whether approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger Hope Bay Phase 2 mining and milling development proposal currently under review, and submits that this issue is one that must be determined by the Board. AANDC believes that authorization of the proposed activities to proceed concurrently with the Hope Bay Part 5 Review and the 12.8.2 Doris North Project Certificate Amendment could potentially interfere with an accurate and thorough assessment of the environmental and socio-economic impacts of the related projects currently under review, and that the 12.10.2 (b) exception process may not be the appropriate process to review the proposed activities associated with the Madrid Advanced Exploration Program.	TMAC does not intend to submit the Phase 2 draft EIS until Q2 2016. As such, it is not anticipated that any active Phase 2 NIRB review processes will be running concurrently with any Madrid Advanced Exploration Program NIRB screening processes. TMAC will prepare the Phase 2 EIS to proceed with commercial mining at the Madrid deposits based on an assumption the Madrid Advanced Exploration Program has been fully employed and has been successful. All participants in the Phase 2 NIRB review process (including GN and AANDC) will have the opportunity to comment on adequacy of all of the baseline information and design mitigations included in the Phase 2 draft EIS at that time. Regulatory approval of the Madrid Advanced Exploration Program would not fetter any final decision of the NIRB relating to the larger Hope Bay Phase 2 production mine.
DFO	Party did not provide comment.	Acknowledged.
EC1	It is EC's opinion that the scope and nature of activities included in the exemption request constitute significant steps toward the development of an operational mine. Therefore EC suggests that the proposed activities remain within the scope of the Part 5 Review already underway for this Project.	As identified in other parts of this submission, the Madrid Advanced Exploration Program components described in the application are necessary and typical of an advanced exploration program involving bulk sampling underground. Test milling and processing ore is an equally expected and typical component of bulk sampling and is required to assess milling and processing performance and provide metal recovery estimates to inform development economics. Use of these components for production mining is outside the scope of the Type B water licence application and would be contrary to NTI and KIA approvals until the completion of the Phase 2 Part 5 NIRB review. A full assessment of impacts of the full commercial operation of Phase 2 are necessary components of an environmental assessment. TMAC is currently engaged in preparing the Phase 2 DEIS and expects to submit in Q2 of 2016. The DEIS will be prepared on the assumption that the Madrid Advanced Exploration Program is completed prior to commencement of production mining at either Madrid North or South.

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GN1	**Potential Environmental Impacts** The Hope Bay Belt runs north to south and is 80 km long and 7 to 20 km wide. The development of several locations along the belt (Doris North, Madrid North, Madrid South, and Boston) proposes a cumulative effect where habitat loss and disturbance will result along the belt. At a larger scale, the Hope Bay Belt Project has the potential for cumulative effects along with other development in the Kitikmeot region. There are several mineral development projects in the region. Examples include the Sabina Back River Project (Part 5 Review process), WPC Resources Inc.'s Hood River exploration Project (NIRB 14EN033 Part 4 Screening), Jericho mine (post-closure monitoring), among others. Cumulative effects would be addressed through the Part 5 Review process for the Phase 2 Hope Bay Belt Project proposal but not under a 12.10.2 (b) exception process. The increase in footprint of the Hope Bay Belt Project and degradation of the vegetation results in habitat loss and a peripheral zone of avoidance. The current percentage of the potential wintering ground of each caribou herd (Beverly, Ahiak, Dolphin and Union) lost due to the Hope Bay Belt Project proposal is currently unknown. Therefore, a precautionary approach to habitat lost in relation to the minimal herd habitat requirement is needed. One population of muskox extends from the east side of the Coppermine River to the Queen Maud Gulf which includes the Project area, but muskox are not proposed as a species to monitor. Caribou, such as the Dolphin and Union herd, the Beverly herd, and the Ahiak herd are found in close proximity of the Project area during the winter season. More information from the DOE caribou collar program is expected to shed light on the interaction between the development activity and displacement of caribou. Since muskox and caribou are found in the project area, the Hope Bay Belt is also a harvest area. Nunavummiut travel frequently from March to May in the area using the sea-ice to facilitate and bridge the communities of Bathurst	**<u>CUMULATIVE EFFECTS</u>** The effects assessment provided with the Madrid Advanced Exploration Program Application does not identify any residual effects, therefore there is no need to consider any cumulative effects. TMAC agrees that the DEIS and Phase 2 NIRB review will include a cumulative effects assessment (CEA) which includes all planned and proposed activities on the Hope Bay Belt, including the Doris North mine, Madrid Advanced Exploration Program, and Phase 2 production mining. The exception request is related to the issuance of a Type B water licence to allow the Madrid Advanced Exploration Program and would not permit the commercial production proposed at Madrid and Boston under Phase 2. **<u>CARIBOU</u>** The Madrid Advanced Exploration Program has a footprint of approximately 25 ha, which is a small portion of the wildlife regional study for Doris (see attached figure); the localized habitat loss due to the Madrid Advanced Exploration will be relatively small compared to the total area that is typically used within the annual life cycle of the caribou herds in the area. The Phase 2 DEIS will consider the larger development of the Hope Bay Belt with the additional infrastructure and associated footprint to support commercial development. A precautionary approach to minimizing habitat loss will be considered for caribou and all terrestrial species in that assessment. Further, it should be noted that TMAC has entered into a data sharing agreement and has a Memorandum of Understanding (MOU) with the GN-DOE regarding a regional caribou collaring program. Information gained from this program will contribute the understanding of caribou use of the Hope Bay belt and will be considered in the Phase 2 DEIS. Although avoidance of a project by caribou, detectable as a zone of influence (ZOI), could be interpreted as indirect habitat loss, the low number of caribou in the Hope Bay area suggests that habitat is unlikely to be limiting and the potential effects of a ZOI are of lesser concern for

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	Inlet, Umingmaktok, and Cambridge Bay. The presence of project activities should not prohibit land access for traditional uses. There is a potential for impacts to Windy Lake from runoff at the Madrid North proposed project site because the pollution control pond, waste rock pile, and ore stock pile are at the top of a cliff leading to Windy Lake (see Supplemental Report, Section 4, Figure 4.2-1).	the population in the Project area. Further, the number of caribou may be too low to determine a ZOI for caribou. **MUSKOX** As muskox were not identified as a VEC in the NIRB Part 5 review of the Doris North Mine, muskox are not included in the Doris North mine monitoring program. However, muskox were recorded incidentally during caribou surveys for the Doris North baseline program from 1996 to 2005 and as part of the Doris North wildlife monitoring program after 2006 until the caribou aerial survey program was discontinued after 2010. Incidental sitings continue to be recorded. **TRADITIONAL LAND USE** The proposed project activities do not prohibit land access for traditional uses for Nunavummiut. Such activities are fully supported by TMAC and hunters in the area have often been welcomed into the camp for food, warmth and occasionally lodging in inclement weather. Further, TMAC has an IIBA with the KIA which among other things facilitates access and provides a mechanism for addressing any concerns. The Madrid Advanced Exploration Program would operate in a manner consistent with the safety considerations set out in the NLCA Article 5 and the *Wildlife Act* concerning hunting restrictions in proximity of dwellings or buildings. **WINDY LAKE** Potential impacts to Windy Lake due to contact water runoff are mitigated because the surface contact runoff from Madrid North is directed to the engineered Pollution Control Pond (PCP). TMAC expects that water management and facility design details will be further reviewed in the Type B water licencing process.
GN2	**Baseline Information** Referring to Appendix 5, Table 1.1-1 Baseline studies Relevant to the Madrid Advanced Exploration Project Type B Water Licence Application (as of June	For a discussion on adequacy of baseline data and assessment of effects, please refer to the attached cover letter from TMAC to the NIRB, dated August 21, 2015.

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	30, 2014) and using the wildlife section of the table as an example, the baseline studies range in date from 1995 to 2006 and the methodology used was specific to the Doris North Project. These baseline studies are now at least ten years old. Terrestrial wildlife information is time sensitive in particular those relating to the abundance, distribution, and habitat use. As the information ages and the activities in the Hope Bay Belt increase, the reliability of the effects assessment and management plans based on the effects assessment declines. Consistent and updated baseline wildlife information is essential for effective mitigation. In the Supplemental Report, Section 10.5.2 Terrestrial Fauna the six Valued Ecosystem Components (VECs) identified during the Doris North Project were again used for this project proposal (caribou, wolverine, grizzly bear, upland breeding birds, waterfowl, and raptors). The GN would recommend the inclusion of muskox as a VEC. The inclusion of muskox would be consistent with the GN's review of the Doris North 2013 Annual Report due to the incidental observations of muskoxen being as high as those for caribou. Recent mapping of muskox distribution show that muskox respond heavily to disturbance by establishing a radius around settlements.	Given the proximity of the Madrid Advanced Exploration Program to the Doris Mine (<10 km) and the continuity of ecological and landscape features, it is reasonable and logical to utilize the extensive baseline data and monitoring dataset in place at Doris, to inform the effects assessment associated with the exploration program. Further, the regional study area for a number of wildlife species currently being monitored wholly encompasses the footprint of the Madrid Advanced Exploration Program (refer to attached figure). TMAC agrees that consistent and updated baseline wildlife information is essential to effective monitoring and adaptive management. For this reason, the transition from care and maintenance for the Doris North Mine, and baseline data collection for the Phase 2 environmental assessment, has resulted in more recent environmental (including terrestrial wildlife) surveys to be completed. These data will be presented within the Phase 2 DEIS and Annual compliance reports for the Doris North Mine. At the time of the Madrid Advanced Exploration Program application, these data were not available; and so the application is based on data available at the time of submission. Muskox were recorded incidentally during caribou surveys for the Doris North mine baseline program from 1996 to 2005 and as part of the Doris North mine wildlife monitoring program after 2006 until the caribou aerial survey program was discontinued after 2010. Regional muskox monitoring was discontinued after 2010, following the discontinuation of the aerial survey program for caribou which produced the muskox observations. Results from remote camera studies suggest that muskox occur at insufficient densities for effective regional monitoring (e.g., no muskox were observed in the first 12 months of the camera program). It should be noted that the incidental observation reports indicate that there is a herd/group of muskox who use the area near the Doris North facilities and are regularly observed. Review of this data indicates that the multiple observations are of the same animals, rather than a large absolute number of muskox in the area. Cameras are an effective tool for monitoring potential interactions with infrastructure and will continue to be used to monitor local-scale interactions with infrastructure. Incidental muskox sightings will continue to be reported in the annual Doris North WMMP report.
GN3	**Monitoring Measures**	Acknowledged.

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	In Appendix 5, Section 3.2.1 Ungulates the Proponent states it will use wildlife cameras to monitor wildlife movements near the Madrid Advanced Exploration Program operations. As the GN stated previously in comments on the Doris North 2013 Annual Report, cameras are not a suitable means for evaluating impacts on wildlife, nor a suitable method for monitoring wildlife. Cameras provide incidental observations of wildlife, and wildlife interaction with infrastructure and should not be relied on for baseline or monitoring data collection. The GN would like to mention that the Proponent is now contributing to the monitoring of the Dolphin and Union caribou herd under a Contribution Agreement to fulfill the current NIRB Project Certificate No. 003 Term and Condition No. 27. Such joint monitoring for other wildlife (such as other caribou herds, muskox, and carnivores) is encouraged.	
GN4	**Management Plans** In the Supplemental Report, Section 8, Monitoring and Management Plans, the Proponent states management plans for the Doris North Project will be updated. However, the GN does not judge that an update of the current management plans is adequate. As the Madrid Advance Exploration Program is a stand-alone project with a different project timeline, separate management plans should be required to capture the long-term potential effects. The Proponent stated the management plans will be updated at least 60 days prior to the execution of the proposed activities associated with the Madrid Advanced Exploration proposal. It is difficult to assess the effectiveness of management plans that have not been updated and provided as part of the application for this Project proposal comment request. The best management practices listed in the Supplemental Report, Section 10.5.2, Terrestrial Fauna are for the interaction of wildlife within the project footprint. Wildlife experience effects far from project locations so more comprehensive mitigation measures and best management practices are recommended to be developed to reduce the potential impacts. If NIRB recommends this exception application to proceed, the GN recommends the updated management plans be submitted for review before NIRB makes its recommendation on this exception proposal.	TMAC is in process of restructuring the format of the management plans applicable to activities at Hope Bay. The new format is modularized, allowing for incorporation of site/licence-specific sections appended to a site-wide operational management strategy. With the development of the Hope Bay belt occurring with several programs at different stages under differing water licence requirements, to reduce the redundancy of multiple plans addressing the same significant human or environmental aspects of exploration, bulk sampling and mining operations, this new approach will provide a more consistent and responsive style of planning, execution, monitoring, inspection and reporting to allow for continual improvement in operations. This iterative process for Hope Bay is seen as not only operationally effective, but is intended to reduce the documentation burden for regulators and stakeholders. The Madrid Advanced Exploration Program would be occurring under similar geological, topographical and climatic conditions as the Doris North mine, utilizing much of the same infrastructure, equipment and personnel. The management approach applied at Doris is highly relevant to operations at Madrid, and will allow the Madrid Advanced Exploration Program to be executed in a compliant, safe and minimal impact manner with minor adaptions in management to account for site-specific conditions or activities. As Madrid does anticipate utilizing some of the existing facilities operated under the Doris North mine, the plan for updating Madrid-specific modules within the suite of management plans will occur after updates have been made to address potential changes required pursuant to the Doris Amendment. This will be occurring in a manner that allows ample lead time for regulatory review of overall management planning for the Hope Bay Belt, and allow sufficient lead time for

PARTY	PARTY COMMENT	TMAC RESPONSE
		review of Madrid-specific plans in advance of advanced exploration activities at Madrid North and South. As discussed in AANDC5 above, the information provided in the Supplemental Information Report as part of the Madrid Application package, with respect to mitigation measures and contingency plans, was general and summary in nature and pointed to the management plans already in effect at Hope Bay. Comprehensive management practices pertaining to wildlife are found in the Wildlife Mitigation and Monitoring Plan, which will be amended to incorporate changes if/as needed for Madrid Advanced Exploration.
GN5	**Uncertainty** There are a number of uncertainties associated with this Project proposal. It is difficult to assess the adequacy of the proposal due to the following issues: 1. The Part 5 Review of the Phase 2 Hope Bay Belt Project proposal is currently at the environmental impact statement (EIS) guidelines stage. The Proponent intends to submit a Draft Environmental Impact Statement (DEIS) in the fourth quarter of 2015. There is currently no EIS to review in the context of this 12.10.2 (b) application so there is the tendency to rely on Doris North Project information which underwent a separate Part 5 Review Process. 2. The Madrid Advanced Exploration Program relies on Doris North infrastructure but with the upcoming Doris North Project Certificate Amendment submission and the switch from care and maintenance to operations this summer, the current management plans the Proponent intends to use for this project proposal may be revised significantly. 3. Existing Doris North management plans that are applicable to the Madrid Advanced Exploration Program proposal will be updated 60 days prior to the commencement of construction. This does not give the interested parties a chance to review and comment during the 12.10.2 (b) exception application comment request period regarding the adequacy of the plans. 4.	See response to AANDC8 and GN4 above.
GN6	With respect to the socio-economic environment the GN is unable at this time to provide comments relating to the Proponent's conclusions, methodology, quality, and presentation of information as the topic is almost entirely omitted.	TMAC commits to providing a submission to the NIRB by September 15, 2015 discussing the socio-economic baseline and assessing socio-economic effects which may arise from the Madrid advanced exploration project.

PARTY	PARTY COMMENT	TMAC RESPONSE
	While the Proponent does indicate a number of socio-economic baseline studies have been carried out, which may support the Project, there is no presentation of data, impact predictions, or proposed management plans. The GN requests that the Proponent provide a meaningful discussion of the potential socio-economic impacts and benefits of their proposed activities and how they plan to manage them in their operations in the event the activities are permitted to proceed. The cumulative effects of concurrent operations at Doris North should be considered. This information should be included as an addendum to the Proponents application and distributed for review by Interveners before the NIRB makes their determination. The GN recommends the following valued socio-economic components be included in any addendum and/or future application made by the Proponent: 1. Employment and training opportunities; 2. Local business opportunities; and 3. Community wellness (for example, the impact on existing infrastructure in nearby communities including hotel accommodations, impacts to housing and effects of in-migration, and the potential for increased use of alcohol and drugs associated with increased disposable income accrued by local residents employed at the proposed project)	Potential socio-economic effects of activities at Hope Bay have been carefully considered and monitored since the completion of the Doris North Project NIRB review. Based on Condition 28 of the Doris North Project Certificate, TMAC has been and continues to be required to develop and implement an ongoing Socio-Economic Monitoring Program (SEMP). TMAC has diligently reported on socio-economic aspects of Doris North during the construction and care and maintenance phases of the Project. In accordance to the terms of Condition 28, TMAC works annually with the Governments of Canada and Nunavut on project specific socio-economic reporting. Additionally, TMAC is actively coordinating project monitoring with regional scale (Kitikmeot) monitoring by participating in the Kitikmeot Socio Economic Monitoring Committee. The Doris North SEMP includes examination of Employment and Training, Local Business Opportunities and Community Wellness, as the GN recommends. Information related to these indicators can be viewed in our annual SEMP reports posted to: http://nunavutsemc.com/?page_id=5 The Madrid Advanced Exploration Program will involve a workforce and contracting group that is in addition to the mine production workforce at Doris, and the exploration activity throughout the Hope Bay Belt. Given that there is no difference in work conditions or contracting provisions from between these activities, existing reporting will suffice for all. For clarity, future iterations of the Doris North SEMP will include data on the Madrid Advanced Exploration Program. Specifically in relation to the data request examples given: • The impacts on hotel accommodation; the Madrid Advanced Exploration Program will be undertaken by a fly in/ fly out workforce. As is the case now, the Nunavut workforce will be routed through Cambridge Bay and air chartered to Hope Bay, often necessitating an overnight stay. However, if the Nunavut workforce is sufficiently large, direct air charter flights between Kitikmeot communities and Hope Bay would become economic, and the use of Cambridge Bay as a route waypoint would cease. In this case, there would be no impact on Hotel Accommodation. Given project logistics, for both a small and large local workforce, hotel effects are minimal.

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		• The impacts to housing are discussed in response to GN07 below. • The existing Doris North SEMP tracks a number of community wellness indicators that look at trends in the use of alcohol and drugs within the impacted communities. We will continue to track these indicators and this information will be relevant to the Madrid Bulk sample. It should however be noted that during the construction and care and maintenance phases of the Doris North mine, no project related alcohol and drug effects have yet been identified. In March 2015, TMAC and the KIA entered into a Framework Agreement that included an IIBA with a 20 year term, applicable to all activities the entire Hope Bay greenstone belt. This IIBA is currently in effect and the Madrid Advanced Exploration Program will be subject to its provisions. Effects on Kitikmeot Inuit will be monitored and mitigated against as part of IIBA implementation.
GN7	The GN, Nunavut Housing Corporation (NHC), has not received any information from the Proponent regarding assessments of potential impacts on in-migration to surrounding communities, the subsequent effects on housing and housing demand, and the capacity of communities to meet present and future housing needs. Without further information regarding the potential impacts of the proposed Project on population growth and its corresponding effects on housing in the region, the GN, NHC cannot accurately plan for allocation of public housing and homeownership programs. The GN, NHC is able to provide updated baseline information regarding housing demand in the Kitikmeot so that the Proponent may better assess the anticipated impacts of the program for project proposals such as this.	Housing effects were identified as a matter of potential concern during the Part 5 NIRB review of the Doris North Project. As a result, three housing related indicators were determined and tracked under the *Community Well-Being and Delivery of Social Services* VSEC within the Doris North Socio-Economic Monitoring Program (SEMP): • Number of Employees Who Relocate to Other Communities within the Kitikmeot Region due to Work at the Mine; • Number of Applicants Waiting for Social Housing by Community; • Number of New Private Housing Units by Community. For the first two indicators, it was predicted that there would be a small or negligible change in impacted communities. For the last indicator, it was predicted that some residents may decide to purchase a new home as a result of the Doris North project. During the construction and care and maintenance phases of the Doris North project, some data was found to support these predictions: • No evidence that employees relocated as a result of employment at Doris. Every Kitikmeot community is considered a point of hire and there is no comparative

PARTY	PARTY COMMENT	TMAC RESPONSE
		employment advantage based on community of residency, which may differ from other Nunavut FIFO mining projects. Additionally, there is no evidence that any southern hired Doris worker in the past has moved to Nunavut during the earlier project phases. • Annual variations in the public housing waiting lists for impacted communities has been noted. However it is difficult to assign a causal effect to this. It appeared that changes to waiting lists are predominantly related to natural growth in the communities. • Information on private housing in impacted communities was obtained via the 2010 Nunavut Housing Needs Survey. However, this information is for that year only, therefore it is impossible to determine trend for this indicator. Information related to these indicators can be viewed in the annual SEMP reports posted to: http://nunavutsemc.com/?page_id=5 For the Madrid Advanced Exploration Program, conditions of employment will be the same as for the Doris North mine, with the main difference being more medium term employment. It would be even more unlikely that a worker would change their community of residence or undertake homeownership based on a 2 year work term as compared to longer term mine employment contemplated in our current SEMP. Based on this, and as indicated in our application, TMAC predicts that there will be no deviation from the small to negligible housing effects that have been seen for the project thus far. During the 2015 review of TMAC's SEMP, difficulties in obtaining annual homeownership information are being addressed. The GN representative on the Doris North SEMC is currently working with the GN Department of Community and Government Services (CGS) to identify a new measure of homeownership. If available, the GN-CGS data will be incorporated into the 2015 SEMP.
GN8	The Project archaeologist has done a preliminary assessment of the Madrid Exploration area but there are no details regarding the footprint of the development available and a detailed archaeological assessment is required.	The SIR at section 4.2 states, "Completed investigations show that the location of the proposed infrastructure avoids known archaeological sites. Should sites be encountered during construction, mitigation measures are available that would be implemented for site recovery." Appendix 10B provides a detailed report of work completed to date; further work is currently underway. Development of the Hope Bay Belt has been monitored by professional archaeologists since early in its exploration history. At Appendix 10b is an Archaeology and Traditional Use

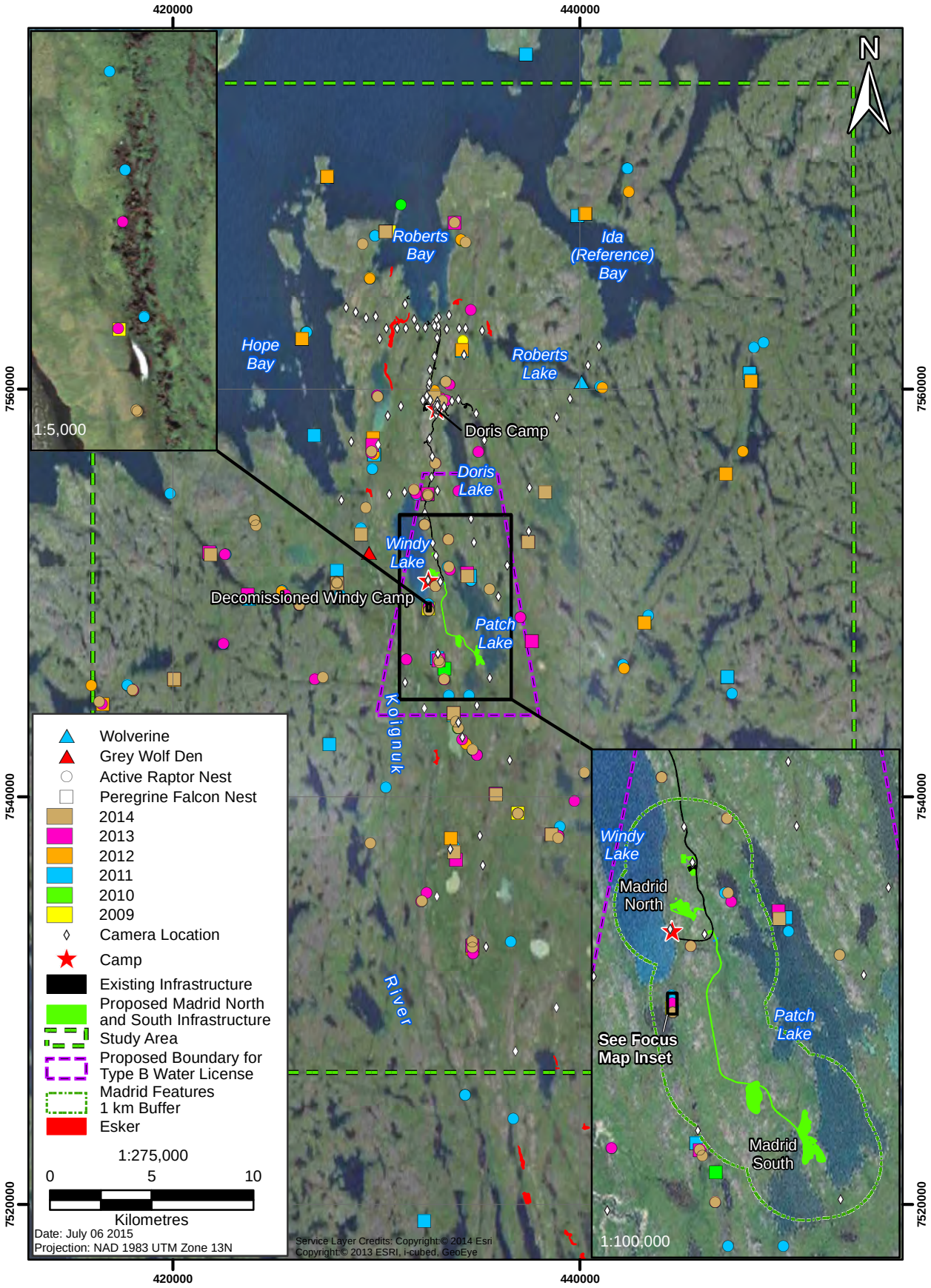
PARTY	PARTY COMMENT	TMAC RESPONSE
		Clearance document. This document provides information as to the proximity of archaeological resources to the facilities proposed and recommendations as to the appropriate treatment of these sites. Additional work was done in these areas in 2015 and a report is expected in due course. TMAC will follow the recommendations in the reports of these studies and in consultation with the archaeological contractor either to modify the design of facilities to protect resources or mitigate them, where required, so that the information is not lost. This will be overseen by a professional archaeologist registered in Nunavut and under the auspices of the Nunavut Regional Archaeologist.
GN9	The GN is concerned that the Doris North project infrastructure and systems planned for use by the Madrid Advanced Exploration Program are part of an ongoing review which is currently awaiting the submission of a revised amendment application. As such, the NIRB and Interveners cannot confirm whether the additional capacity requirements are reflected in the revised amendment application nor assess their adequacy. There is no indication that a draft Environmental Impact Statement for the Hope Bay Belt Phase 2 project is forthcoming. If the proposed activities are allowed to proceed, given the permanence of infrastructure, the GN has serious concerns about the quality of the baseline information that will be available to support the ongoing review of the project. Further to this, the review will effectively be limited from exploring and assessing design level mitigations to manage the potential impacts of the project. This situation also raises a larger concern with the perceived separation of the Doris North and Hope Bay Belt Phase 2 projects. If the Madrid Bulk Sample activities proposed for exception from a NIRB Review of the Hope Bay Belt Phase 2 project are reliant on infrastructure and systems included in the NIRB Review of the Doris North project, in what way can the two projects be considered separate and distinct? The GN understands that there are operational efficiencies motivating this application; however, from a procedural perspective their approval will significantly complicate the ongoing review of both projects.	For a discussion on adequacy of baseline data and assessment of effects, as well as suitability for consideration under 12.10.2 of the NLCA, please refer to the attached cover letter from TMAC to the NIRB, dated August 21, 2015. Guidelines have been issued for the Phase 2 EIS and preparatory work is underway. TMAC plans to submit the DEIS in Q2 2016. The scope of the assessment will include commercial development of everything south of Doris within the Hope Bay Belt and will include a consideration of cumulative effects relating to the Madrid Advanced Exploration program. TMAC submitted an updated application for an Amendment to the Doris North water licence and project certificate in June 2015. On August 21, 2015 this revised Application was issued to Parties for review With the implementation of mitigation measures, offsets and adaptive management incorporated into monitoring plans, no residual effects, nor subsequent cumulative effects are anticipated from the proposed changes in the Amendment to the Doris North water license and project certificate. See responses to AANDC2, AANDC7, AANDC8 and GN4 above.

PARTY	PARTY COMMENT	TMAC RESPONSE
	The GN recommends that the NIRB take a very precautionary approach in determining if the proposed activities can be excepted from Review of the Hope Bay Belt Phase 2 project given the above-mentioned circumstances and implications.	
GN10	This 12.10.2 (b) exception request has the potential to alter the baseline conditions and interfere with the Part 5 Review of the Phase 2 Hope Bay Belt Project proposal. As the Madrid Advanced Exploration Program is a related but distinct Project and this Project constitutes a significant increase in activity for a period of ten years the exception request should be rejected and the Madrid Advanced Exploration Program reviewed under the Part 5 Review process underway for the Phase 2 Hope Bay Belt Project proposal.	For a general discussion on adequacy of baseline data and assessment of effects, please refer to the attached cover letter from TMAC to the NIRB, dated August 21, 2015. Baseline studies within the Doris and Windy lakes watersheds including the Madrid deposit area have been conducted since the mid-1990s encompassing collection of hydrological, geochemical, meteorological, air quality and noise, soils/terrain/vegetation, wildlife, cultural heritage, socio-economic, freshwater and freshwater fish and fish habitat data. The environmental baseline programs conducted most recently by previous project owner Newmont were based on the intent to develop multiple deposits in the belt, so multi-year pre-development data is already available covering the area of the Madrid bulk sample and thus should not alter baseline conditions affecting review of the Phase 2 Hope Bay Belt Project Proposal. The footprint and temporal nature of the Madrid Advanced Exploration Program constitutes only a small fraction of the effects for assessment under Phase 2. A complete list of baseline studies relevant to the Madrid Advanced Exploration Program, and that will ultimately contribute to the baseline dataset for Phase 2, are listed in Table 1.1-1 in Appendix 5 *Environmental Baseline Conditions* of the Madrid Application.
NRCan1	Comment #1: Explosives manufacturing storage at the Doris North and Hope Bay Phase II project sites Information related to explosives use and storage has been provided in section 4.2.10.1 of the SIR. Based on the information provided, explosives used in the Madrid Advanced Exploration Program will be sourced from the Doris North Project Explosives Mixing and Storage Facility, as approved under water licence 2AM-DOH1323. The SIR also indicates that the Doris North project is fully permitted (p.2-3, SIR). Although a licence for the operation of an explosives manufacturing facility was issued by NRCan for the Doris North project in 2007, this licence was allowed to expire in 2009. The previous owner of the Hope Bay Gold Project had constructed the facility but	The Doris North Mine is no longer under care and maintenance, and is currently in the construction phase wherein planned and required facilities will be constructed in the foreseeable future. Given the proximity of the Madrid Advanced Exploration Project to the Doris North mine, and its relatively small size, it is reasonable to service the explosive needs of Madrid from the Doris explosives management infrastructure. It is most probable that prepackaged explosives similar to those currently intended for use at Doris will also be utilized in the Madrid work. TMAC will revisit the explosives management plan for the Madrid project 6 months prior to commencement of explosives use at the Madrid sites.

PARTY	PARTY COMMENT	TMAC RESPONSE
	later decided to reconstruct it in another location east of Tail Lake. NIRB's 2012 Site Visit Report confirmed that the construction of the facility had not yet commenced before the mine was placed on care and maintenance. TMAC's explosives supplier will be required to obtain a new licence under the *Explosives Act* from NRCan's Explosives Regulatory Division for the proposed Explosives Mixing and Storage Facility and if required, for explosives storage in other locations serving the Doris North mine and the Madrid Advanced Exploration Program.	The previous project owner did permit a mixing facility to the east of the TIA that is not yet constructed, but TMAC has chosen to utilize pre-packaged ANFO; a mixing facility is not currently required. At present, TMAC holds valid Explosives Magazine Permits issued by the WSCC for explosives storage. The appropriate licences will be obtained from NRCan if/when the mixing facility is constructed and used.
NRCan2	Comment #2: Shared Project Infrastructure The information submitted to support the exception application indicates that infrastructure at the Doris North project site will be used to support the Madrid Advanced Exploration Program. For example, ore will be processed using the approved Doris North Project processing facility and tailings impoundment area. The tailings impoundment area will also be used to store/process contact water and potentially saline groundwater, should the underground development intercept groundwater when operating in areas of taliks. However, TMAC has not provided sufficient information in the exception application to explain how the Doris North project infrastructure will accommodate the additional material and waste products that may result from the Madrid Advanced Exploration Program (especially in combination with possible project changes to the Doris North project).	See response to AANDC2 above.
NRCan3	Comment #3: Geochemical characterization of ore, waste rock and quarry materials While the SIR includes a summary of the geochemical characterization of ore, waste rock and quarry materials and a conceptual management plan, NRCan was not able to locate supporting reports (that would include the methods used to collect data, the data, and the analyses) that would generally be reviewed in order to provide comments on the appropriateness of the conclusions, potential environmental effects, mitigation measures and management plans. As such, NRCan has no comments to provide.	Appendix 8-B of the application contains a December 2014 SRK Memorandum titled "Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans". This memorandum provides an overview of the geochemical findings for waste rock and ore that will be produced as part of the Madrid Advanced Exploration Program.. The memorandum builds on two earlier reports as follows: • SRK Consulting (Canada) Inc., 2012. Geochemical Characterization of Waste Rock and Ore from the Patch 14 and Wolverine Deposits, Hope Bay – Draft. Draft report prepared for Hope Bay mining Ltd., December 2012. • SRK Consulting (Canada) Inc., 2014. Geochemical Characterization of Waste Rock and Ore, Madrid North bulk Sample, Hope Bay – Draft. Draft report prepared for TMAC Resources Inc., July 2014.

PARTY	PARTY COMMENT	TMAC RESPONSE
		In additional geochemical characterization for quarry material along the all-weather road between Madrid North and Madrid South are documented in the following report: • SRK Consulting (Canada) Inc., 2014. Hope Bay Project. Geochemical Characterization Program for Quarry G, H and I. Report Prepared for TMAC Resources Inc. Project Number 1CT022.001.400.10. July, 2014. These three referenced reports contain the necessary details requested and are submitted as part of the formal record for this application. TMAC commits to issues these final reports by September 15, 2015.
NRCan4	Comment #4: Permafrost and Terrain Stability The supplemental information includes general information in relation to permafrost however site specific baseline information has not been provided and TMAC has not indicated whether site-specific geotechnical and geophysical investigations will be undertaken to support final siting and design of infrastructure (e.g. waste rock storage, borrow sites and quarries, underground mine development, etc.) that is proposed for the Madrid Advanced Exploration Program.	Both areas have been assessed by a professional geotechnical engineer (SRK Consulting) and it has been confirmed that the ground conditions at the Madrid Advanced Exploration Program are similar to those at Doris North. Site specific geotechnical or geophysical engineering investigations at the Madrid North and Madrid South sites will be carried out prior to construction to confirm the preliminary design assumptions.
NRCan5	Comment #5: Groundwater TMAC has indicated that it is anticipated that the Madrid South underground facilities may intercept saline groundwater. The SIR indicates that "*Estimates of the groundwater inflow when operating in these areas ranges from 16 to 1,703 m3/day with varying permeability. For the purposes of water management design, variable hydraulic properties of key formations (deep volcanic rock and altered rock) were considered resulting in an estimate of total flow of 500 m3/day. This estimate of flow is used for water balance calculations*"(p.6-4). The SIR further states, "*that water that does not meet threshold criteria will be trucked to the Doris North Project for disposal in the tailings impoundment area*" (p.6-4). Based on NRCan's review of the information, site specific information related to groundwater quality and quantity has not been provided in the exception application. Additionally, NRCan noted in its information request submission (February 18, 2014) in relation to TMAC's amendment application for the Doris North Project	Groundwater in the Hope Bay Belt is limited to talik areas which generally is restricted to areas underneath larger lakes, or depths below ground surface greater than 500 m. Within these talik areas, groundwater flow is governed by fracture flow within the generally tight basalt host rock. Extensive geological drilling for exploration purposes has confirmed that the geological conditions at Doris are consistent with those at Madrid South and therefore it is believed that the hydrogeological conditions are similar. No detailed hydrogeological characterization has been carried out at Madrid South, and none is planned because the system is sufficiently well understood. The groundwater inflow estimates for the Madrid Advanced Exploration Project are described in Appendix 7A of the application and are as stated based on the general understanding of regional data predominantly supported from site specific hydrogeology characterization data at Doris North (which includes the Central and Connector zones).

PARTY	PARTY COMMENT	TMAC RESPONSE
	(December 2013) that the original Doris North project proposal was to mine only in permafrost areas, which significantly limited groundwater inflows into the mine, as the permafrost was thought to be impermeable to groundwater flow. However one of the proposed modifications of the Doris North Project (included in the December 2013 amendment application) is to extend underground mining to the Doris Central and Connector deposits. These deposits are within the talik (unfrozen ground) beneath Doris Lake and will cause groundwater to flow into the underground mine. TMAC estimated that groundwater inflows to the Doris North mine to be 3500 m3/day for the first year of mining in the talik under Doris Lake and at 7000 m3/day for the second year. NRCan provided two information requests in relation to groundwater quantity and quality in relation to the December 2013 amendment application for the Doris North project certificate 003. It is unclear whether the groundwater mitigation measures and management plans in the exception application for the Madrid Advanced Exploration Program take into account the potential groundwater inflows that may result from modifications to the Doris North project.	TMAC did, however, install a deep ground temperature cable (GTC) into an exploration hole (TM00141) at Madrid North in July 2014. Since this hole transects the talik boundary, it provides confirmation of the hydrogeological assumptions presented in Appendix 7A. Exploration drill hole TM00141 was completed on July 21, 2014 to a depth of 425 m, at an Azimuth of 89 degrees with a dip angle of 69 degrees (UTM NAD 83 Coordinates of 7,546,691.1N and 435,141.3E). The hole collar elevation is at 49.3 m above Mean Annual Sea Level. A 250 m long 13 point RST Instruments Ltd. GTC (Serial #TS3787) was installed in this drill hole and the subsequent installation drill log is attached. Since installation, two sets of readings have been acquired on April 17 and May 16, 2015. The data shows the bottom thermistor bead with a consistent temperature of -2.6 degrees Celsius. The attached figures illustrate the location of this -2 degree Celsius isotherm compared to the -2 degree isotherm estimated in Appendix 7A. It can clearly be seen that the actual -2 degree isotherm estimated in Appendix 7A is conservative and as a result the groundwater inflow numbers predicted is conservative.


420000
440000
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Roberts Bay
Ida (Reference) Bay
Hope Bay
Roberts Lake
Doris Camp
Doris Lake
Windy Lake
Decomissioned Windy Camp
Patch Lake
Koignuk River
1:5,000
Wolverine
Grey Wolf Den
Active Raptor Nest
Peregrine Falcon Nest
2014
2013
2012
2011
2010
2009
Camera Location
Camp
Existing Infrastructure
Proposed Madrid North and South Infrastructure
Study Area
Proposed Boundary for Type B Water License
Madrid Features 1 km Buffer
Esker
1:275,000
0 5 10
Kilometres
Date: July 06 2015
Projection: NAD 1983 UTM Zone 13N
Service Layer Credits: Copyright:© 2014 Esri
Copyright:© 2013 ESRI, i-cubed, GeoEye
Windy Lake
Madrid North
See Focus Map Inset
Patch Lake
Madrid South
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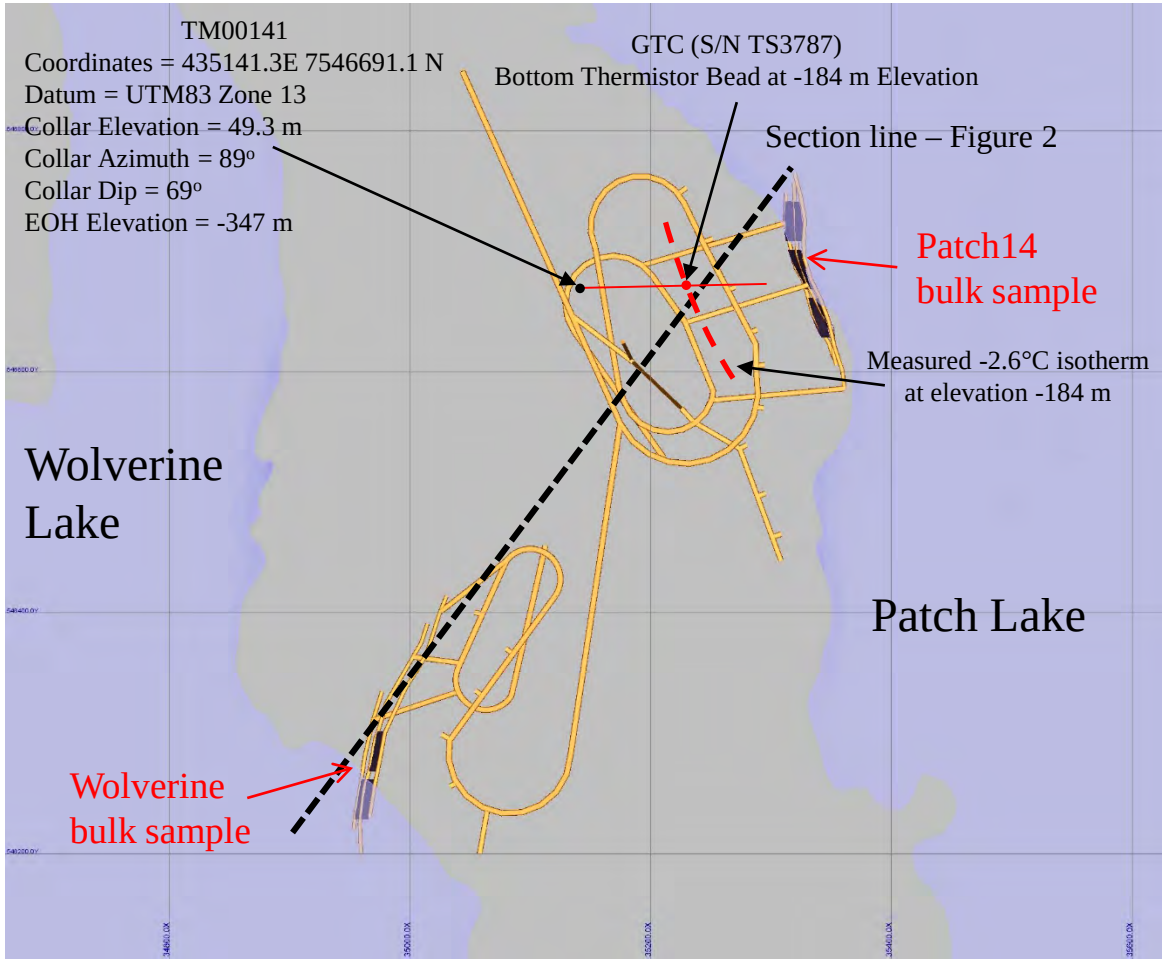
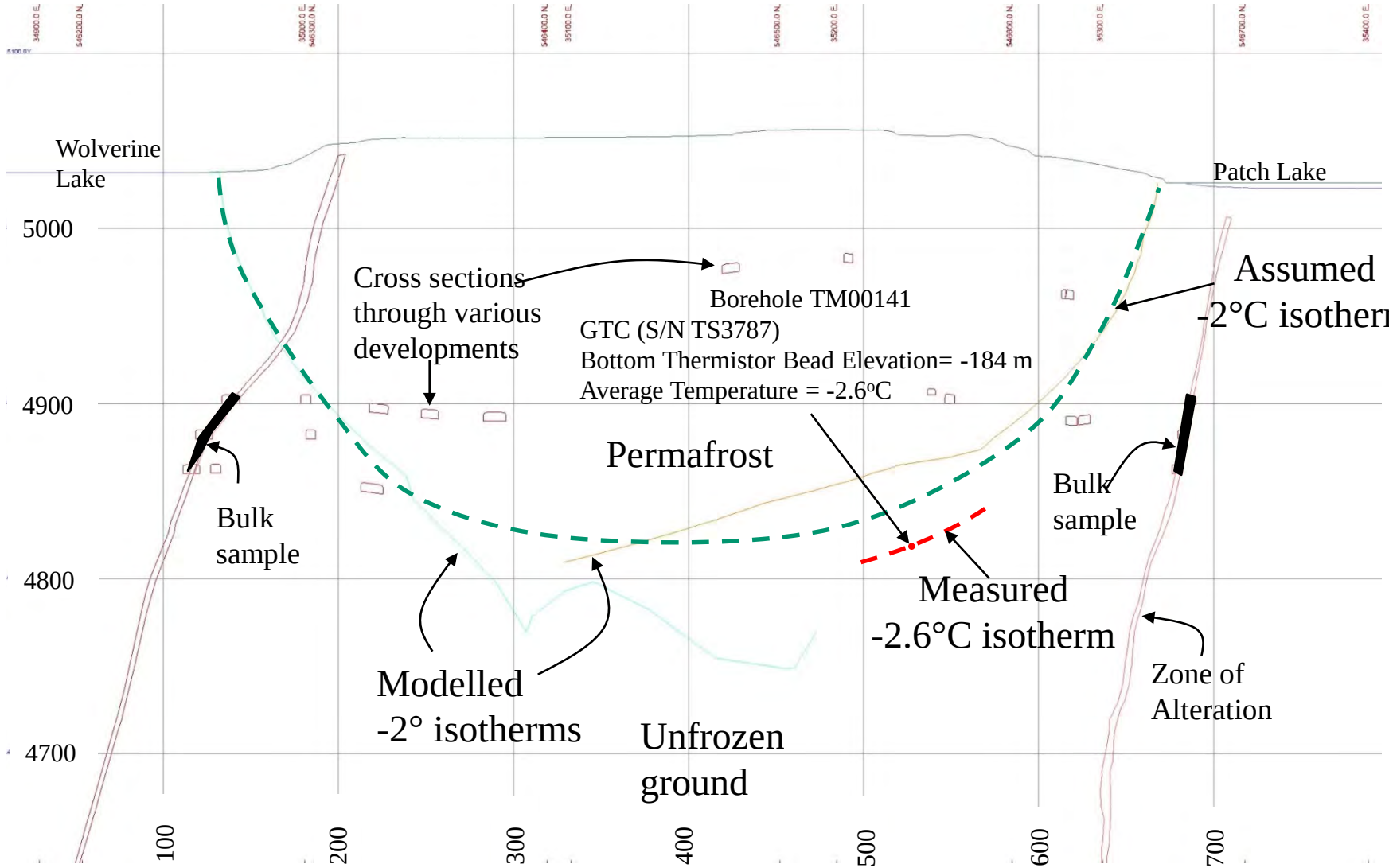


srk consulting	TMAC RESOURCES	Patch Lake GTC (S/N TS3787) Installation
		Map of Bulk Sample Locations Relative to Lakes
Job No: 1CT022.02.300 Filename: MAEP_GTCInstall_As-Built_Figures_1CT022.002.300_rev0_lw.pptx	Madrid Advanced Exploration Project	Date: August 2015 | Approved: lw | Figure: 1

Section CC



srk consulting	TMAC RESOURCES	Patch Lake GTC (S/N TS3787) Installation
		Cross Section of Bulk Sample areas and -2º Isotherm
Job No: 1CT022.02.300 Filename: MAEP_GTCInstall_As-Built_Figures_1CT022.002.300_rev0_lw.pptx	Madrid Advanced Exploration Project	Date: August 2015 | Approved: lw | Figure: 2

srk consulting

TMAC RESOURCES

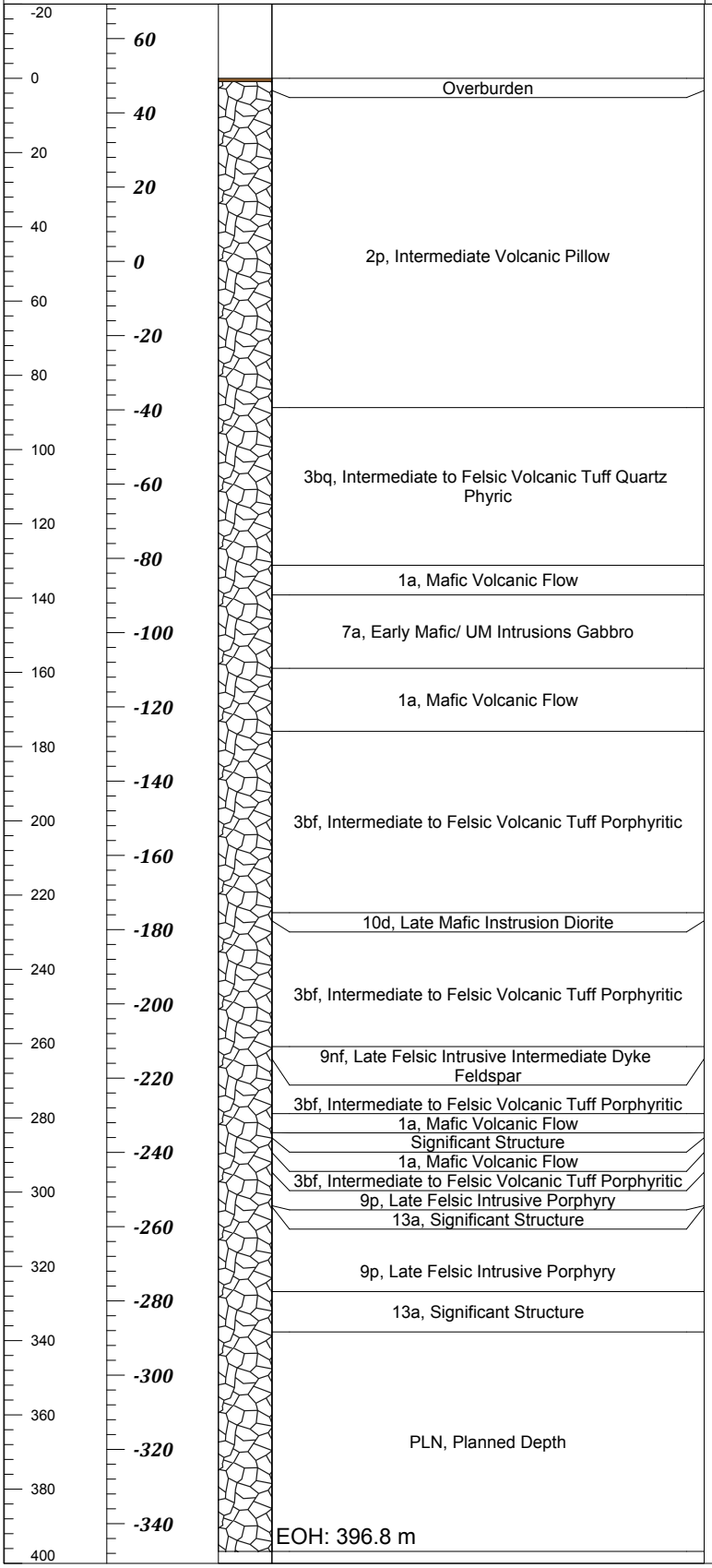
PROJECT: Hope Bay

CLIENT: TMAC Resources

HOLE ID:	**TM00141**	COLLAR AZIMUTH:	89
PROPERTY:	Hope Bay, Nunavut	COLLAR DIP:	-69
PROJECT NO:	1CT022.001	COORDINATES:	435141.3 E 7546691.1 N
LOCATION:	Doris	DATUM:	UTM83 Zone 13
HOLE SIZE:	NQ	GROUND ELEV (m):	49.3
LOGGED BY:	kclyke	STICKUP HEIGHT (m):	1.0
BORING DATE:	July 17, 2014	EOH ELEV. (m):	-347.5
		TOTAL VERT. DEPTH (m):	396.8

Lithology

Overburden | Bedrock



Ground Temperature Cable Installation

S/N 753787

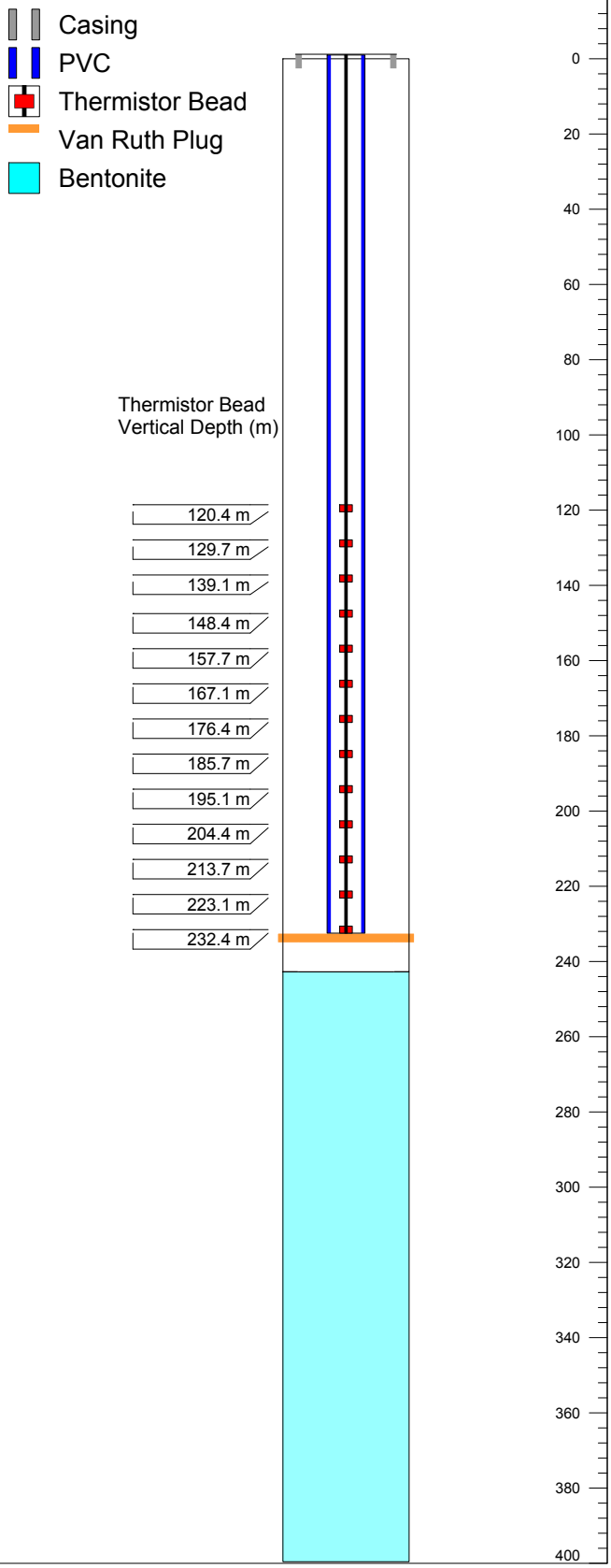


Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

ITEM	TOPIC	PARTY COMMENT	PARTY REQUEST	TMAC RESPONSE
KIA April 23, 2015				
Issue # 1 Waste Rock Slope Design Criteria				
K1	Construction and Operation Phase	The report notes 2H:1V waste rock side slopes for Madrid North waste rock piles but 2.5H:1V for Madrid South waste rock. No explanation or rationale is provided for the different side slopes for similar waste rock materials.	TMAC provide rationale for different slopes for the waste rock piles.	Unmineralized waste rock remaining on surface at closure will be regraded to slope of 2.5H:1V as indicated for Madrid South. The mineralized rock remaining on surface at Madrid North will be covered with an HDPE liner and will require a final slope of 3H:1V. During the operational stage, it is important to minimize the footprint of the Madrid waste rock pile so as to reduce the volume of contact water which needs to be managed. Therefore the operational waste rock pile slope is set at 2H:1V.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 2 Hydrological design criteria's selection of precipitation over watershed				
K2	Construction and Operation Phase	SRK has selected 25% of annual snowfall over watershed area plus 1:100 year 24 hour rainfall. No rationale is provided for this selected value of 25%. Also is it not evident that this value allows for site snow fall accumulation due to drifting within the watershed basin.	TMAC provide rationale for hydrological design criteria's selection of precipitation over watershed.	The Pollution Control Ponds are designed to retain 25% snow-water equivalent, between October and May (i.e. the winter season), 100% of the precipitation, between May and October (i.e. the summer season), and 100% of a 1:100 year 24 hour storm event. The sum of these precipitation events were applied over the watershed areas which drains towards the Pollution Control Pond. This is the same design criteria which has been consistently used throughout the Doris North Project.
Issue # 3 Hydrological design criteria for the Pollution Control Ponds				
K3	Construction and Operation Phase	No freeboard seems to have been allowed for in the design. Generally some freeboard amount is allowed for in the design of ponds. No rationale is provided for the lack of freeboard being appropriate for the design of the pond. There may be some identifiable risks that could be mitigated through the use of freeboard.	TMAC provide rationale for the PCP hydrological design criteria.	The full supply level of the ponds is set to the elevation where the liner terminates. Since this is an event pond with design criteria as outlined in the response above, which is intended to be maintained normally empty (i.e. as soon as there is water in it, it is supposed to be pumped out), the likelihood of reaching the full supply level is virtually impossible. There is however an additional 0.9 m of fill over the liner, providing an effective freeboard against overtopping which will

				ensure that in the highly unlikely event that the full supply level is exceeded, the pond integrity is not at risk.
Issue # 4 Connection detail between the HDPE liner on the PCP berm and upstream 0.9m deep cut-off trench				
K4	Construction and Operation Phase	No site specific geotechnical detail has been collected at the locations of the upstream cut-off trench where the liner is to be tied into. Any adverse ground conditions, including frost affected bedrock, immediately below ~~liner~~ proposed liner connection, could lead to seepage under the liner and under the berm. In addition, no detail is provided regarding connection of liner to the underlying subgrade.	TMAC provide more details on the connection of liner to the underlying subgrade for PCP berm.	Construction of the Pollution Control Ponds will be during the winter season. The key trench will be excavated to permafrost (in the case of overburden soils) and to competent bedrock (in the case where bedrock is encountered) the typical Detail 1 on MNP-10 (Madrid North) and MSP-08 (Madrid South) is an illustration of upstream liner installation under ideal conditions. Construction Activities will be in accordance to SRK's technical specifications for earthworks and geotechnical engineering as referenced in the design brief technical memorandums. These specifications have been utilized for various approved works on the Hope Bay Project. These technical specifications provide construction contingencies should unfavorable ground condition be encountered.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 5 PCP Berms and associated lined pond area				
K5	Construction and Operation Phase	No geotechnical information has been collected under proposed berms or lined pond areas as design input. Organic materials, ground ice and highly fractured bedrock could be problematic for the performance of retention berms and liners. No engineering assessments and operational controls are identified to ensure proper performance of the containment berm and liners. No contingency measures are proposed for the event of pond seepage.	TMAC provide geological information for proposed PCP berms and information on operational controls to prevent seepage.	SRK has prepared geotechnical design parameters and technical specifications for the Hope Bay Project which are based on all available overburden and bedrock geotechnical data collected belt wide. This data was used to design and build all existing surface infrastructure for the Doris North Project, as well as develop feasible designs for the Madrid PCP. Prior to constructing the Madrid PCP berms a geotechnical investigation will be carried out and the design verified.
Issue # 6 Pond operations – 90% empty state				
K6	Construction and Operation Phase	Please provide context of 90% empty state to indicate whether it pertains to volume or to time duration when pond is retained. Any remnant pond would collect at low point on upstream face, near the cut-off trench. Warm pond water would potentially melt any underlying permafrost leading to liner and berm performance issues.	TMAC clarifies the context of 90% state in terms of capacity or time.	The Pollution Control Ponds are designed to be operated as normally empty. That means that at any given time when there is water in the ponds, the discharge or water removal process, including water quality sampling as needed, will be initiated.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 7 Waste rock side slopes are to be flattened during closure to 3V:1H.				
K7	Closure Phase	Leaving the flattening operation until closure phase leaves work and potential costs that are put off till [sic] later closure phase. It is suggested that waste rock side slopes of 3V:1H be installed during operations phase so that this liability cost is not left until the closure phase. This minor operational change would hence reduce potential closure liabilities for the KIA.	TMAC install waste rock side slopes of 3V:1H during operations.	While it may be prudent to ensure the pile is constructed to that configuration from the outset to avoid later re-grading it should be noted that waste rock placement by nature cannot be dumped to slopes other than angle of repose. Therefore the operational practice is to dump at angles of repose with setback benches followed by re-grading to achieve the overall design grade. This grading can either be done as dumping progresses or when all dumping has taken place. TMAC will endeavour to do as much of the grading as is practical during the operational phase.
Issue # 8 Waste rock cover design – HDPE liner plus 0.3 m of crushed rock				
K8	Closure Phase	HDPE liners are subjected to punctures and tears, depending upon the grain size and angularity of both the subgrade and the cover layers. This usually requires the use of finer grained material (nominally -15mm) or heavy weight geotextile to protect the liner. These details are not mentioned in the current documents. Also the cover's design objectives for both the short and long term are not specified. This objective need to be specified and incorporated into the final	TMAC provide further detail on the rock cover design.	The closure plan is conceptual. The waste rock needs to be covered with an infiltration reducing cover, and since there are no suitable natural materials, a geosynthetic product has been proposed. The current closure cost allows for regrading the waste rock pile from 2H:1V slopes to 3H:1V, laying down a 60 mil HDPE textured liner and covering that with 0.3 m of gravel to act as a UV protection layer. Given the conceptual nature of the design, a target infiltration

		design and closure cost estimate.		reduction rate has not been specified, and therefore the requirement for additional bedding layers to protect the liner against damage has not been assessed. Such refinement will be done as part of future closure plan updates.
Issue # 9 Portals plugs – rock fill portal plugs are described				
K9	Closure Phase	The design objective for the portal plugs are not specified. These objectives could be to act as a physical barrier to retain mine head water in expected parts of the Madrid South stopes and to provide crown pillar support. Also, the final portal plug designs should be stamped by a Professional Engineer in NU.	TMAC provide further details on portal plugs	The portal plug will be constructed using mine waste rock and will prevent mine access in accordance with the necessary acts and regulations. The plug does not have to retain any head of water since they are well above the Windy, Patch, and Wolverine Lake elevations where any groundwater inflows may equilibrate.
Issue # 10 Closure Costs				
K10	Closure Phase	It is noted that SRK (2014a) provides a cost estimate for the conceptual closure plan. This cost estimate totals $7.1 million (M) comprised of $4.4M direct costs and $2.7M indirect costs, based on the assumptions, quantities and rates provided therein. The indirect costs allowed for $0.72M contingency, along with costs for mob/demob, G&A costs and site monitoring. KIA's engineering consultants did not review this cost estimate in any detail but as the closure plan	TMAC provide further updates on closure costs.	Refer to response to AANDC Issue #6 and #8 above re: reclamation cost estimate review frequency and submission schedule of Interim Closure and Reclamation Plan and subsequent revisions through to Final Closure and Reclamation Plan submission.

		details and logistics evolve over time, the closure costs are expected to increase. In addition, the closure of the Madrid North and South facilities is likely dependent on the assumption that appropriate equipment and logistical supply (eg. camp) are in the area for closure work of the other Doris North Project facilities. Should that equipment and support not be available from nearby sites, then the closure cost would be higher than stated.		
Issue # 11 General Lack of Information on Baseline Results within Madrid Advanced Exploration Area				
K11	Baseline	Appendix 5, Environmental Baseline Part 6, Sections 3.2.1.1 to 3.2.3.2, p.3-7 to 3-10: The sections of Appendix 5 that summarize the wildlife baseline information collected for the Hope Bay belt project do no contextualize the findings spatially, meaning impacts cannot be determined for the Type B Water Licence Application boundary. As this is baseline information is meant to support a water licence application for the application zone shown in Figure 1.1-2 of Appendix 5 (part 1), critical wildlife use and habitat information should be summarized for within that boundary, particularly where critical wildlife habitat features could be destroyed through project	TMAC updates this information such that it explicitly summarizes the key habitat use and observations for each wildlife VEC within the proposed application boundary.	See response appended below

		development. For example, sections 2.2.2.2 and 2.2.2.3 include vague information on dens, in statements such as: :Carnivore den surveys located three wolf dens in the Hope Bay Belt area," yet no information is provide [sic] as to whether these dens overlap with the application boundary for the Madrid advanced exploration project. Similar issues occur with regard to other wildlife VECs as well; information on the types and numbers of surveys conducted is provided, but no spatially specific information is included about use of the area within the proposed Type B Water Licence application boundary.		
Issue # 12 More information on camp use and vehicular requirements				
K12	Supplemental Information Report (SIR)	In section 4.1.4, Page 4-4, the proponent states that "*The Madrid Advanced Exploration Program will utilize available capacity at the existing permanent camp facilities at the Doris North project and/or the planned camp at Windy Lake permitted under Type "B" water Licence 2BE-HOP122 [sic]. Combined, these camps have the capacity to house 360 workers*." The proportion of people housed at the Doris North and/or Windy camps will affect wildlife differently. The location of workers for this	TMAC to provide information on the approximate numbers of people to be housed in each camp, information about when Windy camp is expected to open, and the numbers of vehicles expected to travel along the Doris North to Windy road.	Doris Camp is presently permitted to house 180 workers; Windy Camp is not presently constructed but is permitted to house 180 workers. These camps are authorized separately from the Madrid Advanced Exploration Program Application. It is expected that the Madrid workforce will be housed at the Doris Camp and commute to the Madrid project site(s) daily. It is planned that workers will be transported daily via crew bus, reducing the number of vehicles

		project will affect the amount of traffic added to the Doris North-Windy all weather road over the proposed 10-year period.		and traffic on the road. The mitigative measures currently in place for the Doris North project, with respect to reducing effects on wildlife from vehicle traffic will be implemented, including speed limits, wildlife notification systems, and wildlife having the right of way. The scheduling of Windy Camp construction or opening has not been determined.
Issue # 13 The type of flocculant to be used in the suppression of sediment				
K13	SIR	In Section 4.2.10.2, p.4-11: The document states that the bulk samples will require the use of a flocculant for the suppression of sediment, which will be stored at the Madrid North Laydown Area. Information on the flocculant to be used needs to be provided, as some flocculants and coagulants may be harmful to aquatic life and wildlife. i.e., will mineral, natural, anionic, or synthetic (i.e. long chain polymer or sulfonated) flocculants be used?	TMAC provide information on the flocculant to be used in the suppression of sediment.	Flocculant is not required nor planned for routine use for the suppression of suspended sediment in the Pollution Control Ponds. Should suspended sediment prove to be an issue, TMAC would like to reserve the option to consider flocculant use with appropriate approval.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 14 Effluent Disposal on tundra and exposure of wildlife to heavy metals				
K14	SIR	In Section 7.2, Table 7.2-1, p. 7-2, indicates that large volumes of surface contact water (40,000 and 94,000 cubic metres per year from Madrid South and North, respectively) will be partly discharged to the tundra in the area of the pollution control pond (when discharge criteria are met). The quarry effluent discharge quality limits are presented in Table 7.2-1 and pollution control pond effluent discharge limits are presented in Table 7.4-1. On-going deposition of water with these levels of arsenic, iron, zinc, copper, ammonia, TSS, etc. (Tables 7.4-1 and 7.2-1) may affect the toxic loads found in vegetation in the area. Wildlife feeding in these discharge areas could be exposed to concentrations of heavy metals that create physiological problems and the implementation of a highly effective waste and wildlife attractant management program will be required to ensure that wildlife do not access or feed in these areas. However, the mitigation dealing with this issue, in Section 10.5.2, p.10-2, states that: "*a waste and wildlife attractant management protocol will be implemented such*	TMAC include some information about what will be or will likely be, included in this plan, and whether the tundra discharge locations are included in this mitigation commitment. Also include information on how the mitigation to keep wildlife out of areas will be evaluated for effectiveness, if the use of adaptive management is cited. TMAC provide information on the numbers of samples, taken from vegetation and soil that will be available from areas that will be used for partial discharge of quarry effluents. It is important that these baseline levels be available for later comparison against metals measured in soils and vegetation after successive effluent discharges over the 10-year period.	The tundra discharge locations will receive effluent compliant with the discharge criteria specified in the licence issued by the NWB. Water that is not compliant for discharge to the tundra, will be directed to the TIA, which is the facility designated for receipt of such discharges. Wildlife interaction with site infrastructure is monitored under the Wildlife Mitigation and Monitoring Plan. A robust waste management plan is in place which has been effective in minimizing wildlife interaction with site infrastructure. Baseline information submitted with this application is considered of an appropriate level of detail to facilitate screening level review of a bulk sample (Type B) licence application.

		that wildlife do not have access to camp wastes, contaminated areas and attractants".		
Issue # 15 Habitat Loss and Changes in Movement and Behaviour only Part Mitigable				
K15	SIR	In Section 10.3, Table 10.3-1, p.10-8, it shows that changes in movement and behaviour of wildlife due to sensory disturbance from blasting, human presence, vehicle and aircraft traffic is rated as M, although most of these disturbances cannot be fully or even largely mitigated, particularly during construction.	TMAC adds another category for negative but partly mitigable may provide a more realistic picture for information presented in this table. Or, a more explicit discussion of the residual effects of sensory disturbances to wildlife VECs over the 10-year application period should address this issue.	Category of M (Negative and Mitigable) is established by NIRB in Table 2 of the PSIR contained in Appendix 10. The other options to categorize impact from interactions are: P (Positive), N (Negative and Non-mitigable), U (Unknown) or blank if no impact is expected. There is no category to describe the magnitude of mitigation, but it can be expected that through the implementation of measures in management plans such as the Noise Abatement Plan, that some mitigation will aid in lessening impact, therefore, the classification selected is M (Negative and Mitigable). Disturbance due to blasting at quarry sites, human presence, and vehicle and aircraft traffic may occur during Construction and Operation phases of the Project. Mitigation measures, in addition to those to be implemented in the Noise Abatement Plan, specific to wildlife, will be outlined in an update to the Wildlife Mitigation and Monitoring Plan and

				implemented to minimize the effects of disturbance to wildlife during all phases of the project. After implementation of mitigation measures, some disturbances during construction activities are anticipated to be present, primarily due to blasting at the quarry sites and construction and use of the roads. However, these disturbances are anticipated to be intermittent and short-term in duration and localized in geographical extent. Thus, only a very small proportion of wildlife habitat may be affected by these disturbances for short periods of time. The majority of wildlife habitat affected by noise is expected to fully recover once Project activities cease. The effects of sensory disturbance are currently being studied as part of the Doris North Wildlife Mitigation and Monitoring Plan by determining if VEC species close to infrastructure are less abundant than when far from infrastructure. Effects of sensory disturbance are anticipated to be of greater concern for VEC species with small home ranges i.e. upland and waterbirds, than those with

				larger home ranges i.e. raptors and mammals. If a similar study design is used for the Madrid Water License boundary area then this data could contribute to the current dataset available for Doris North.
Issue # 16 No Information on Residual Impact to Wildlife				
K16	SIR	In Section 10.5.2, p. 10-21, there is no statement about whether there is expected to be a residual or significant effect of this project on wildlife after mitigation. Other disciplines have included such a section. For instance, the authors of the aquatic organisms, fish and fish habitat section (Section 10.5.3, p. 10-23) state that: "the Project is not expected to cause any significant adverse effects on Arctic Char, Lake Trout, Lake Whitefish, and Ninespine Stickleback in the Project area".	TMAC provide comment on the potential for a residual effect on wildlife after the application of mitigation as well as on the significance of that effect.	The construction of the Madrid proposed infrastructure is anticipated to result in minimal habitat loss for wildlife and is not anticipated to affect any critical or important habitat features for wildlife. Thus, the effect of habitat loss due to the proposed Project is anticipated to be negligible for mammals and raptors. In addition, disturbance to wildlife in surrounding habitat due to noise is anticipated to be relatively minimal (intermittent and short-term in duration) and expected to fully recover upon cessation of Project activities. Wildlife specific mitigation measures will be proposed for blasting activities and other noise generating activities in an update to the Wildlife Monitoring and Management Plan in addition to those that will be implemented in the Noise Abatement Plan. A small section of road is to be

				built for the Madrid Project, and mitigation measures are to be proposed in the Wildlife Monitoring and Management Plan, such as the construction of road crossing areas, if required, thus minimizing the potential for the creation of a barrier to movement of wildlife. Mortality of wildlife, which primarily occurs as a result of collisions with vehicles on Project roads, is also anticipated to be minimized through the implementation of mitigation measures specific to wildlife ie: speed limits, wildlife notification system. Through the adherence to current management practices, standard operating procedures, and regulatory guidelines, and mitigation measures developed for the Project, no residual effects to wildlife or wildlife habitat are anticipated as a result of the development of the Project.
Issue # 17 Cumulative Effects Section Lacking Information				
K17	SIR	In Section 10.7, the cumulative effects section is very short and high level, and does not state whether the advanced exploration project is expected to contribute to cumulative effects.	TMAC provide more information or comment on expected cumulative effects.	See response appended below.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 18 Possible impact of blasting activities on water bodies				
K18	SIR	P. 6-3: Blasting activities are proposed for construction of project infrastructure and roads. Blasting is not included in the aquatic organisms, fish and fish habitat effects assessment (p. 10-21 to 10-23). Site infrastructure may be built as close as 31 m to water bodies in the study area.	Please indicate if blasting activities may result in potential impacts to fish health, and identify any mitigation measures that will be considered for avoiding or reducing adverse effects.	Potential for detrimental effects of blasting on fish (and vulnerable life stages) is recognized in Appendix 8C, in the Quarry Management Plan, Section 4.1.4. This section indicates that the Guidelines for the use of explosives in or near Canadian fisheries waters (Wright and Hopky, 1998) will be followed for blasting activities with appropriate setbacks monitoring.
Issue # 19 Update of Aquatic Effect Monitoring Program to include Madrid				
K19	SIR	P. 9-3: The Doris North Aquatic Effect Monitoring Program will be revised to include the geographic scope of the Madrid area. A detailed plan will be provided 60 days prior to construction.	Review the updated Aquatic Effects Monitoring Program once available.	A revised AEMP, including a module specific to the Madrid Advanced Exploration Program, will be distributed for comment. The revised AEMP will be available 60 days prior to construction.
Issue # 20 Construction mitigation actions				
K20	SIR	P. 10-17: Proposed mitigation for construction activities in or near water is very general, for example "currently accepted industry construction practices will be employed during construction and operations", and "the release of poor quality water and/or sediment during construction and operations will be avoided through the use of erosion control measures and available spill and emergency response equipment".	Please indicate more specific construction monitoring best management practices that will be adhered to such as maximum acceptable TSS levels, isolation of in-water works, or replanting disturbed vegetation. If appropriate, a similar document from Doris North may be referred to.	Similar construction and monitoring practices as those described in Part D of the Doris North Water Licence 2AM-DOH1323 will be adhered to, including thresholds for maximum TSS levels as found at Part D, Item 18. Construction activities in or near water will implement best management practices as described in Fisheries and Oceans Canada (DFO) Nunavut Operational

				Statements as relevant to the work being conducted, such as observing fisheries timing windows, to avoid serious harm to fish.
Issue # 21 Introduction of nutrients or contaminants to water bodies				
K21	SIR	P. 10-21 to 10-22: Potential project-related effects include the introduction of nutrients or contaminants into streams and water bodies, which may produce negative effects on aquatic organisms. Discharge criteria values will be used to determine if site contact water in pollution control ponds can be safely discharged to the tundra (at minimum 31m away from local waterways), or alternatively trucked to the Doris North Project TIA 9P. 6-4). Discharge quality limits provided in Table 7.4-1 (p.7-6 to 7-7) are based on the Doris North Water Licence 2AM-DOH1323. However, it is not clear how the discharge criteria were developed, or how they will adequately protect aquatic resources in the Madrid Project area.	It would be beneficial if the discussion of potential water quality effects was expanded on to include the following points: What are the discharge criteria values based on, and do they take into account the CCME aquatic guidelines for the protection of aquatic life. Are discharge criteria defined for the Doris North Project also applicable for the proposed Madrid Project? Please discuss.	Through consistent best management practices, TMAC makes every effort to reduce release of nutrients or contaminants in the effluents involved with their operations, and water that is potentially elevated with substances that may have a negative effect on aquatic organisms is captured and managed within designated structures to prevent uncontrolled release to the environment Water quality discharge criteria is set by the NWB. In general, for site facilities, the discharge criteria mirrors that established by CCME guidelines for protection of aquatic life, or references MMER discharge limits for mine effluents. Tundra discharges are performed in accordance with criteria established in the licence and discharge locations established “where direct flow into a water body is not possible and no additional impacts are created”;

				therefore using criteria established for the protection of aquatic environments is a conservative approach to protecting the receiving terrestrial environment (ie: tundra). Similar licences, such as 2BM-ULU1520, issued recently in 2015, have the same discharge criteria as the Doris Licence 2AM-DOH1323.
Issue # 22 Culvert Crossing				
K22	Appendix 5	App. 5, Part 7, P.4-1: Unimpeded 1m diameter closed bottom CSP culverts are proposed for Crossing #1 and Crossing #2 based on the assessment that the watercourse does not support fish that are part of a recreational, commercial or Aboriginal fishery, or fish which support such a fishery. However, Crossing # 2 is located between two fish-bearing lakes and contains forage fish species such as ninespine stickleback.	Please provide further evidence that this connecting watercourse does not act as an occasional corridor for migrating fish, and that the ninespine stickleback which reside in the creek are unable to support CRA fish species in adjacent water bodies. If a lack of supporting evidence exists, it is recommended that the culvert is designed to facilitate fish passage, and/or that a request for DFO review may be considered.	Crossing #2 was assessed in Aug 24, 2010 and June 18, 2011. No fish were captured at the crossing location (UTM 434766 m E, 7547121 m N) as this area of land was dry on both sampling occasions. The connection between Wolverine Lake and Patch Lake on the northern Wolverine Lake outflow is discontinuous with no standing or flowing water observed at the crossing location. Moving downstream from Wolverine Lake, the nearest surface water was approximately 20 meters from the shoreline with no surface connection. Beyond this 20 meters, and moving downstream toward the crossing location, the surface water consisted of isolated and largely unconnected patches of ponded water, rather than channelized stream. Within the crossing co-

				ordinates the land was dry and the stream only began to run from a subsurface water source approximately 160 m downstream of the crossing location, toward Patch Lake. Fish (Ninespine Stickleback) were observed and captured (1 individual) near Patch Lake, approximately 230 meters downstream of the crossing location. Based on the available field information, ERM's conclusion is that no Ninespine Stickleback reside within the footprint of the crossing location and that there is no surface water connection between Wolverine and Patch Lakes that would act as a corridor for CRA fisheries species or the fish species (e.g. Ninespine Stickleback) that support them. In addition, there is no fish habitat present at the Crossing #2 co-ordinates and, therefore, the footprint of the water crossing will not affect either CRA fisheries or the fish species that support them. The Ninespine Stickleback captured and observed in this stream were present only near the Patch Lake inflow, approximately 230 meters in downstream direction from

				Crossing #2. Thus, the population of Ninespine Stickleback that may support CRA fisheries in Patch Lake will be unaffected by the crossing. By following DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat, TMAC will ensure that effects to stream sections downstream of the crossing location will not be affected by erosion or sedimentation during the construction and decommissioning of the culvert crossing.
Issue # 23 Sampling information for Crossing #1				
K23	Appendix 5	App. 5, Part 7, P. 4-3: Crossing #1 was determined to not support fish during 2010 fisheries assessments. The detailed sampling information was not located.	Please indicate the details (e.g. sampling effort and timing) of the sampling surveys conducted to determine the non-fish bearing status at Crossing #1. Fish habitat information and photo documentation of the area would also be useful.	Fish community sampling was conducted at Crossing #1 on August 24, 2010 and fish habitat was assessed on September 5-10, 2010 and again June 29, 2011. Fish Community sampling consisted of electrofishing the length of wetted stream (893 s) and minnow trapping the upstream ponds (4 traps set overnight). No fish were captured and this information is summarized on page 4-3 of Appendix 5. In addition, the 2010 baseline report (Rescan 2011) indicates that Crossing #1 (labelled stream N22) has marginal to no fisheries value when considering spawning, rearing and overwintering

				capacity (Table 3.1-4a in 2010 report). All ponds were less than 1.2 m depth and likely to freeze overwinter. The stream was found to be quite acidic (pH 4.89) and may potentially inhibit fish use. A Sensitive Habitat Index Mapping (SHIM) survey was completed between September 5-10, 2010, which indicated the stream is more characteristic of a wetland with ephemeral connection to Patch Lake (downstream) and the upstream ponds (Figure 3.1-19c in 2010). A photograph of the area is provided below (Plate 1).
Issue # 24 Location of Wolverine Lake Outflows				
K24	Appendix 5	App. 5, Part 7, P. 4-2: It is noted that Wolverine Lake has two outflows that connect this lake to Patch Lake; one flows to the north (Crossing #2) and one to the east. The eastern outflow was not located on the map (Figure 3.3-1, P.3-14), and it appears that is may be in or near the proposed south portal footprint.	Please indicate the location of the eastern outflow on a figure, and assess if and how it will be impacted by the project.	The eastern outflow of Wolverine Lake that connects this lake to Patch Lake is now presented in revised Figure 1.1-2 appended below. (For consistency, this stream has also been added to Figures 2.5-2, 2.5-3, 2.5-4, and 2.5-7, 3.,3-1).The eastern outflow of Wolverine Lake is not within the footprint of the Madrid South development and therefore will not be impacted.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 25 Freshwater requirements				
K25		TMAC has estimated 295 m3/day of freshwater will be required throughout the life of the project. This estimate relies on estimated inflows from groundwater and other sources. Predictions and models are inherently subject to some degree of uncertainty. TMAC has not provided any site specific data on groundwater quality and quantity and the implications of this uncertainty have not been addressed by TMAC in their supporting documentation. Given the uncertainty of water inputs and the resulting water balance, the predicted freshwater requirement may also be subject to some uncertainty. We are therefore concerned TMACs predicted freshwater requirements are ~98% of the Nunavut Water Board threshold of 300 m3/day for a Type A licence. TMAC may be required to alter their application from a Type B to Type A water licence should the actual required freshwater volume exceed 300 m3/day and the existing uncertainty of their estimates, and absence of an estimate of variance in water requirements means there is some potential that their water needs will exceed the Type A threshold.	That TMAC provide further information as per enclosed Information Request.	See response to KitIA-7 below re: Threshold Water Use

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # 26 Insufficient data				
K26		TMAC has not provided sufficient data to adequately assess several key project areas. Examples include: • No site specific data or analysis of groundwater flow, groundwater chemistry or permafrost. Instead, TMAC assumes that conditions are similar to those at the Doris site. • Water chemistry has not been modelled in the pollution control ponds (PCPs) and so one cannot determine how much effluent may be discharged to the tundra of how much may have to be placed in the Tailings Area. • Details of management plans pertaining to the Madrid project have not been completed at this time, • The method and exact locations at which PCP effluent will be applied to the tundra have not been provided and so one cannot assess the risk to surface water, • A detailed water balance is not included. TMAC has only provided a "summary"	That TMAC provide further information as per enclosed Information Request.	See responses to KitIA-5 and KitIA-6 below.

		in their supporting documentation.		
Issue # 27 The pollution control ponds (PCPs) and application of effluent to the tundra				
K27		TMAC has not provided an estimate of water quality within the separate PCPs. This makes it impossible to determine if held water will be compliant with effluent discharge criteria for tundra application or require transport to the Doris North TIA. Further to this, no effluent quality discharge criteria has been provided for salinity in the form of TDS or chloride. Groundwater inflows, particularly at Madrid South, will be a significant contribution to the water balance and salinity is assumed to be similar to that of seawater. Application of saline water to the tundra may degrade the permafrost and subsequent flow to surface water may impair aquatic life in the near shore. TMAC has not provided a monitoring plan to track water quality down gradient from where PCP effluent will be applied to the tundra to confirm no impact to aquatic life. Finally, there is no explanation of how the effluent will be applied to	That TMAC provide further information as per enclosed Information Request.	See responses to KitIA-14, KitIA-15 and KitIA-16 below.

		the tundra. Description of the application method is important to ensure that preferential flow paths or scouring of the tundra will not occur.		
Issue # 28 Nunavut Impact Review Board Screening				
K28		TMAC has undertaken an internal environmental impact screening assessment but has asked the NIRB for exemption from a formal screening assessment. Our review has identified substantial uncertainty with the project and the potential to elevate the application to a Type A licence.	We advise the Kitikmeot Inuit Association to withhold approval of the water licence until the NIRB provides a decision regarding the need for formal screening.	See response to KitIA-7 below re: Threshold Water Use
KIA Consultant Information Request April 23, 2015				
Use of Doris North Mill to Process Bulk Samples				
KitIA-1	Section 4.0, Page 4-2	Approximately 800 tonnes of ore/day will be generated from each of Madrid South and Madrid North which will be milled and processed at Doris North. The TIA is not yet completed and the Supplemental Report states that "There are plans to construct a dam at the south end of Tail Lake (South Dam) to increase the capacity of the impoundment area to meet the needs for the Doris North Project. Once fully constructed, the TIA will have the capacity to process the ore from the currently permitted Doris North	Please discuss how the increased milling needs will affect the required water for the Doris North Mill operating under the Hope Bay Phase 1 Water License. Please confirm that the TIA will be expanded to meet the needs of the currently permitted Doris North Project mine and process the bulk sample ore from the Madrid Advanced Exploration Program.	There are no increased milling needs associated with processing Madrid ore at Doris. Processing of Doris and Madrid ores will occur consecutively and not concurrently ie: the bulk sample ore will be processed discretely. Water to operate the Doris North mill is approved under the Type A Water Licence 2AM-DOH1323; milling the Madrid ore will not require more water than what is currently permitted under that licence. Expansion of the Doris North TIA is not required to accommodate

		Project mine and process the bulk sample ore from the Madrid Advanced Exploration Program."		processing the Madrid test sample. A clarification of the revised Madrid bulk sample ore processing campaign and the volume of tailings generated in relation to the capacity of the Doris North TIA, as currently permitted, to accommodate them has been provided in responses to party comments submitted to the NIRB on Aug 21, 2015. Please refer to page 9 of that submission under the topic "Tailings Volume - Placement of Madrid Tailings" for a detailed description.
Pollution Control Pond Capacity				
KitIA-2	Section 4.2.7, 4.3.7. Appendix 4-A, Appendix 8A Section 4.1.1 and 4.1.2 and 5.2	The pollution control pond (PCP) at Madrid North is designed to capture flow from the overall drainage area plus 25% of the annual snow coverage and 100-year 24 hour storm event. This is collectively a 15,100 m3 capacity. We are concerned that the pond has not been built to accommodate 100% of the annual snow coverage in conjunction with other water inputs. This may result in insufficient capacity should a large storm event occur during freshet. This is despite some removal of water for use in the brine mixing facility, the 50 m3 holding tank, etc. A similar design is used for the primary and	TMAC should provide rationale why the pond is build [sic] to handle 25% of the annual snow coverage rather than 100%. This rationale should be accompanied with a discussion of the Doris North TIA treatment capacity.	The Pollution Control Ponds are designed to retain 25% snow-water equivalent, between October and May (i.e. the winter season), 100% of the precipitation, between May and October (i.e. the summer season), and 100% of a 1:100 year 24 hour storm event. The sum of these precipitation events were applied over the watershed areas which drains towards the Pollution Control Pond. This is the same design criteria which has been consistently used throughout the Doris North Project.

		secondary PCPs at Madrid South. We understand that water is transported from the PCP to the TIA when >10% capacity is reached. However, it is unclear from Appendix A Table 1 if all sources of contact water and other inputs are accounted for in the contact water volumes reporting to the PCP.		Water from the TIA will be discharged in accordance with the Water licence requirements. No water treatment is planned.
Holding capacity design for 25% annual snow coverage				
KitIA-3	Section 4.2.10.3	TMAC indicates that a double-walled fuel storage tank at each location will be placed into a lined containment facility and designed to accommodate 110% of the tank volumes plus 10% of the fuel transport truck a 1 in 100 year 24 hour storm event and 25% of the annual snow coverage. TMAC has designed the holding capacity for 25% of the annual snow coverage rather than 100% similar to the PCPs.	See KitIA-2. TMAC should provide rationale why the pond is build [sic] to handle 25% of the annual snow coverage rather than 100%.	The Pollution Control Ponds (and the Fuel Storage Areas) are designed to retain 25% snow-water equivalent, between October and May (i.e. the winter season), 100% of the precipitation, between May and October (i.e. the summer season), and 100% of a 1:100 year 24 hour storm event. The sum of these precipitation events were applied over the watershed areas which drains towards these facilities. This is the same design criteria which have been consistently used throughout the Doris North Project.
Documentation of Diamond Drilling Chemicals				
KitIA-4	Section 4.4.1	In 2011, drilling at the Boston site released large quantities of brine to the environment that were only detected by an AANDC inspector. Chemicals used during drilling	Please provide details on monitoring and management of drilling chemicals during operations in all seasons. These details should include a	MSDS are maintained on site for handling and storage of all chemicals used for drilling, and all products are kept in secondary containment at each

		activities include calcium chloride (salt) used to prevent freezing of the water in the hole, Visco which is used as a lubricant in the hole, linseed soap for cleaning of drill string components, and heavy grease to prevent seizure of drill rods to each other. TMAC reports that small quantities of each will be stored with each drill.	spill response plan applicable to exploration drilling activities. These may be included in an update to the Doris North Type A License Spill Contingency Plan as indicated in Table 8.1-1.	drill site as well as at the drill shops and laydown areas. Details of management of drill cuttings/brine is included in the NWB Water Licence Application form section 15 and the SIR at Section 4.4.3. Most brine solution utilized in the drilling process is dewatered and recycled or retained and managed with the drill cuttings. Saline drill cuttings are removed from the drill locations and deposited in a contained location where any surface runoff is captured and managed. A mutli-phase drill inspection protocol from drill set-up to site closure is implemented to ensure all drilling products are managed appropriately and sites are inspected routinely. Close tracking of daily drill water use ensures excess brine solution is not being generated. Updates are planned to the site-wide Spill Contingency Plan that include management of spills associated with surface exploration activities.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Groundwater Chemistry Assumptions and Lack of groundwater data				
KitIA-5	Section 6.3.2, Section 7.3, Section 10.4.3, Appendix 7-A	There is no site-specific Madrid baseline for groundwater quality or quantity. Groundwater on site is stated to be saline with TDS similar to seawater. This has not been confirmed with site specific groundwater samples and is important at the South Madrid Site where a talik is thought to be present (Sec. 10.4.3). The absence of a site-specific baseline prevents accurate estimates of mine water effluent quality and quantity. TMAC states (Sec. 10.4.3.) "The rate of inflow into mine workings is dependent on the location and extent to which bulk sample mining within these zones occurs. Potential effects to the quality of groundwater are introduced by mining within these unfrozen zones." The absence of a baseline does not provide a means to test for changes in the future. The statement that *"Groundwater quality for this area is assumed based on data from Doris and Boston areas. Both areas have saline groundwater at relatively shallow depths in the respective taliks. There is no reason to believe these areas are any different than the Madrid South Bulk Sample.* (App 7-A, Sec 2.3)" does not provide adequate	Please collect groundwater samples to confirm groundwater chemistry in the Madrid area. Alternatively, please provide evidence showing that groundwater data from the Doris and Boston areas are applicable to the salinity and mineralogy of the Madrid site.	Prior groundwater characterization in the Madrid area includes the following: • In 2008, a single groundwater sample was collected from the Madrid North area (Suluk), during geotechnical drilling on Patch Lake, within the talik. TDS was 11,200 mg/L. This concentration is lower than those at Doris and Boston areas, but not indicative of freshwater (which was used for drilling). The sampling was not repeatable and results were considered only an indication of the potential for saline water. The existing (Suluk) data is considered sufficient to indicate the talik water is likely to be saline, and the extensive data sets from Doris and Boston are considered conservative indications of what could be encountered at Patch14. Groundwater samples will be collected during the Madrid Advanced Exploration Project to confirm groundwater chemistry.

		evidence water quality in the Doris and Boston areas are applicable to Madrid South.		
Unsubstantiated Groundwater Inflow Assumptions and Lack of thermal data				
KitIA-6	Section 6.3.2, Section 7.3, Section 10.4.3, Appendix 7b Section 2.1	TMAC has provided estimates of groundwater inflow between 16 to 1073 m3 / day but has chosen to use 500 m3 / day as input into the water balance (Appendix 7-A Table 2). Water management will require an accurate water balance and the ability to manage worst case scenarios. Use of an intermediate value as input into the water license may underestimate the quantity of groundwater requiring management on site (if 500 m3/day is too low) or, alternatively, underestimate the amount of freshwater make up needed (if 500 m3/day is too high), thus challenging the 300 m3/day threshold for a Type B Water Licence . This concern is further highlighted by the lack of site specific permafrost information for Patch 14 and the Wolverine deposits and the likelihood of taliks adjacent to Wolverine Lake (p. 5-2 " It is anticipated that the Madrid South underground activities will intercept groundwater when operating in areas of taliks." This deficiency will make it impossible to assess if project related changes to groundwater flow	Please provide a discussion of the variance in estimated groundwater inflows to the site and implications to the water balance and subsequent requirement for freshwater. This is critical given how close TMAC's estimate of freshwater use is to the NWB Type A threshold of 300 m3/day. Please commit to confirming groundwater quality and quantity at the Madrid South site prior to any further development. AND Please collect thermal data for the Madrid site prior to development activities. This will be used to inform the presence of taliks in the area and assist in modeling groundwater flow regimes.	Groundwater inflow is considered a waste, not a specific component of water use (Section 6.1 and Section 7). Groundwater inflow can be used to supplement drilling water requirements (although it is not required) and could reduce freshwater needs. Freshwater requirements will not increase if groundwater inflows are lower than expected. Available hydraulic testing data indicates that hydraulic conductivity in the area of the bulk sample is generally low. Inflows will be controlled by discrete features within a generally very low hydraulic conductivity bulk rock mass. In such a setting, a groundwater management plan represents the most appropriate course of action, with discrete features managed on an as-needed basis, if they are encountered. This planning provides flexibility to respond to local conditions that cannot be fully characterized prior to mining.

		regimes occur or have been mitigated (10.4.3).		Groundwater quality will be confirmed by samples collected during the Madrid Advanced Exploration Project. Groundwater quantity will also be confirmed at this time. The Madrid South bulk sample stoping area is assumed to be fully within the talik of Patch Lake. The permafrost/talik boundary has been assumed based on extensive thermal data available from the Hope Bay belt.
Type A Threshold Water Use				
KitIA-7	Section 6.1	Water use is estimated to peak at 295 m3/day, which is within 2% of the threshold for a Type A water license as per the NWB. TMAC has estimated daily peak water use very close to the threshold; yearly freshwater use is also provided. The NWB does not use yearly water use as the threshold and so we are concerned TMAC will view the estimated peak freshwater use as a mean value rather than an absolute value. We are further concerned that 295 m3/day will be sufficient to meet TMACs needs. Further to this point, we are concerned with the accuracy of the freshwater use estimate given the absence of groundwater data.	Please provide an estimate of how frequently freshwater use will reach the peak value and how often it will exceed it. We do not see an occasional exceedance as need for a Type A license, but TMAC should discuss implications of exceeding their peak value and the accuracy of their estimate in the absence of groundwater data. Continued exceedances of the 300 m3/day may necessitate a Type A License for Madrid North and South including formal NWB hearings. AND Please confirm the demand for make up water by providing a) the total water use including a discussion of uncertainty b) the	Section 6.1.1 of the SIR clearly states the daily peak industrial water use maximum will be 290m^3/day. An additional 5m^3/day is proposed for domestic use to support the sanitary facilities for the daily work force at Madrid. It is planned that water use will be below these thresholds and within the appropriate water usage allowable for a Type B water licence. Based on historical usage and associated reporting at Hope Bay under existing licences 2AM-DOH1323, 2BB-BOS1217 and 2BE-HOP1222, TMAC has demonstrated a comprehensive understanding of water use

			amount to be made up of contact water or reused water and c) the amount to be made up by freshwater takings.	volumes for any given process, including underground and surface exploration, dust suppression, other minor industrial uses such as fire suppression systems or wash water, and domestic use. In response to new interpretations of "water use", TMAC and its contractors have responded in innovative ways to reduce water use through recirculation of cooling water through closed systems, by recycling compliant effluents to reduce freshwater usage, and have demonstrated on-going compliance with existing water volume limits established under other site licences. Water use volumes for the Madrid Advanced Exploration Program will be within the quantities authorized by the Type B bulk sample licence. Water use control procedures will include daily measurements of water use and early warning notifications to notify users of approaches to the threshold. Water use practises will be curtailed as necessary to ensure water use thresholds are not exceeded.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Fate of Drill Brines				
KitIA-8	Section 6.4.3 [sic]	TMAC states "Excess brine generated during the drilling process will be removed from the drill site and deposited onto waste rock piles, into Pollution Control Ponds, or discharged to the TIA." This does not outline the conditions under which each fate would be used.	Please provide details on the decision rules to be used to determine the three alternatives for disposal of drill brines.	See response to KitIA-4 above re: Documentation of Diamond Drilling Chemicals. As described above, exploration water use (and salt use) is closely tracked to prevent generation of excess brine that cannot be recycled through the drilling process. Most brine is retained in the drill cuttings and the selection for disposition of saline cuttings will be made based on proximity of drilling activity to any of the various components of the water management system, with consideration given to seasonal accessibility of either the waste rock piles, the PCPs, or the TIA. There will also be consideration to consolidate smaller quantities as deemed necessary to reduce haulage traffic to the TIA.
Fate of Non-compliant Quarry Water				
KitIA-9	Section 7.2	TMAC states that non-compliant quarry water would be sent to the Doris North TIA for treatment or reused through the PCP. We are concerned addition of non-compliant water contaminated by an unknown source (pending investigation as outlined in Section 7.2) may overwhelm the dilution capacity of the PCP requiring shipment of a greater quantity of water to the Doris North TIA for	Please provide details on the fate of drill brines under differing conditions. Specifically we request details that would precede TMACs three stated potential fates for drill brines - the waste rock piles, PCPs and the TIA and how decisions would be influenced by laboratory response times. AND Please provide a discussion of	Fate of drill brines is discussed in the comment above. Quarry water quality is directly related to the geochemistry of the quarry rock. Geochemistry of the quarries is well understood and is predominately non-acid generating. In addition, TMAC continually strives to reduce release of nutrients or contaminants in the effluents

		treatment. Similarly, what is the response time for laboratory analysis needed to make a decision as to treat the quarry water at the TIA or add it to the PCP.	how much truck traffic would be required to transport effluent from the PCPs to the TIA.	involved with their operations, including best management practices for explosives handling and use in the quarries. Spills are managed in accordance with the Spill Contingency Plan and not expected to contribute to contamination of quarry water. Consolidation of any non-compliant water (in PCPs) allows an option for re-use in industrial processes where appropriate, and centralization of effluents for more efficient haulage reduces road traffic. The ultimate disposition of any non-compliant discharge is the TIA. Table 4 in Appendix B provides the peak daily truck traffic per day as calculated against varying hydrologic conditions.
Fate of excess inflowing groundwater				
KitIA-10	Section 7.3	TMAC states excess ground water will be transported to the PCP where it will presumably be spread to the tundra as per Section 7.2. Application of saline contact water to the tundra may increase the potential for permafrost degradation, alter vegetation communities and create channelized flows to adjacent surface waters.	Please provide decision rules and criteria for disposal of PCP water to the tundra or the TIA that will ensure protection of the tundra.	The NWB sets out sampling requirements and specific water quality criteria for facility discharges. A requirement of any tundra discharge is that it meets the criteria set out in the Licence, appropriate advance notification is provided to the Inspector prior to discharges, and erosion does not occur at tundra discharge points. Monitoring of discharge points for erosion is part of

				routine water management. Though chloride is not included in any facility discharge criteria in other site licences, Table 7.4-1 of the SIR proposed chloride concentrations for consideration by the NWB, based on limits contained in the 2AM-DOH1323 licence for Doris Creek water quality, and referencing the BC Ambient Water Quality Guidelines for protection of aquatic life.
Updated Plans				
KitIA-11	Section 8.1, Table 8.1-1	We note that several management plans currently in implemented [sic] under the Doris North Type A license will be updated to accommodate activities associated with Madrid North and South. Specific examples of updates include 1) an Updated Wildlife Monitoring and Management Plan to accommodate increased truck traffic between the two project footprints, 2) Updates to the Water Management Plan to accommodate treatment of non-compliant water from the Madrid PCPs and quarries, 3) Updated Spill Contingency Plan as per KIA-4, etc.	We request an additional review period prior to "60 days prior to the commencement of construction" or after the next annual plan update to assess the adequacy of TMACs changes to the varied plans to accommodate activities at Madrid North and South.	Updated management plans will be submitted in accordance with the Terms and Conditions of the Licence once issued.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Outdated Reclaim Model				
KitIA-12	Section 9.2	Costs for closure and reclamation have been estimated using a NWB approved Microsoft Excel spreadsheet consistent with the principles of the RECLAIM 6.1 model. We note that this is not the most recent version of RECLAIM and may provide a more or less conservative estimate than what is currently accepted.	Please provide a discussion of how assumptions have changed between RECLAIM 6.1 and 7.0. Costs should be adjusted to reflect any more conservative assumptions present in version 7.0 that were not incorporated into the Microsoft Excel spreadsheet.	SRK has reviewed the Closure Cost Estimate and can confirm that it is consistent with RECLAIM version 7.0.
Inconsistencies in water balances				
KitIA-13	Section 6.1.2, Section 6.1.3, Section 6.3.2, Table 7.1-1, Appendix 7b Section 2.2	Groundwater is not expected to contribute to the Madrid North water budget (6.1.1) as the excavation is in permafrost (6.3.2). TMAC then states that contact water will be reused for makeup water. Alternatively Madrid South underground activities may intercept groundwater (6.3.2) but is not mentioned in the water balance (6.1.2). TMAC states that the remaining water requirements will be made up by the same sources as from Madrid North. The "Water Balance Summary" in Appendix 7b section 2.2 does not provide sufficient detail to assess if the water requirements will be sufficiently addressed without violating the 300 m3 / day threshold for a Type A license.	TMAC should explicitly state how inflowing groundwater will contribute to the water balance in Madrid South beyond outlining differences in wastewater generation (Table 7.1-1).	Groundwater inflow is considered a waste, not a specific component of water use (Section 6.1 and Section 7). Groundwater inflow can be used to supplement drilling water requirements (although it is not required) and could reduce freshwater needs. Freshwater requirements will not increase if groundwater inflows are lower than expected.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Application of Contact Water to Tundra				
KitIA-14	Section 7.4, Table 7.4-1, Appendix 7-A Table 1, Appendix 8-A	Table 7.4-1 outlines effluent quality limits for discharge to the tundra based on MMER and the Doris Mining and Milling Licence 2AM-DOH1323 for discharges to the tundra. We note that these limits do not include salinity which may be of concern due to unsubstantiated groundwater inflow predictions. Further to this, MMER effluent quality criteria are designed to be protective of aquatic life when discharged through an engineered structure to surface water where dilution will occur. TMAC has not provided sufficient detail to provide assurance aquatic life will not be impacted through PCP discharges from the Madrid project. Application of effluent to tundra may create preferential flow paths resulting in degradation of the tundra and a reduction in terrestrial based mitigation prior to contact water reaching the productive nearshore area of surface waters 31 m away.	Please provide: 1) Effluent discharge quality limits for salinity as part of Table 7.4-1. Specifically limits for TDS and chloride as they are shown to be elevated in Appendix 7-A Table 1. 2) More information regarding how and where effluent will be applied to the tundra. For example, will it be through an engineered diffuser structure to prevent creation of preferential flow paths? 3) Establish nearshore monitoring stations to ensure application of compliant PCP effluent to the tundra is protective of aquatic life. These monitoring stations should take into account the application method and natural flow regimes of the area. Specific stations should be established to capture the influence of the Primary Madrid North PCP and the Primary and Secondary PCPs at Madrid South. 4) Outline the monitoring program to track any changes to permafrost resulting from application of contact water to the tundra. Insufficient detail is provided for monitoring in Appendix 8-A Sections 6 and 7.	See response above at KitIA-10. Table 7.4-1 in the SIR proposed for consideration by the NWB, tundra discharge criteria for chloride. Similar to requirements under other site licences, it is expected that tundra discharge locations for Madrid will be established "*where direct flow into a water body is not possible and no additional impacts are created*" and land-based discharges "*performed in a manner that prevents erosion at the point of discharge and downstream*". Visual monitoring of discharge points is conducted during all discharge activities to ensure prevention of pooling water, creation of any preferential flow paths, and to detect any areas of permafrost subsidence. Diffusers may be employed if observations indicate discharge is creating tundra impacts. Updates to the Water Management Plan will ensure mitigative measures for tundra discharges from facilities are described. Given the above, TMAC is not proposing to monitor any adjacent water bodies; however

				it is expected that the NWB will outline an adequate SNP when administering the new Type B water licence.
Pollution Control Pond Water Quality Predictions				
KitIA-15	Appendix 7-B	TMAC has not provided water quality predictions for the PCPs. This information is necessary to assess the volume that will be compliant for discharge to the tundra and non-compliant that will be shipped to the TIA for treatment.	Please provide monthly modeled water quality for each of the three PCPs over the duration of project life.	Modelling of water quality in the PCPs over the duration of the project life will not be performed. Water quality in the ponds will be monitored in accordance with the requirements of the water licence, and compliant water will be discharged to tundra in the manner specified above in KitIA-14. Non-compliant water will be disposed in the TIA.
Pollution Control Pond Sampling Frequency				
KitIA-16	Section 8.1, Table 8.1-2	We note that TMAC has proposed monthly water quality sampling for the pollution control ponds during discharge. This may be too infrequent to detect changes in PCP water quality or to discontinue tundra application prior to excessive non-compliant discharge to the receiving environment.	Please increase the sampling frequency of PCP water quality during discharge to once weekly. Results of PCP water quality should be compared with nearshore water quality monitoring results as recommended in KIA-14. TMAC should also provide PCP water quality trigger values that would cease discharge to the tundra as well as a trigger to cease based on channelization or development of preferential flow paths in the tundra to surface water.	Water quality sampling in the PCPs is intended to determine compliance with licence criteria. In general, water quality compliance is verified prior to discharge and the pond is discharged in a single event. Real time parameter monitoring will be considered for those constituents of concern that can be measured directly, to ensure discharge is compliant with the licence criteria. Monthly monitoring of water quality in the PCPs is intended to evaluate the effectiveness of programs to reduce explosives residuals or generation of excess brine.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Exemption from NIRB Screening				
KitIA-17	Section 10, Memo Directed to NIRB	TMAC has indicated in their memo to the NIRB and in Section 10 of the Supporting Document that the project is not predicted to have to have any long term adverse impacts to the environment. For this reason and "pursuant to NLCA Schedule 12-1(5)...Section 13.7.3" are exempt from public hearings.	HESL's review on behalf of the KitIA has identified significant uncertainty in the predictions associated with the Madrid Project. We advise that the KitIA withhold their approval of the Type B Water License until the NIRB has issued their decision regarding screening. This uncertainty may also be sufficient to elevate TMACs application from a Type B to a Type A water license as per the NWBs license threshold criteria.	As described above in KitIA-7, water use volumes for the Madrid Advanced Exploration Program will be within the quantities authorized by the Type B bulk sample licence. In response to new interpretations of "water use", TMAC and its contractors have responded in innovative ways to reduce water use through recirculation of cooling water through closed systems, by recycling compliant effluents to reduce freshwater usage, and have demonstrated on-going compliance with existing water volume limits established under other site licences. The NWB has granted similar 10 year, bulk sample water licences to other projects with water usage expectations in line with the amount proposed for the Madrid Advanced Exploration Program. TMAC will meet the threshold criteria for water volume usage, as proposed in the Application.

Issue K11 General Lack of Information on Baseline Results within Madrid Advanced Exploration Area

Response:

Six terrestrial fauna or bird VECs were identified during the Doris North Project EIS consultation process (caribou, wolverine, grizzly bear, upland breeding birds, waterfowl and raptors). Baseline and monitoring studies for these wildlife species were conducted between 2009 and 2014 within a wildlife study area (Figure 1) encompassing the geographical area of the Madrid Advanced Exploration Program, and therefore they are considered appropriate in identifying the effects for this application for the Madrid Advance Exploration Program.

Baseline and monitoring studies for wildlife species were conducted between 2009 and 2014 within a wildlife study area encompassing the Hope Bay Belt Region. Species listed on Schedule 1 of the SARA (2002) which have been observed within the study area include; Dolphin Union caribou, peregrine falcon and short-eared owl. However, all three of these species are considered Special Concern and as such do not have federally identified critical habitat as this is only identified for Threatened and Endangered species. However, using the definition of critical habitat to mean “an identified breeding site, nursery area or feeding ground” (http://www.dfo-mpo.gc.ca/species-especes/act-loi/habitat-info-eng.htm) then the key habitat use that has been observed within Type B Water Licence Application boundary for each VEC includes:

1. Caribou (Beverly herd) – foraging habitat;
2. Grizzly bear – foraging habitat;
3. Wolverine – denning habitat;
4. Upland birds – nesting and foraging habitat;
5. Waterbirds – nesting and foraging habitat;
6. Raptors – nesting and foraging habitat including peregrine falcons (nesting and foraging) and short-eared owls (foraging).

Mammal observations have primarily come from the remote camera program while bird observations are from point counts and prism plots for upland birds and aerial surveys for raptors and waterbirds as well as incidental observations for all species (Figure 1).

Large mammals such as caribou and grizzly bear forage in vast ranges on the tundra. Caribou typically feed in areas with a high abundance of cottongrass, flower buds, green sedge leaves, and lichen. This vegetation is primarily found in Heath Tundra, Lichen Veneer, Tussock/Hummock, Low Shrub areas, and Wetland Sedge Meadow vegetation classifications (Figure 2). Grizzly bear, in addition to their carnivorous diet, forage on a variety of foods from various habitats including crowberry, blueberry, sedge, riparian shrub which are typically found in Tall Shrub, Low Shrub, Heath Tundra, Heath/Bedrock, Heath/Boulder Areas. Foraging habitats for caribou and grizzly bear are not specific to the proposed Madrid Advanced Exploration Type B Water Licence Application boundary and the larger regional Hope Bay Belt area and are generally found in abundance on the tundra. For this reason, the effect of the proposed Madrid Project to caribou and grizzly bear foraging habitat is minimal.

Wolverines also have large ranges on the tundra. Denning habitat is limiting for wolverine, thus denning is considered as important habitat for this species. Wolverines typically den in areas with rocky outcrops or in boulder fields, rock overhangs, or large cracks in rocks. These features are associated with Bedrock and Boulder Associations, and Heath/Bedrock, Heath/Boulder

vegetation associations. Denning habitat is not unique within the Madrid Advanced Exploration Type B Water Licence Application boundary and surrounding area. In addition, while wolverines do occur within the area, they are low in abundance. Only one wolverine den has been observed during wildlife studies conducted between 2009 and 2014 for the Doris North Project within the Hope Bay Belt region, located near Roberts Lake (Figure 1) north of Doris Camp. Similarly, wolf dens were scarce on the tundra within the Hope Bay Belt region. The closest wolf den was located approximately 3 km from the proposed northern infrastructure for the Advanced Exploration Project (but outside the Type B Water Licence Application boundary) and west of Windy Lake (Figure 1). Thus, the effect of the proposed Madrid Advanced Exploration Project on denning habitat is anticipated to be negligible.

Eskers, which are known to be important wildlife features, used for travel and denning by mammals were also identified in the wildlife study area but none were observed in the Madrid Advanced Exploration Type B Water Licence Application boundary (Figure 2). These features are scarce within the wildlife study area, and occur at a distance greater than 4 km from Project infrastructure (Figure 2).

Bird observations have primarily been recorded through aerial surveys for raptors and waterbirds, and PRISM Plot and Point Count surveys for upland breeding birds, through the monitoring programs for the Doris North Project. Raptor nests have been observed along cliffs within the Madrid Advanced Exploration Type B Water Licence Application (Figure 1) during cliff nesting surveys conducted for raptors during monitoring programs for the Doris North Project. There are approximately 5 raptor territories within 1 km of proposed Madrid infrastructure (Figure 1). None of the raptor nests identified within the Type B Water Licence Application boundary directly overlap with the proposed infrastructure, thus no raptor nests will be lost due to habitat removal. Upland bird nests and waterbird broods have also been observed during monitoring activities for the Doris North Project. Upland bird nests and waterbird broods have also been observed during monitoring activities for the Doris North Project. Upland bird nests and potential waterbird nests at the edge of Patch Lake can be assumed to be affected.

Important nesting and foraging habitats for upland breeding birds in the area include a variety of habitats, given the range of species that have been observed nesting during monitoring studies for the Doris North Project. For example, dry upland heath areas, such as the Heath Tundra and Heath/Bedrock ecosystems are typical for horned lark and American golden plover (Figure 2). Most shorebirds nest and forage with wet lowland habitats (e.g., Shallow Water, Wetland (Sedge Meadow); Figure 2). Areas containing shrubs, which can be found in drier and wetter landscape positions, are important nesting and foraging habitat for a variety of species, including both common and hoary redpolls and American tree sparrow. Finally, species like the common Lapland longspur nest and forage in relatively all habitats known to occur within the Madrid Advanced Exploration Type B Water Licence Application area, except barren areas and areas of open water (Figure 2).

Waterbirds primarily nest within and surrounding wetland habitats, which include lakes, ponds, rivers, and wetlands (e.g., bogs and fens). Examples of these habitats include Deep Water, Shallow Water, and Wetland (Sedge Meadow; Figure 2).

Raptors in the arctic exhibit two different nesting strategies. The majority of species, including peregrine falcon, golden eagle, rough-legged hawk, and gyrfalcon, nest on steep cliffs and forage in nearby areas in search of food. Cliffs are represented by the Bedrock Association ecosystem type (Figure 2). Ground-nesting raptors, include the short-eared owl which generally select tundra with pockets of willow for nesting habitat and forage within open habitats

surrounding the nest site where small mammal prey are abundant. Suitable foraging habitat for short-eared owl may be represented by the Low Shrub, Heath Tundra, and Tussock/Hummock ecosystems (Figure 2).

Habitat features for all bird species are not limited to within the Madrid Advanced Exploration Type B Water Licence boundary and are widespread on the tundra. Thus, the effect of habitat removal on upland breeding birds, waterbirds, and raptors for the construction of the Madrid Project are anticipated to be minimal.

Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Figure 1. Wildlife Study Area

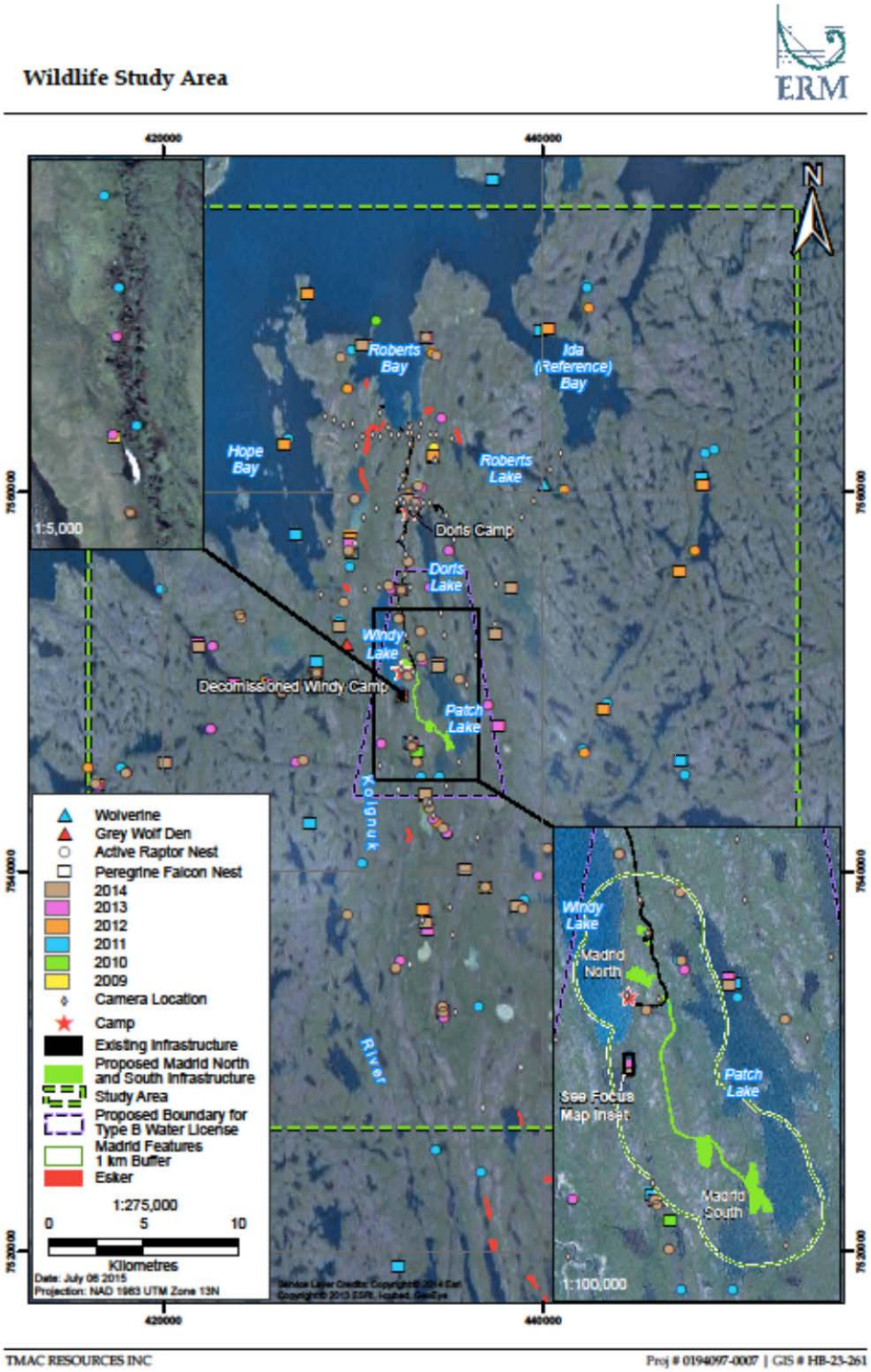
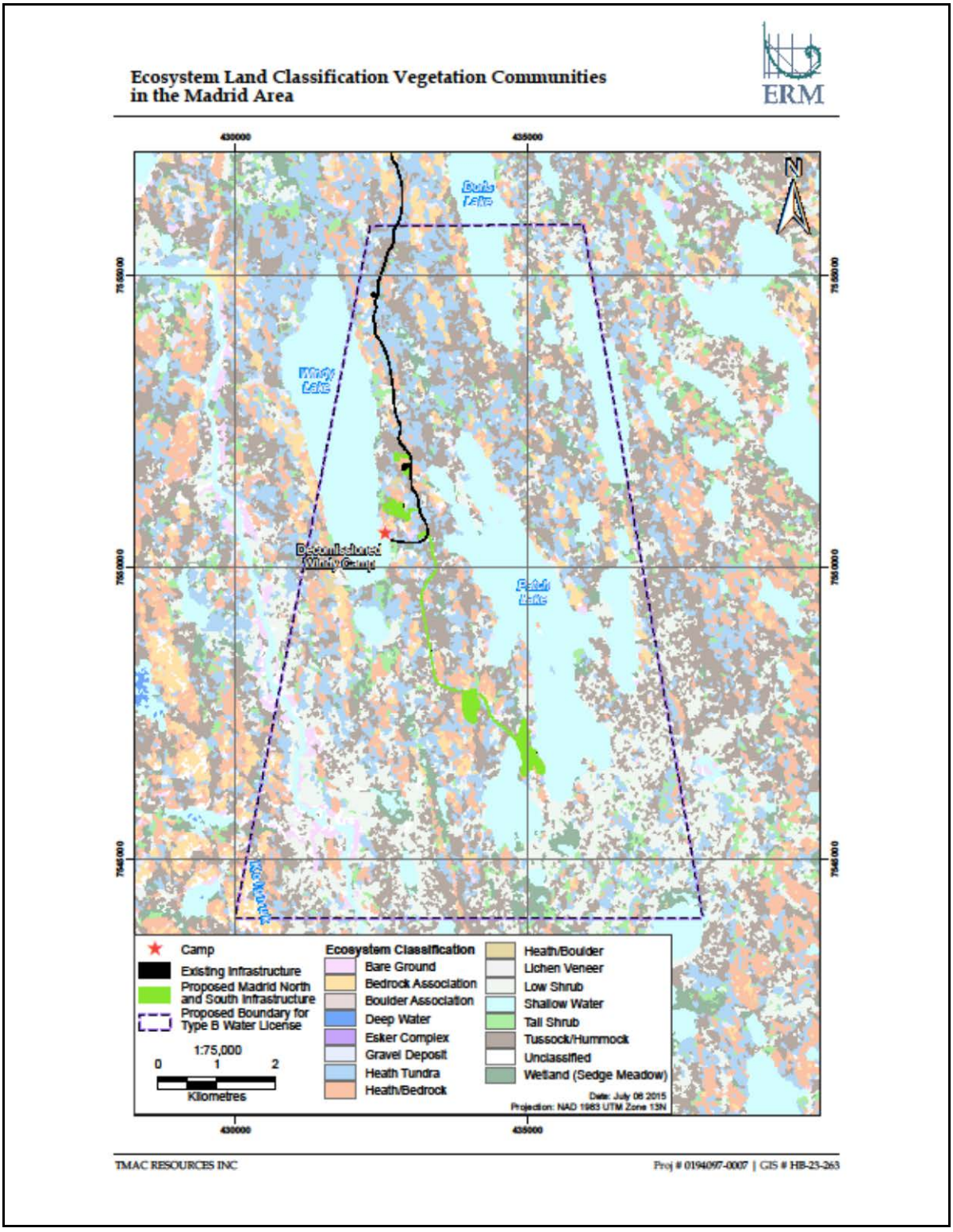


Figure 2. Ecosystem Land Classification Vegetation Communities in the Madrid Area



Issue K17: Cumulative Effects Section Lacking Information

Response:

Cumulative environmental effects are residual effects from a proposed Project (those that are present after mitigation measures have been enacted) that combine with the environmental effects of existing Projects and/or activities to act cumulatively, additively, or synergistically.

The proximity of the Madrid area to the Doris North Project provides the opportunity to take advantage of existing infrastructure that will reduce costs, minimize the footprint and minimize the time required to complete the Madrid Advanced Exploration Program. The permitted infrastructure and facilities at Doris North Project have sufficient capacity to support the proposed Project. Infrastructure associated with the Doris North Project includes port facilities, an airstrip, a camp, waste treatment facilities, milling and processing facilities, tailings impoundment facilities, and existing access roads.

The cumulative effects assessment conducted in the Doris North Project Final EIS (Miramar 2005) included the proposed footprint of the Type B application. Please see Chapter 5 of the Doris North Project Final EIS and supporting document D6 for details of the cumulative effects assessment that was conducted.

The addition of the Madrid Advanced Exploration Program is expected to:

- Add up to an estimated maximum of 48 personnel per bulk sample execution. The Madrid Advanced Exploration Program will utilize available capacity at the existing permanent camp facilities at the Doris North Project and/or the planned camp at Windy Lake permitted under Type “B” Water Licence 2BE-HOP122. Combined, these camps have the capacity to house 360 workers. Activities associated with the Madrid Advanced Exploration Program will be scheduled such that additional camp space will not be required during the construction, operations, or closure stages. Planning for the Madrid Advanced Exploration Program anticipated a peak work force of up to 70 workers if maximum overlap occurred in development of the North and South components of the program and as few as 5 during post-closure. This “peak” number was included in the application to demonstrate that sufficient camp space was already permitted at Hope Bay to house the workers required for Madrid, though it is not anticipated that such a peak will be reached as each bulk sample development will occur sequentially. Use of the existing infrastructure is a mitigation by design and eliminates the need for additional camp facilities.

- Add to the footprint affected (approximately 25 ha of the total 209 ha). Existing infrastructure is in place for water use, solid and hazardous waste management, laydown/storage, processing and tailings management for the Doris North Project; this infrastructure will be used to support the proposed Madrid Advanced Exploration Program. No changes to existing Doris North Project infrastructure are required as a result of the advanced exploration program; however, some of the existing management plans will need to be updated to encompass the addition of the Madrid area. The resultant footprint of the Madrid Exploration Activities is limited to the area in the vicinity of the underground access portals and surface facilities to complete the bulk sampling program efficiently and safely. This represents a mitigation by design to minimize the area affected by the area.

- Expand underground bulk sampling for a short timeframe (1.5 years each). Bulk sample ore will be transported from Madrid North and Madrid South to the Doris North Project mill for

test processing. The Doris North Project mill is an approved but yet to be constructed facility under the Type “A” Water Licence 2AM-DOH1323. It uses a conventional milling process consisting of crushing, grinding, gravity and flotation concentration, cyanide leach of the concentrate, gold recovery, and on-site refining. Once constructed, the mill will have the permitted capacity to process ore from the bulk samples at an average rate of 800 tonnes per day. As described above in response to comment KitIA 1, test ore from Madrid will be processed in volumes within the capacity of the currently permitted Doris North TIA (previously Tail Lake) to accommodate the tailings generated. Tail Lake has been added to Schedule 2 of the Metal Mining Effluent Regulations and is fully permitted for use as a tailings impoundment area. Discharge from the TIA must meet the water quality criteria for the Doris North Project Type “A” Water Licence 2AM DOH1323. Use of existing facilities is a mitigation by design and eliminates the need for additional processing facilities on site.

Due to the mitigation measures that will be applied to the proposed Project, which includes using the existing permitted infrastructure and personnel at the Doris North Project, no residual impacts are expected due to the proposed Project.

As there are no anticipated residual effects, there are no cumulative effects between the Madrid Exploration Program and the Doris North Project.

Issue # K23: Sampling information for Crossing #1

Plate1: Crossing #1 Looking Downstream

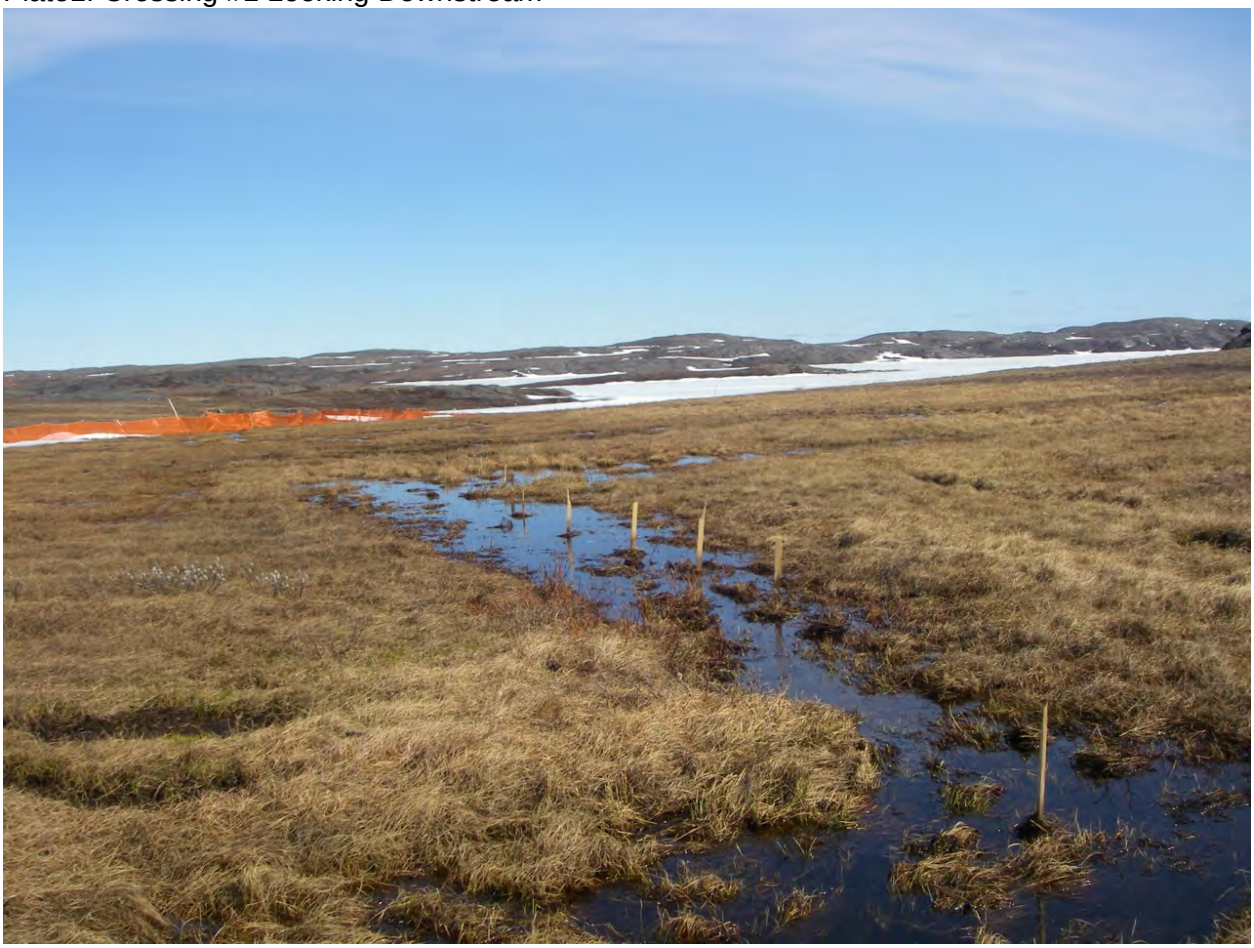


Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

Issue # K24 Location of Wolverine Lake Outflows

Figure 1.1-2 (Revised)

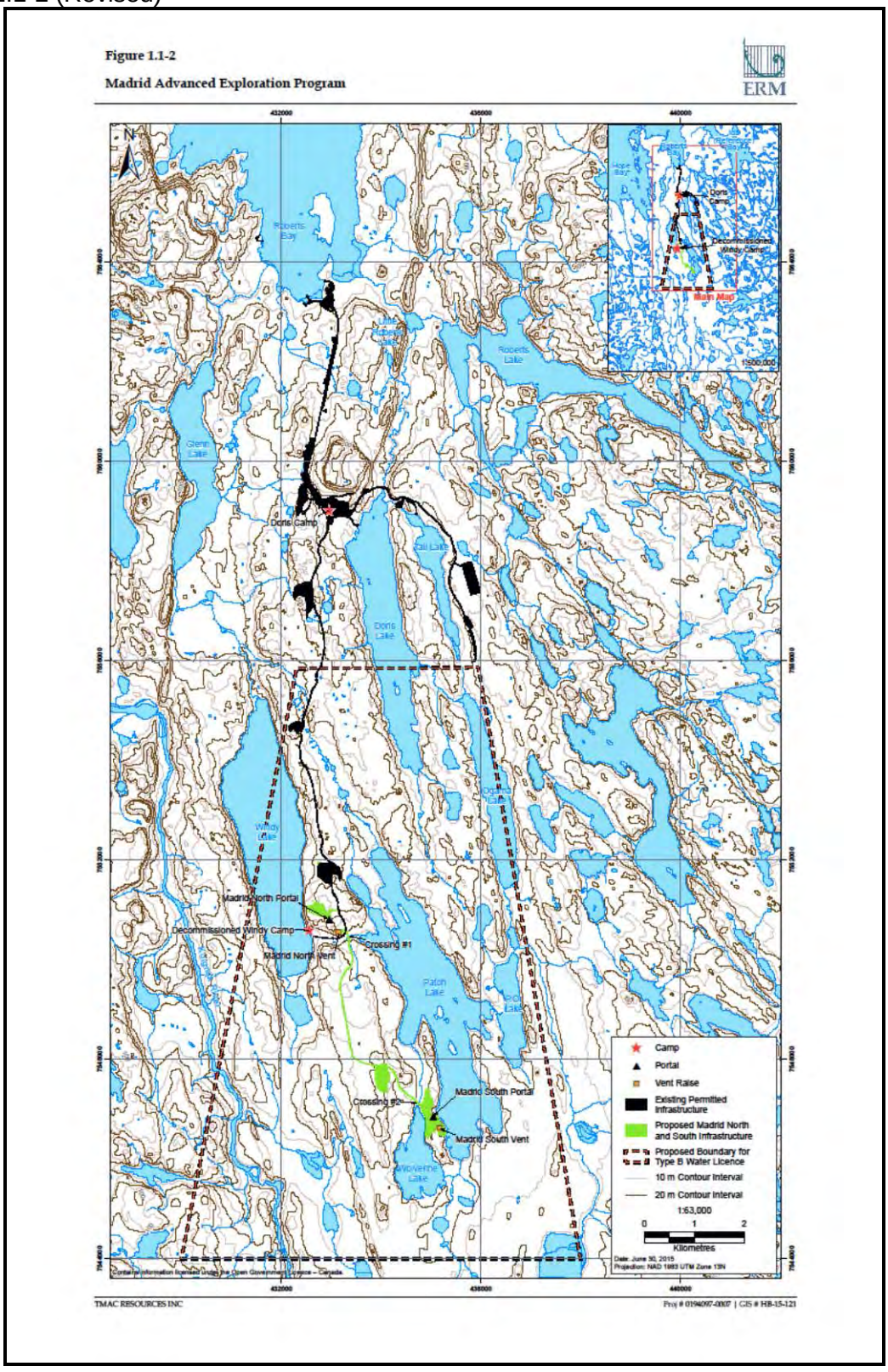


Table 1. TMAC Responses to KIA Comments on 2BB-MAE---- Application

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Response to Comments
February 16, 2016

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February 16, 2016

Ms. Kelli Gillard, Technical Advisor
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU
X0B 0C0

Dear Ms. Gillard:

Re: Section 12.10.2(b) Exception Application – Phase 2 Hope Bay Project, TMAC Response to NIRB Letter of October 23, 2015

TMAC appreciates the opportunity provided by the Nunavut Impact Review Board (NIRB) to respond to the final round of comments regarding the above noted Application that were raised by the Indigenous and Northern Affairs Canada (INAC; formerly Aboriginal Affairs and Northern Development Canada, AANDC), the Government of Nunavut (GN), and Kitikmeot Inuit Association (KIA).

Since receipt of the KIA, INAC and GN comments in October 2015, and as a result of the extension granted by the NIRB, TMAC has had an opportunity to engage with each of these Parties to discuss their submissions in further detail with a goal of addressing outstanding concerns. Attachments A, B and C to this letter provide individual responses to each of the comments that were raised by the Parties to the NIRB. Attachment D provides additional information supporting these responses.

TMAC would like to re-iterate the perspective presented in its letter submitted August 21, 2015 to the NIRB. Bulk sampling is a normal and expected part of mine development in Canada and Nunavut, is commonly permitted and proceeds prior to production mining in Nunavut.

The Madrid Advanced Exploration Program is a separate and distinct activity from the Phase 2 Hope Bay Project proposal (Phase 2). TMAC has proposed the Madrid Advanced Exploration Program to support the ongoing planning of Phase 2. Granting an exception to the Madrid Advanced Exploration Program would not impede the NIRB from carrying out its broader environmental assessment functions to review the eco-systemic and socio-economic impacts of proposed projects, to gauge and define the extent of the regional impacts of a project; and to determine, on the basis of its review, whether project proposals should proceed, and if so, under what terms and conditions.

Proceeding with the Madrid Advanced Exploration Program will not fetter the Minister's ultimate decision-making authority with respect to whether Phase 2 may proceed after

the Phase 2 Part 5 review is complete. There are no components of the Madrid Advanced Exploration Program which are a significant component of Phase 2: none of the bulk sampling advanced exploration activities included in the Madrid Advanced Exploration Program were included within the scope of the Minister's referral of the Phase 2 project to Part 5 review. The Final Scope List for the NIRB's Assessment of the Phase 2 Hope Bay Belt Project (the "Phase 2 Scope") lists some similar-named components located at Madrid/Patch (e.g. power generation, fuel storage, waste rock storage areas). However, it is important for all Parties to understand that the components included in the Phase 2 Scope are of the larger size that would be necessary for a production mine and not the smaller version of these facilities that are included in the Madrid Advanced Exploration Program. For example, the Madrid Advanced Exploration Program requires altogether 270,000 litres of fuel storage, 510,000 tonnes waste rock storage and 3 modular portable (sea can) power generation units; Phase 2 will require capacity for 90 million litres of fuel per year fuel storage between Roberts Bay and mill sites, 200-250 million tonnes of waste rock storage at Madrid, power generation for mills and 4.0 megawatt power plant for the underground mine.

The scope of the Madrid Advanced Exploration Program is such that only a Type B water licence is required in order to proceed. No other federal approvals are required in respect of the Madrid Advanced Exploration Program. The Madrid Advanced Exploration Program is already contemplated under TMAC's land owner agreements with the KIA and Nunavut Tunngavik Inc. (NTI). The Madrid Advanced Exploration Program does not meet the threshold of a "Major Development Project" under the *Nunavut Land Claims Agreement* (NLCA). However, as per the Inuit Impact Benefit Agreement (IIBA) between KIA and TMAC the IIBA is applicable to the Madrid Advanced Exploration Program.

TMAC believes it has provided sufficient information in these, and previous, responses to party comments on the Madrid Advanced Exploration Program application for the NIRB to:

- assess the potential ecosystemic and socio-economic impacts that may be associated with the Madrid Advanced Exploration Program;
- provide recommendations regarding appropriate mitigation measures and other factors to the agencies and organizations responsible for authorizing the activities to proceed (i.e. Nunavut Water Board and KIA); and
- grant the NLCA 12.10.2(b) exception to allow this work pending completion of the Phase 2 NIRB Part 5 Review.

TMAC thanks the NIRB and reviewing Parties for their efforts in the consideration of this request, and looks forward to the NIRB's determination of this matter.

Regards,

M. John Roberts
Vice President, Environmental Affairs

cc. J. Roesch, KIA
J. Neary, INAC
A. Simonfalvy, GN
Encl.

Attachment A:

Response to Kitikmeot Inuit Association Letter of October 3, 2015

Responses received in the KIA's commentary of October 3 can be divided into three broad categories: engineering, water and other management aspects, and biological resources.

Many of the comments provided by the KIA are of a detailed nature more appropriately addressed at the time of water licencing and detailed engineering. TMAC has discussed this with KIA and it is our understanding that the KIA concurs and will respond accordingly following submission of this letter to the NIRB. It is also noted that the KIA has not raised any objections with respect to the NIRB granting an exception to the Madrid Advanced Exploration Project and permitting the project to proceed to the water licencing stage.

1. Engineering

KIA Comment	TMAC Response
K1: If waste rock is to be moved in the future, then 2:1 slope is fine. If the waste rock slopes are to be regraded in the future to 2.5 to 3:1, then that shifts reclamation costs to the future. There is less liability to the KIA if final reclamation slopes were placed during operations.	Acknowledged. TMAC will take this under advisement with its technical advisors and make a determination prior to water licencing.
K2: TMAC's response still does not provide rational or explanation for 25% allowance of snowfall. As such, it remains an uncalibrated assumption only and subject to uncertainty. It may be a reasonable assumption but no explanation has been provided.	TMAC views the assumption of 25% as an appropriate allowance for snowfall. The criterion was determined by professional judgement in consideration of the following: • no active snow removal from the waste rock pile, and • some snow cover loss due to wind and sublimation.
K4: TMAC's explanation talks of other specifications and such but does not provide specific engineering details to actually assess effectiveness. So for example, a liner tied into bedrock would like require some form of key trench or bentonite/sand cutoff to actually limit seepage under the liner, if thawed. As	These specifications are internal SRK documents and will be provided to the NWB and KIA during the consideration of the Type B water licence.

such, they have not provided proposed details other than to trust some other specification.	
K5: TMAC's response assumes that chilled brine drilling will be carried out to assess the overburden and frost affected bedrock depth.	Correct, because of frozen permafrost conditions throughout the Madrid area TMAC plans to use brine drilling techniques to ensure holes do not freeze. This is standard practise in permafrost areas. During its time in Hope Bay, TMAC has continuously worked on minimizing volume and concentration of brine used so as to minimize the risk of tundra damage and to ease the management of drill cuttings. TMAC anticipates continuing this practise on the Hope Bay Belt, including the Madrid area.
K6: TMAC's response does not state expected water depth, duration or extent of ponding expected during "filled" periods. Without this detail, one cannot assess the risk of thawing occurring.	While estimates of bulk water ingress and removal from the mines has been estimated, it is not possible to estimate the temporal variations of the incoming water. Given this uncertainty and to reduce the risk of thawing TMAC intends to maintain these ponds in a low volume condition.
K7: It would be better to just commit to angle of repose and noted bench widths to prevent future grading liability for the KIA.	TMAC has proposed the regraded scheme for the waste rock piles as it is appropriate for the impermeable closure cover for the piles.
K8: The conceptual closure plan of 60 mil HDPE covered with 30 cm of gravel may cause puncture risks, depending upon size if gravel fragments and equipment used to place. A less risky but costlier assumption would be HDPE covered by a heavy weight geotextile covered by sand and gravel layer. The KIA would be assuming risks regarding puncture of this cover layer.	This is an engineering detail that will be resolved during water licence considerations respecting reclamation and closure.

K10: TMAC has committed to providing updated closure cost estimates, but has not specifically committed to addressing the perceived limitations noted to the left in earlier review.	TMAC anticipates that once closure criteria are finalized a new closure cost estimate will be prepared.
K12: KIA finds TMAC's comment acceptable. However, as a note: TMAC states they will provide information on the approximate numbers of people to be housed in each camp when Windy camp is expected to open and the number of vehicles expected to travel along the Doris North to Windy road. This will occur after the evaluation of the project and so avoids the full consideration of this aspect of the project in the screening (see response to K17).	Acknowledged. It is worth noting that although the new Windy Camp is currently permitted under a different water licence TMAC has no current plans to construct the new Windy camp.
K13: This response is acceptable. If used in the future, the flocculants type proposed should be distributed for reviewed to the KIA and other interested parties prior to permitting its use.	Once flocculent products have been selected for use, they will be discussed with KIA and other interested parties.
KitIA-5: Please provide a comparison between the Suluk groundwater sample and groundwater quality from the Doris and Boston sites. This can be included in section 6.3.2 of the SIR and will satisfy our original technical request until further groundwater samples are collected. Additionally, please clarify when and where groundwater samples will be collected and what the samples will be analyzed for to confirm the site groundwater chemistry.	If needed, TMAC will provide this information during development of water licence terms and conditions or in compliance with terms and conditions once a licence is issued by the NWB.

2. Water and other Management

KIA Comment	TMAC Response
KitIA-7: We appreciate that section 6.1.1 of the SIR states that daily peak water use comprising of industrial and domestic needs will total 295 m^3/day. However, TMAC's response does not supplant the need for a detailed water balance. We wish to clarify our initial request – please provide a detailed water balance for the project. This water balance should be accompanied with a discussion of uncertainty demonstrating that 295 m3/day is the upper limit to expected daily freshwater requirements.	TMAC has shown that it can adequately track and manage water use throughout the Hope Bay Belt and will continue to do so in the Madrid Advanced Exploration Program. TMAC believes that the water and load balance model already provided is adequate for the current NIRB screening purposes and commensurate with the existing regulatory threshold.
KitIA-9: TMAC has not provided a discussion on how laboratory response times will influence correct disposal of the fate of drill brines as requested – we reiterate our request to TMAC to provide this discussion. We also note that Table 4 in Appendix B as referenced by TMAC provides an evaluation of truck traffic under varying hydraulic conditions but not with respect to transportation needs under varying water quality conditions in the PCP. This discussion would be facilitated by detailed modeling of water quality conditions in the PCPs as per KitIA-15.	Laboratory analysis of water samples at Hope Bay are typically carried out by a laboratory based in Yellowknife. Rush turnaround times of as little as 24 hours are available from the supplier. Aircraft service is several times per week to and from Yellowknife and therefore samples will be able to be delivered and analysed on short time frames. The sizing of the ponds is adequate to permit retention of water for sufficient time to allow the receipt of analytical results before determining the correct management option for the water.
KitIA-10: The proposed water quality criteria in Table 7.4-1 of the SIR references concentrations applicable for surface water (Doris Creek) discharges. TMAC's proposed chloride concentrations presented in Table 7.4-1 are of concern. We note the proposed concentrations are in line with the BC water quality guidelines for the protection freshwater aquatic life (150 mg/L chronic, 600 mg/L acute) which are not directly applicable to discharges to land. We therefore look to the BC Ministry of the Environment and CCME water quality irrigation	TMAC believes that either of the chloride guideline levels referenced here could be applicable in the circumstances. However, TMAC would like to defer this discussion to water licencing and to work closely with KIA and others to identify the appropriate standard for chloride in tundra discharges. This would encompass a review of existing tundra chloride levels and consideration of the relative

guidelines for the protection of agriculture for guidance. CCME water quality guidelines for irrigation range from 100 mg/L to 710 mg/L for foliar damage and 180 mg/L to 900 mg/L for rootstock damage, and the BC irrigation guideline is set at 100 mg/L. Both guidelines can be applied with greater stringency than those for discharges to surface water. We therefore question TMAC's selection of 150 mg/L for maximum average chloride concentrations and 600 mg/L maximum chloride concentration in a grab sample for discharges to the tundra. Lower precipitation at the project site as compared with most of BC and southern Canada represents a decreased capacity to dilute effluent containing this conservative ion. The relative sensitivity of tundra vegetation compared to agricultural crops is also uncertain and calls for caution. We therefore recommend that the NWB impose a more stringent water quality criterion for discharges to tundra; we recommend a maximum average chloride concentration of 100 mg/L.	sensitivity of tundra plants vis a vis agricultural plants.
K11: A basic map showing locations of areas surveyed and key wildlife features associated with the Madrid Advanced Exploration Program area still not provided. It is not clear whether site specific data have not been collected for all wildlife VECs, or if the area has been surveyed and nothing (site specific) has been found.	A map illustrating wildlife study area and sampling locations was provided to the NIRB in a submission dated Sept 18 and subsequently distributed by NIRB to KIA.
KitIA-15: We reassert our request for modeled monthly PCP results given a) Concerns regarding chloride water quality criteria for discharges to the tundra presented in Table 7.4-1 as outlined in KitIA-10, and b) The final water management plan has not yet been submitted as per TMAC's response to KitIA-14. Modelled estimates will inform the feasibility of the proposed discharge scheme, assist in setting achievable and protective discharge compliance limits in the Water Licence and provide increased	The Water Management Plan considers the Pollution Control Pond and calls for discharge of the water to the tundra if it meets the required water quality objectives. If, however, the contained water does not meet water quality objectives this water must be trucked to the TIA for disposal. Therefore, TMAC did not model the water quality in the Pollution Control Pond, and does not deem it necessary to do so. Knowing the predicted water

assurance that TMAC will not need to seek an amendment to the Water Licence in the future	quality in the Pollution Control Pond does not provide any additional assurance regarding the actual contained water quality, and does not avoid having to test the water prior to discharge or trucking.
KitIA-16: Conductivity is a useful surrogate for total dissolved solids. Given TMAC's indication that they will consider real time parameter monitoring of some water quality constituents, measured changes in conductivity can be used as a first component in their PCP mitigation response framework. Trigger values associated with conductivity will decrease TMAC's response time to changes in PCP water quality necessitating a change in discharge location. For example, should chloride concentrations (from excess brine) increase faster than anticipated in the PCP perhaps due to cryoconcentration, TMAC may need to discontinue discharge to the tundra and commence discharge to the TIA in a timely fashion to avoid noncompliance. We therefore request that the NWB require TMAC to develop trigger values associated with conductivity and other parameters of concern, and use real time monitoring capability with appropriate notifications to alert operators that trigger values are being approached. We further request that TMAC outline a response framework for when the trigger values are reached.	TMAC would prefer to use direct measurements of chloride content with a chloride ion-specific probe. Chloride measurements can thus be used to indicate which management method is appropriate for the water. TMAC does not see the need for trigger levels given the volumes of the ponds and the ability to store water for periods until other analyses are available. Refer to response to KitIA-9, above.

3. Biological Matters

KIA Comment	TMAC Response
K11: TMAC has repeatedly referred to intended updates to management plans and the AEMP, in its responses to technical comments as indicated in our supporting rationale. We therefore propose that the NWB extend the review period to "90 days prior to the commencement of construction" and require it as a licence condition	TMAC commits to having applicable management plans and the Aquatic Effects Monitoring Program in place 90 days prior to the commencement of construction.
K14: We suggest that updates to the Wildlife Mitigation and Monitoring Plan, including monitoring camera locations (and controls), and other mitigation strategies relevant to Madrid should be submitted by TMAC for review and input by the KIA and other interested parties at least 90 days prior to project construction.	The Doris WMMP is currently under review and revision in collaboration with the GN and the KIA, with in person meetings scheduled for February 18 and 19, 2016. The revised Program under the Doris WMMP will be implemented subsequently.
K17: The collective effect of cumulative traffic, mining, and exploration activities from Roberts Bay down to Madrid will push the spatial extent of auditory and visual disturbances southward. Pages 48 - 49, include a short, qualitative cumulative impact assessment that fails to fully consider whether this additional traffic, noise, and visual stimuli expanded to the southern Madrid area will affect wildlife VECs differently than predicted in the original Doris FEIS. The WMMP (2014) for the Doris project is already showing patterns of seasonal attraction and avoidance of the project by wildlife VECs, which would likely continue to the south in association with the Madrid Advanced Exploration Program. As the N-S linear infrastructure will approach ca. 20 linear km for combined projects, the timing of vehicle use and activity at site, and the potential for effects on wildlife movement, avoidance, and attraction should therefore be considered for the corridor as a whole at some stage in the permitting process. This is particularly true as caribou seen in this area during March, April, May and December may	TMAC does not agree with the assertion in this comment that "the Doris project is already showing patterns of seasonal attraction and avoidance have been observed to date." Accordingly, it is incorrect to suggest that such effects will be propagated further south with other infrastructure. TMAC has a Memorandum of Understanding (MOU) with the GN-Department of Environment in place to provide regional information on caribou herds. This measure was put in place due to the difficulty in getting adequate data within the Hope Bay Belt to assess caribou appropriately as caribou density is so low in the area. Data from the MOU work will be made available to reviewing Parties. The infrastructure constructed on the Hope Bay Belt takes into account the needs of wildlife for safe crossings (in accordance with the terms and

belong to the SARA-listed Dolphin and Union herd. Although the Madrid advanced exploration project will add a relatively small road, the 24% increase in the footprint for the Doris North project (from the 57.0 ha predicted in the FEIS to the 72.9 ha measured in 2014), and the southward expansion of activity into the Madrid Advanced Exploration Program area, may benefit from a detailed cumulative effects assessment over the N-S corridor. Such analyses would capture a spatial scale relevant to mammals with large annual ranges, and would help determine whether additional contributions to cumulative effects monitoring and mitigation efforts are required. The KIA would like to know whether there is a step in the regulatory process wherein TMAC will undertake such a holistic, cumulative effects analysis.	conditions of Doris Project Certificate No. 003). Wildlife crossing ramps have been installed at a variety of locations to facilitate crossing. TMAC has implemented traffic rules to further ensure protection of wildlife. These practises will be implemented in the Madrid Advanced Exploration Program as in other areas of the Hope Bay Belt.
K22: It does seem as though this area conveys surface water only and likely does not support fish passage. However, it is noted that no fish sampling seems to have been completed during peak flows when connection between the two lakes is most likely to occur. If TMAC commits to following DFO's Measures to Avoid Harm, particularly construction in the dry, appropriate sediment and erosion control measures, and ensuring that the culvert does not impede fish passage during periods of connecting flows, that no impacts to fish would be expected. To support the assertion that fish passage will not be affected, TMAC may also choose to consider post-construction monitoring of the culvert during the high flow period.	This comment is in reference to Crossing #2, which has been assessed twice, Aug 24, 2010, and June 18, 2011, wherein the latter is proximal to peak flows. Results of fish sampling and stream assessment have already been presented in a Sept 18 submission to the KIA and the NIRB. TMAC will use the best available construction techniques to ensure minimal impacts on water courses.

Attachment B:

TMAC Responses to INAC Letter of October 14, 2015

The INAC letter of October 14, 2015 largely reiterates concerns regarding the exception application (the Application) that have previously been tabled with the NIRB and to which TMAC has provided written responses.

TMAC appreciates that INAC has made itself available to permit an opportunity for both parties to further consider these matters. After discussing these matters with INAC and after careful reflection, TMAC remains of the view that an exception from the Part 5 review of the Phase 2 Hope Bay Project Application currently under process for advanced exploration of the Madrid deposit is procedurally appropriate. As acknowledged by NIRB in its letter of June 3, 2015 and in the *draft NIRB Technical Guide Series – Proponents' Guide* (April 2013), NIRB will consider an application for exception in specified circumstances, including "*Permits, licences or approvals required to allow continued exploration and/or bulk sampling programs while a related project is undergoing review*". As such, the Madrid Advanced Exploration Project is precisely the type of project to which NLCA section 12.10.2 was intended to apply and provides the level of environmental assessment appropriate for a bulk sample program.

TMAC is of the view that the exception process under the NLCA provides sufficient opportunity for NIRB to assess the Madrid Advanced Exploration Program's potential for environmental and socio-economic effects and for the NIRB to stipulate binding conditions on TMAC, the NWB or other regulating agencies as part of an authorization to proceed under an exception.

In its submission of October 14, 2015, INAC broadly stated that,

> "*After reviewing the proponent responses, AANDC continues to be of the opinion that TMAC's proposal provides a limited analysis of data regarding alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures, and thus is not able to make a determination as to whether it is in agreement or disagreement with the conclusions made. AANDC remains of the opinion that the Madrid Advanced Exploration Program proposal specific analyses of the available baseline data are limited*."

While INAC has been provided with multiple opportunities to provide detailed comments regarding the information presented, they have not provided any specific requests for further information other than the general statement that the data are "limited". TMAC is of the view it has provided a level of analysis of data regarding alternatives assessments, potential environmental impacts, mitigation measures, significance of impacts, or adequate monitoring measures at a level that is appropriate for a bulk sample application. It is noted that should the NIRB consider the Madrid Bulk Sample Application appropriate for exception, INAC will have the opportunity to undertake further detailed technical review at the NWB Type B water licencing stage.

TMAC has consistently stated that the Application is the appropriate mechanism to consider the potential effects from its shared use of infrastructure approved and/or in place at the Hope Bay Project site. It is TMAC's understanding that INAC now shares this view as was stated in comments provided by INAC to the Nunavut Water Board (NWB) in a letter dated February 3, 2016 as part of the ongoing Doris North Project Certificate and Type A Water Licence amendment application, which included a statement that, *"Concerns raised by the Department, regarding the cumulative effects of the Madrid Advanced Exploration Program to the Doris North Gold Mine, are being addressed through the Proponent's s. 12.10.2(b) NLCA exception application and type B water licence application…… This Information Request is considered to be resolved, recognizing that the Madrid Advanced Exploration is not included in the Proponent's application to amend its Doris North Gold Mine NIRB project certificate and type A NWB water licence."*

INAC requested clarity regarding TMAC's intended disposal of the small amounts of tailings that will be generated during the Madrid Advanced Exploration Program. As discussed, it is TMAC's expectation that the existing Tailings Impoundment Area (TIA) would be used to dispose of the Madrid tailings, and that no amendment to the Project Certificate or Type A Water Licence would be necessary to proceed with such disposal (provided, of course, that such use is within the overall permitted capacity of the TIA). TMAC suggests that should the NIRB grant the requested exception, the NIRB could include a term and condition that confirms that TMAC is permitted to deposit tailings generated during testing of bulk sample materials into the TIA, provided the overall permitted capacity of the TIA is not exceeded.

Further details regarding TMAC's perspective are provided below.

A determination of whether Parties agree/disagree with the conclusions in the 12.10.2(b) application package regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination

1. Use of Shared Infrastructure – Doris North Project

The use of adjacent facilities is logical, economical and environmentally responsible and is normal in mining projects. For clarity, no expansion of the existing Doris infrastructure is required to proceed with the Madrid Advanced Exploration Program. Having said that, however, TMAC is prepared to commit to not executing the Madrid Advanced Exploration Program until such time that the Doris Amendment is in place.

Neither the environmental assessment of Phase 2 nor the Doris Amendment Application is compromised if the Madrid Advanced Exploration Program is permitted to proceed. The potential impacts of the expanded Doris infrastructure contemplated in the Amendment Application will be fully considered within that regulatory process. Since the use of the Doris facilities will not be in excess of their approved use levels due to the Madrid Advanced Exploration Program, there are no additional impacts to be considered in the Doris Amendment process. TMAC understands that this perspective was accepted by all parties that participated at the NIRB and NWB technical meetings for the Doris Amendment Application held on January 25-28, 2016 in Cambridge Bay.

Related correspondence was provided by INAC to the NWB on February 3, 2016 confirming this understanding.

In the preparation of the applications for both the Madrid Advanced Exploration Program and the Doris Amendment, TMAC used an established environmental assessment methodology whereby cumulative effects are evaluated if residual effects are identified following the assessment of project effects and consideration of appropriate mitigation measures. In both the Doris and Madrid assessments, no residual effects were identified and accordingly, no cumulative effects assessment was indicated. A third cumulative effects assessment with respect to Madrid (commercial mining) and other projects on the Hope Bay Belt will be included in the submission of the Phase 2 environmental impact statement. Applying the same approach to effects assessment, any cumulative effects that may arise will be identified and assessed during the Phase 2 review.

TMAC wishes to reiterate that the application for the Madrid Advanced Exploration Program, as originally submitted, contains analysis indicating that mine water can be placed in the existing TIA without compromising the ability to discharge under the existing Doris water licence 2AM-DOH1323. Similarly, the personnel compliment for the Madrid Advanced Exploration Program can be accommodated within the existing permitted 180 person Doris Camp. As per TMAC's response to Party Comment AANDC2 submitted on August 21, 2015 wherein TMAC committed to reduce the volume of the bulk samples to be collected to 21,000 tonnes per site, and to execute the bulk sample program only after an amendment to the Project Certificate and Type A Water Licence for Doris is granted, the bulk sample programs proposed for Madrid constitute approximately 2% of the volume of tailings associated with the Doris Mine. This volume of ore and the levels of associated activities are considered incrementally insignificant.

2. Permanence of Infrastructure

TMAC recognizes that components of the proposed Madrid infrastructure will remain in place, whether or not they are eventually incorporated into the commercial mining operation or closed according to the Madrid *Conceptual Closure and Reclamation Plan* (SRK 2014). Specifically, infrastructure such as pads, portals and roadways will be incorporated into the commercial mining proposal as part of a future request for a Type A Water Licence and a Project Certificate for related projects, following a successful bulk sample evaluation. Should the Madrid bulk sample be unsuccessful and require closure, infrastructure pads, a closed portal and waste rock piles reclaimed in place will remain.

TMAC notes that other bulk samples previously approved in Nunavut have also resulted in the construction of permanent infrastructure. The NIRB determined that these bulk sample projects could proceed in compliance with the NLCA without undergoing Part 5 review. As an example, the Mary River bulk sample application (2007) included upgrades to the Milne Inlet Tote Road which converted the existing road to an all-season road, and included 2 open pits, and related stockpiles. Further, the Meliadine bulk sample application (2010) included construction of a portal, vent raises, infrastructure pads and related stockpiles.

In Appendix 9 of the *Supplemental Information Report* provided with TMAC's application for a Type B water licence, TMAC provided a conceptual closure and reclamation plan for the Madrid Advanced Exploration Program infrastructure, which would be implemented upon completion of the exploration program. Reclamation security is expected to be set during the Type B Water Licencing process, but as per the water licence application, TMAC's closure cost is estimated to be $7.1 million. As stated previously, if the Madrid Advanced Exploration Program is successful permanent closure and reclamation of the infrastructure would be deferred until after the completion of Phase 2 part 5 review, the acquisition of a Type A water licence and project certificate, construction of additional approved components required for commercial Phase 2 mining and completion of commercial mining of the zone.

A determination of whether appropriate methodology was utilized in the 12.10.2(b) application package to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable)

Socio-economic information for the Madrid Advanced Exploration Program has been prepared using the projections of employment and expenditures included in TMAC's Prefeasibility Study (*Technical Report on the Hope Bay Project, Nunavut, Canada*, RPA Inc., May 28, 2015). As such they represent the best available public information on the Madrid Advanced Exploration Program and its proposed development. Socio-economic effects of the Madrid Advanced Exploration Program are sufficiently considered given the screening nature of the current review. Further, the socio-economic effects are incremental to the existing approved project given the fly-in-fly-out nature of the operation.

Following consultations with the GN (addressed in Attachment C), TMAC has prepared additional socio-economic information, which is appended to this submission (Attachment D). The memorandum specifically addresses:

- updated baseline conditions for valued components education and training, and project employment and expenditures;
- mitigation of socio-economic effects; and
- residual effects on employment and education.

With the provision of this additional information, TMAC believes there is adequate information before the NIRB to evaluate the effects of the Madrid Advanced Exploration Program application.

Any comments regarding the expressed need for and required timing of the proposed exceptions as presented within the 12.10.2(b) application package and reasons to support any comments made

The constructed Doris infrastructure that the Madrid Advanced Exploration Program will rely on (namely, the Doris camp, tailings impoundment area and transportation infrastructure) has not been built for the purpose of the Madrid Advanced Exploration Program, nor has any of the infrastructure changes contemplated under the Doris Amendment Application required explicit consideration of the proposed Madrid

Advanced Exploration Program; the changes are necessary to proceed with the mining of the Doris deposits and have been planned and/or constructed for that purpose. TMAC and previous project proponents have used this existing infrastructure as a base for exploration-related activities permitted under other water licences since these facilities were built. The Madrid Advanced Exploration Program is a continuation of that practice.

The Madrid Advanced Exploration Program is a straightforward bulk sample exploration program, similar in size and scale to previous bulk sample undertakings that have been permitted by NIRB to proceed without a Part 5 review.

Component	Meliadine		Mary River	Madrid
	2007	2010 Amendment	2010	2014
Number of Personnel	29-50	50-70	90-100	15-48
Duration of Exploration Activity (Year)	1	2	3	3
Sample Size (tonnes)	25,000	22,000	250,000	21,000 from each North and South
Rate of Exploration Activity (tonnes/day)	75-120 tonnes per round	120-200	10,000	100
Estimated use of water (m^3/day)	95	<290	70	295
Land use area calculation (ha)	3.6	3.2	146	25

The scale is appropriate for a bulk sample development which is designed to determine viability of mining, and is below the threshold for a Major Development Project according to criteria outlined by the NIRB in Guide 9, Section 4. In particular, NIRB's Draft Guide 9, Section 6.7, refers Intervenors to discuss whether the proposed activities exceed the definition of a "Major Project Development" under Section 26.1.1(b) of the NLCA. The design has been optimized to ensure efficiency and as small a footprint as possible. As stated previously by TMAC, the ultimate size of the bulk samples may be less than the requested sizes depending on the success of the program.

Whether an approval of the proposed activities would have the effect or appearance of fettering any further or final decision by the Board relating to the larger Hope Bay mining and milling development proposal currently under review

TMAC believes that the information it has provided to the NIRB and to the Parties respecting infrastructure construction methods, mining development and extraction methods, waste management methods and transportation and accommodation is

sufficient to permit the NIRB to evaluate potential effects at the screening level proposed by KIA in their May 2015 request for an assessment. TMAC further believes that a decision by the NIRB to grant an exception to the Madrid Advanced Exploration Program under Section 12.10.2(b) of the NLCA neither fetters nor appears to fetter the Board in subsequent decisions regarding the Phase 2 Project. The current environmental assessment by the NIRB of the Madrid Advanced Exploration Program and the subsequent Phase 2 review process will allow the NIRB to review commercial proposals completely; there is ample opportunity for the NIRB to ensure that the environment is protected.

TMAC understands that the NIRB may specify terms and conditions applicable to the Madrid Advanced Exploration Program in order to mitigate the potential for environmental effects, and that these will be incorporated into any future Type B Water Licence as appropriate.

Attachment C:

TMAC Response to Government of Nunavut (GN) Letter of October 14, 2015

1. Ecosystemic

On October 16 TMAC and its advisors (ERM), GN, Environment Canada, members of the Inuit Environmental Advisory Committee (established under the Inuit Impact and Benefits Agreement with the KIA), and the KIA met in Cambridge Bay to discuss the WMMP with the objective of tailoring the program for the future in light of the results of the program thus far.

The GN and TMAC held a further follow up meeting respecting GN comments on the Madrid Advanced Exploration Program, in Iqaluit on November 13, 2015. At that meeting the results of the October 16, 2015 meeting were discussed and it is TMAC's understanding that the GN now finds the scope of the existing WMMP acceptable and does not have any outstanding concerns relating to the inclusion of the Madrid Advanced Exploration Program in the WMMP.

As stated previously, given that certain existing Doris facilities would be utilized during the Madrid Advanced Exploration Program, TMAC has committed that it will not carry out the Madrid Advanced Exploration Program until such time as the amended Doris Project Certificate 003 and amended water licence 2AM-DOH1323 are in place. This commitment should address the concerns the GN has expressed regarding potential for overlap between the Madrid Advanced Exploration Program and Doris Amendment application.

2. Socio-Economic

In their submission to the NIRB, the GN raised a number of questions with respect to the treatment of socio-economic information. TMAC's expert external advisors (ERM) have prepared specific responses to the questions raised and these are appended to this submission (Attachment D).

Attachment D:

Supplemental Socio-Economic Information

Memorandum

Refer to File: B.1 Memo Socio-ec Response to GN Oct 14 2015 comments.docx

Date:	November 30, 2015
To:	John Roberts (TMAC)
From:	Jim Chan
Cc:	Sharleen Hamm (TMAC), Katsky Venter (TMAC), Kent Gustavson (EMR), Klaudia Sieminska (ERM), Derek Chubb (ERM), Elizabeth Sherlock (ERM)
Subject:	**Additional Information on Socio-economic Effects of the Madrid Advanced Exploration Program (12MN001)**

1. INTRODUCTION

In a memo dated September 15, 2015, ERM provided a response to comments pertaining to the Type B Water License application submitted to the Nunavut Water Board (NWB) on December 18, 2014. The memo provided responses to comments related to socio-economic baseline information and effects assessment received through the Nunavut Impact Review Board (NIRB) review of the application for exception under NLCA 12.10.2(b).

In a letter dated October 14, 2015, the Government of Nunavut (GN) provided additional comments on the information provided. This memo is in response to these additional comments. As a supplement to ERM's memo dated September 15, 2015, additional information is provided regarding: 1) education and training baseline information; 2) Inuit training and employment; 3) mitigation; and 4) economic impacts associated with the Madrid Advanced Exploration Program (the Program).

The contents of this memo are:

2. CURRENT SOCIO-ECONOMIC SETTING

As provided in ERM's memo dated September 15, 2015, the current socio-economic setting of the Kitikmeot Region and its communities is described in terms of population and demographics, education and training, employment, contract and business opportunities, community health, housing, and crime. Additional information is provided below to address comments by the GN on graduation statistics as it applies to education and training.

2.1 Education and Training

Secondary school statistics for Nunavut and the Kitikmeot Region are reported by the Nunavut Bureau of Statistics (NBS) current to the 2013/2014 school year. ERM had previously reported on the statistics for the 2012/2013 school year as made available by NBS, and provided additional contextual information from interviews with local school administrators. Relevant statistics considered for this assessment include the number of graduates and the graduation rate (Table 2.1-1). Data for the 2014/2015 school year has yet to be publically released.

For Kitikmeot communities, graduation numbers fluctuated substantially over the investigated period (Table 2.1-1). The community of Taloyoak had no graduates in 2007 and 2009. Communities of Kugluktuk and Gjoa Haven had the highest number of graduates, with a peak in graduations in 2008 at 12 for Kugluktuk and 11 for Gjoa Haven. Overall, there was a peak in the number of graduates in the Kitikmeot in 2008 (36 graduates) and 2014 (34 graduates).

Statistics on the graduation rate is available for the Kitikmeot Region as a whole. As with the number of graduates, secondary school graduation rates for the Kitikmeot Region have also been highly variable over time. In 2006, the rate was estimated at 12% in 2007 that jumped to 26% in 2008. Following, there was again a reduction in the graduation rate, falling to 16% in 2013 and thereafter increased to a high of 27% in 2014 (Table 2.1-1).

Table 2.1-1. Number of Secondary School Graduates by Community, 2006 to 2014

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cambridge Bay	4	4	7	4	9	5	4	4	12
Kugluktuk	1	5	12	9	9	3	9	4	8
Gjoa Haven	10	6	11	4	5	7	6	3	5
Taloyoak	2	0	4	0	1	2	1	5	4
Kugaaruk	4	1	2	6	6	7	1	5	5
Total for Kitikmeot Region	**21**	**16**	**36**	**23**	**30**	**24**	**21**	**21**	**34**
Graduation Rate for the Kitikmeot Region	**15.5%**	**11.9%**	**26.3%**	**17.0%**	**22.6%**	**18.4%**	**16.7%**	**16.0%**	**26.8%**

Source: NBS (2015).
Notes: The graduation rate is calculated by dividing the number of graduates by the average of estimated 17 and 18 year-olds in the population (as the typical age of graduation) expressed as a percentage.

3. MADRID ADVANCED EXPLORATION EMPLOYMENT AND EXPENDITURES

ERM's memo dated September 15, 2015, provides detailed information on projected employment and the planned capital and operation expenditures of the Madrid Advanced Exploration Program. Key employment and expenditure information is repeated below, and further information is provided on Inuit training and employment.

3.1 Inuit Training and Employment

The Madrid Advanced Exploration Program will require a workforce and contracting group in addition to the mine production at Doris, and the exploration activities throughout the Hope Bay Belt. The Madrid Program will require approximately 230 person-years over the 10-year licence period from construction through post-closure (Table 3.1-1).

Table 3.1-1. Workforce Estimates at Hope Bay Madrid Deposit

Year	Project Phase	Surface Support Personnel	Underground Personnel	Surface Drilling	Total Person-Years
1	Construction Madrid North	15	0	0	15
2	Construction Madrid North	15	0	2	17
3	Operation Madrid North/ Construction Madrid South	17	22	4	43
4	Operation Madrid North/ Construction Madrid South	17	22	4	43
5	Operation Madrid North/Operation Madrid South	0	44	4	48
6	Closure Madrid North/Operation Madrid South	10	22	2	34
7	Closure Madrid North/Closure Madrid South	10	0	0	10
8	Post Closure Madrid North/ Closure Madrid South	10	0	0	10
9	Post Closure Madrid North/ Madrid South	5	0	0	5
10	Post Closure Madrid North/ Madrid South	5	0	0	5
Total over the 10 year licence term					230
Peak numbers during years 2 to 6 with maximum overlap between Madrid North and Madrid South					185

For Inuit training and employment, specific initiatives are defined by the new Inuit Impact and Benefit Agreement (IIBA) established March 2015 between TMAC and the KIA. The Hope Bay IIBA provides for a comprehensive package of employment, training, contracting and other Inuit-specific provisions designed to provide Inuit with benefits. The purposes of the IIBA include maximizing Inuit training, employment and business opportunities, and to provide a mechanism through which effective communication and cooperation can take place.

Key provisions of the IIBA include the following, among others:

- Establishment of annual and long-term Inuit training targets, and annual Inuit employment targets;
- Inclusion within TMAC's human resources strategy the identification of barriers to employment and advancement, the inclusion of recruitment plans and processes and talent management initiatives (e.g., training, career planning), and the inclusion of specific measures to maximize Inuit employment, training and advancement;
- Career development plans for all Inuit employees, as well as encouraging and supporting the advancement of Inuit into supervisory and management positions;
- Requirement for community information and career awareness sessions, and the sponsorship of competitions and achievement awards at Kitikmeot schools;

- Priority to hiring first to Kitikmeot-resident Nunavut Inuit workers, followed by other Kitikmeot and Nunavut Inuit, non-Inuit residents of the Kitikmeot Region, and all others;
- Establishment of an Education and Training Fund to be used to promote relevant post-secondary education and to train Inuit;
- Various employment support measures to assist Inuit employees to perform well in their jobs;
- Establishment of a Kitikmeot Qualified Business Registry, the classification of Kitikmeot Qualified Business Contracts that are only open to bids from qualified firms (subject to terms and conditions), and establishment of a contracting process; and
- Establishment of a Business Development Fund to invest in building the capacity for Inuit business development in the Kitikmeot.

The Implementation Committee, as supported by a TMAC Liaison and IIBA Implementation Manager, provides an on-going forum for communication and cooperation for improving Inuit participation in contracting and employment.

Under the IIBA, an annual Evaluation Report is to be prepared that reports on the achievements of Inuit employment and training targets, training and recruitment plans, and the Training and Education fund. The Evaluation Report is also to provide statistics on Inuit salaries/payroll, the proportion of wages accruing to Inuit, and contract awards (including Inuit content and implementation of Inuit employment target plans). An assessment is to be provided of the economic benefits to Inuit and suggestions for improvements made. A summary of the Evaluation Report is to be made public.

This tracking and reporting of Inuit training, employment and business benefits are in addition to current requirements for annual Doris North Socio-economic Monitoring Program (SEMP) reports[1] and commitments made by TMAC to continue to participate in the Kitikmeot Region Socio-economic Monitoring Committee initiative. It is TMAC's intention to include Madrid Advanced Exploration Program statistics as part of the annual Doris North SEMP reporting.

3.2 Project Expenditures

As previously reported, Project capital and operation expenditures are estimated at $61.4 million for Madrid North and $64.4 million for Madrid South, for a total of $125.8 million (Table 3.2-1). This includes total pre-production capital costs of $52.2 million.[2] In addition, closure costs for Madrid North and Madrid South are estimated to total $7.1 million. This expenditure information is used to further characterise the predicted economic impacts of the Program as provided in Section 4.2.

[1] Participation in the Doris North Project Socio-economic Monitoring Committee (with the GN, Indigenous and Northern Affairs Canada, and the KIA) and submission of annual monitoring reports to NIRB is in compliance with Condition 28 of the Doris North Project Certificate (NIRB No. 0002, issued on September 15, 2006, renewed on April 11, 2013 (NIRB 2006).

[2] Note that in review of the costs associated with the Madrid Advanced Exploration Program it was identified that the expenditure figures provided in a previous response submitted to NIRB, dated August 21, 2015, to comment AANDC 7 was in error. The correct estimate is shown in Table 3.2-1.

Table 3.2-1. Estimated Capital and Operating Costs for the Madrid Advanced Exploration Program

	Total CAPEX	Total OPEX			Total
		Year 1	Year 2	Year 3	
Madrid North (millions)	$28.88	$24.43	$5.81	$2.32	$61.44
Madrid South (millions)	$23.36	$25.58	$15.47		$64.41

4. SCREENING OF SOCIO-ECONOMIC EFFECTS

As a supplement to ERM's memo dated September 15, 2015, this section provides additional information on mitigation, with specific reference to the effect of 'increased educational attainment', and analysis of the economic impacts of the Madrid Advanced Exploration Program.

The results of the socio-economic effects assessment as reported in the 2005 Doris North Project Final Environmental Impact Statement (FEIS) served as the starting point for the analysis. This is because the Madrid Advanced Exploration Program is expected to affect the socio-economic environment in a similar way. However, for the assessment of the Program additional information and analysis was applied. Specifically, the identification of mitigation and assessment of potential socio-economic effects considered: 1) changes to the socio-economic conditions of communities over time, 2) the experiences of the Doris North Project and other projects in Nunavut, and 3) changes in stakeholder concerns in relation to the development on mining projects which have evolved since the completion of the Doris North FEIS (Miramar 2005). In this way, serious consideration was given to how the proposed Madrid Advanced Exploration Program activities may impact and benefit the people of the Kitikmeot and the programs and services provided in the region.

For the assessment of the potential socio-economic effects of the Program, the identified Valued Socio-economic Components (VSECs) included:

- Employment Opportunities and the Economy,
- Education and Training,
- Contracting and Business Opportunities,
- Health Services,
- Social Services,
- Safety and Protection Services, and
- Housing.

The VSECs were selected to be consistent with those examined in the Doris North FEIS (Miramar 2005), plus the additional consideration for potential effects on housing in response to more recent stakeholder concerns. The methodology and results of the screening of socio-economic effects is described in more detail in ERM's memo dated September 15, 2015.

4.1 Mitigation

In recognition of the current socio-economic conditions of communities, recent experiences of the Doris North Project and other developments, and the expressed concerns and priorities of key stakeholders, such as the KIA, the emphasis for mitigation is placed on the following:

- working with stakeholders and suppliers from the communities to facilitate the direct and indirect hiring of Kitikmeot and Nunavut Inuit;
- supporting training and education geared toward the long-term employment of Inuit, including the development of partnerships such as with the Nunavut Arctic College and the KIA (e.g., participation in the ASETS Program Working Group, and the Nunavut Mine Training Roundtable);
- promoting procurement opportunities within Kitikmeot communities, with a defined process for contracting Kitikmeot Qualified Businesses and other suppliers with demonstrated Inuit content to supply goods and services to the Project; and
- monitoring the results of mitigation and socio-economic conditions in Kitikmeot communities, and working with stakeholders to identify when adaptive management interventions may be required to respond to unanticipated impacts or changing socio-economic conditions.

These mitigation initiatives are facilitated by the Framework Agreement and associated IIBA established between TMAC and the KIA (see Section 3.1). TMAC Resources and the KIA have jointly established an IIBA Implementation Committee whose purpose is to ensure that the provisions of the IIBA are met.

Specifically with respect to the potential effect of 'increased educational attainment', mitigation of this positive effect is focused on benefit enhancement. Measures are designed to increase the number of local individuals that obtain employment, which in turn are also expected to indirectly increase community capacity and the level of skilled workers. The Program is predicted to result in benefits in terms of skills development, on-the job training and work experience resulting in an increase in the human capital available within Kitikmeot communities.

4.2 Further Characterization of Residual Effects on Employment and Economy

The expenditures and employment associated with the Madrid Advanced Exploration Program will result in a further change on employment and the economy due to additional economic production, Gross Domestic Product (GDP), direct and spin-off (indirect) employment, personal income, and government revenue. The economic benefits are predicted to occur across Canada, Nunavut and, more specifically, within the Kitikmeot Region. The effects of the additional business activity, employment, and income on communities are expected to change from that assessed in the 2005 Doris North FEIS. Overall, there is expected to be an increase in the total economic benefits of the Project as a result of the Madrid Advanced Exploration Program.

The estimation of economic impacts for Madrid North and South deposits was performed based on Program capital and operating expenditures presented in Table 3.2-1. Using unpublished results of previous economic impact modeling for the Doris North Project, total GDP,

employment, income and government revenue impacts of the Madrid Advanced Exploration Program were estimated.[3] The total impact estimates include both direct and indirect impacts.

As presented in Table 4.2-1, the economic impacts of the capital and operating expenditures of the Madrid Advanced Exploration Program in Nunavut are predicted to be approximately $23.5 million in contributions to GDP and $2.1 million in tax revenue contributions. Additionally, 83 person-years of direct and indirect employment will be created for Nunavut residents with a total personal income impact of $8.5 million. The predicted economic impacts of the proposed Madrid Advanced Exploration Program are based on total estimated expenditures of $125.8 million (Table 3.2-1); for comparison, contract spend of the Doris North Project alone totaled approximately $660 million from 2009 to 2014 as previously reported (Rescan 2012; ERM Rescan 2013; ERM 2015).

Table 4.2-1. Total Economic Impacts (Direct and Indirect) in Nunavut

Nunavut	CAPEX	OPEX			Total
		Year 1	Year 2	Year 3	
GDP (millions)	$9.7	$9.3	$4.0	$0.4	$23.5
Employment (person-years)	34	33	14	2	83
Income (millions)	$3.5	$3.4	$1.4	$0.2	$8.5
Government revenue (million)	$0.9	$0.8	$0.4	$0.0	$2.1

Note: Numbers may not add due to rounding.

In Canada, excluding Nunavut, capital and operating expenditures of the Madrid Advanced Exploration Program are expected to create 387 person-years of employment (direct and indirect), with total contributions to GDP of an estimated $27.2 million (Table 4.2-2).

Table 4.2-2. Total Economic Impacts (Direct and Indirect) in Canada

Nunavut	CAPEX	OPEX			Total
		Year 1	Year 2	Year 3	
GDP (millions)	$11.3	$10.8	$4.6	$0.5	$27.2
Employment (person-years)	161	154	65	7	387

Note: Results exclude Nunavut. Numbers may not add due to rounding.

[3] The methodology utilized results from the Arctic Impact Model (AIM) that provided the estimation of impacts for Nunavut, and Statistics Canada's Interprovincial Input Output Model that extended the analysis of impacts to cover the rest of Canada. Modeling was last conducted in 2010 for the Doris North Project. In order to estimate Madrid Advanced Exploration Program impacts, it was assumed that the economic impacts would be similar to the Doris North Project and linearly related to total expenditures.

In sum, the Madrid Advanced Exploration Program is expected to have a number of positive economic impacts in Nunavut and Canada, including employment and personal income benefits, as well as contributions to the GDP and the government tax revenue.

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