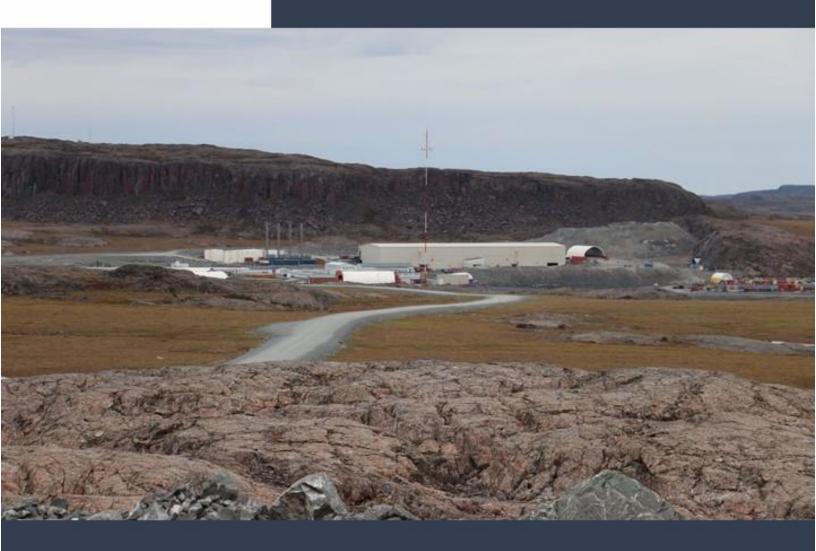


Nunavut Impact Review Board 2021 Site Visit Report **Doris North Gold Mine and Phase 2 Hope Bay** TMAC Resources Inc. NIRB File No. 05MN047 and 12MN001



October 2021

Full Report Title:	2021 Site Visit Report for the Nunavut Impact Review Board's Monitoring of TMAC Resources Inc.'s Doris North Gold Mine (NIRB File No. 05MN047) and Phase 2 Hope Bay (NIRB File No. 12MN001) Projects
Project: Project Location: Land Tenure:	Doris North Gold Mine and Phase 2 Hope Bay Projects Kitikmeot Region, Nunavut Inuit Owned Land
Project Owner:	TMAC Resources Inc. c/o Agnico Eagle Mines Limited 145 King Street East Suite 400 Toronto, ON M5C 2Y7 Tel: (416) 628-0216
Proponent Contact:	Oliver Curran, Senior Advisor, Environment and Permitting, Western Nunavut
Proponent Personnel:	Nancy Duquet Harvey, On Site Environmental Supervisor
Visit conducted by:	Keith Morrison, Manager Impact Assessment Guillaume Daoust, Technical Advisor I
Site visit date: Last Site Update Report: Last site visit:	August 25, 2021 October 22, 2020 August 7, 2019
Report prepared by:	Keith Morrison
Public Information Session:	September 14, 2021
Photos by:	NIRB Staff Agnico Eagle Mines Limited
Cover photos:	Doris North Mine Site

TABLE OF CONTENTS

1.1 Objectives and Purpose of Site Visit. 1 1.2 Doris North and Phase 2 Hope Bay Project History 2 1.2.1 Hope Bay Projects Descriptions 2 1.2.2 Doris North Project 3 1.3 Preparations for the Site Visit 4 2 SITE VISIT 5 3 GENERAL OBSERVATIONS. 6 3.1.1 Roberts Bay 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quary 2, Incinerator, and Future Landfill. 5 3.1.4 North and South Dams. 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION <th colspan="3">1 INTRODUCTION</th>	1 INTRODUCTION		
1.2 Doris North and Phase 2 Hope Bay Project History 2 1.2.1 Hope Bay Projects Descriptions 2 1.2.2 Doris North Project. 3 1.3 Preparations for the Site Visit 4 2 STTE VISIT. 5 3 GENERAL OBSERVATIONS. 6 3.1.1 Roberts Bay. 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quarry 2, Incinerator, and Future Landfill. 5 3.1.4 North and South Dams. 8 3.1.5 Tailings Impoundment Area 10 3.2.7 Phase 2 Hope Bay Belt. 11 3.2.1 Madrid Road 11 3.2.2 Abdrid Road 11 3.2.3 Observed Wildlife 14 3.3 Observed Wildlife 14 3.3 Observed Wildlife 14 3.3 Observed Wildlife 14 3.3 Observed Wildlife 17 4.2 Saline Discharge Pipeline 17 4.3 Observed Wildlife 17 4.1 Naartok Crown Pill	1.1 Obje	ectives and Purpose of Site Visit	1
1.2.1 Hope Bay Projects Descriptions 2 1.2.2 Doris North Project 3 1.2.3 Phase 2 Project 3 1.3 Preparations for the Site Visit 4 2 SITE VISIT 5 3 GENERAL OBSERVATIONS 6 3.1 Doris North 6 3.1 Doris North 6 3.1.1 Roberts Bay 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quarry 2, Incinerator, and Future Landfill 5 3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.3 Observed Wildlife 14 3.3 Observed Wildlife 14 3.3 Observed Wildlife 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 4.2 Saline Discharge Pipeline 17			
1.2.3 Phase 2 Project 3 1.3 Preparations for the Site Visit 4 2 SITE VISIT 5 3 GENERAL OBSERVATIONS 6 3.1 Doris North 6 3.1.1 Roberts Bay 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quarry 2, Incinerator, and Future Landfill 5 3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.1 Madrid Road 11 3.2.1 Madrid Road 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.3 Observed Wildlife 14 3.3 Observed Wildlife 14 3.3 Observed Wildlife 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 4.2 Saline Discharge Pipeline 17 5 <th></th> <th></th> <th></th>			
1.3 Preparations for the Site Visit 4 2 STTE VISIT 5 3 GENERAL OBSERVATIONS 6 3.1 Doris North 6 3.1.1 Roberts Bay 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quarry 2, Incinerator, and Future Landfill 5 3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 Reccommentation Session 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17	1.2.2	Doris North Project	3
2 SITE VISIT 5 3 GENERAL OBSERVATIONS 6 3.1 Doris North 6 3.1.1 Roberts Bay. 6 3.1.2 Saline Discharge Pipeline 3 3.1.3 Quary 2, Incinerator, and Future Landfill. 5 3.1.4 North and South Dams. 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 5 CONCLUSION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 </th <th></th> <th>Phase 2 Project</th> <th>3</th>		Phase 2 Project	3
3 GENERAL OBSERVATIONS. 6 3.1 Doris North. 6 3.1.1 Roberts Bay. 6 3.1.2 Saline Discharge Pipeline. 3 3.1.3 Quarry 2, Incinerator, and Future Landfill. 5 3.1.4 North and South Dams. 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt. 11 3.2.1 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION. 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline. 17 5 CONCLUSION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline. 17 5 CONCLUSION 17 6 A - 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 Appendix A - 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT	1.3 Prep	parations for the Site Visit	4
3.1 Doris North. 6 3.1.1 Roberts Bay	2 SITE VIS	IT	5
3.1.1 Roberts Bay	3 GENERA	L OBSERVATIONS	6
3.1.2 Saline Discharge Pipeline 3 3.1.3 Quarry 2, Incinerator, and Future Landfill 5 3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 Recommendation Session 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 Conclusion 17 Appendix A - 2021 Site Observations For Select Terms and Conditions of Project 19 Appendix B - 2021 Site Observations For Select Terms and Conditions of Project Certificates	3.1 Doris	s North	6
3.1.3 Quarry 2, Incinerator, and Future Landfill. 5 3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.1 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 4.1 Naartok Crown Pillar Open Pit 17 5 CONCLUSION 17 5 CONCLUSION 17 6 Prependix A - 2021 Stre Observations For Select Terms And Conditions of Project 7 Certificate No. 003 Amenoment 2 19 Appendix B - 2021 Stre Observations For Select Terms And Conditions of Project 20 <th>3.1.1</th> <th>Roberts Bay</th> <th>6</th>	3.1.1	Roberts Bay	6
3.1.4 North and South Dams 8 3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPRENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPRENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 Table 1: Hope Bay Projects History	3.1.2	Saline Discharge Pipeline	3
3.1.5 Tailings Impoundment Area 10 3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid Road 11 3.2.3 Observed Wildlife 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 009 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Project Components Visited on Ground 6	3.1.3	Quarry 2, Incinerator, and Future Landfill	5
3.2 Phase 2 Hope Bay Belt 11 3.2.1 Madrid Road 11 3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 <tr< th=""><th>3.1.4</th><th>North and South Dams</th><th>8</th></tr<>	3.1.4	North and South Dams	8
3.2.1 Madrid Road 11 3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6		0 1	
3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit 12 3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A - 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B - 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C - PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 21 Table 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6			
3.2.3 Observed Wildlife 14 3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 003 AMENDMENT 2 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 009 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 21 LIST OF TABLES 22 7 Table 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6	- · ·		
3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009 16 3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 Table 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6			
3.4 Public Information Session 16 4 RECOMMENDATIONS AND DIRECTION 17 4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C – PUBLIC INFORMATION SESSION 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 • 1.2 Advertisements 21 Carable 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6			
4 RECOMMENDATIONS AND DIRECTION			
4.1 Naartok Crown Pillar Open Pit 17 4.2 Saline Discharge Pipeline 17 5 CONCLUSION 17 Appendix A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 Appendix B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 Appendix B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 Appendix C – Public INFORMATION SESSION 20 Appendix C – Public INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 21 Table 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6			
4.2 Saline Discharge Pipeline			
5 CONCLUSION 17 APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 21 Table 1: Hope Bay Projects History 2 2 Table 2: Project Components Visited on Ground 6			
APPENDIX A – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 009 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	4.2 Salin	ne Discharge Pipeline1	7
CERTIFICATE NO. 003 AMENDMENT 2 19 APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 009 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	5 CONCLU	SION1	7
APPENDIX B – 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT 20 CERTIFICATE NO. 009 20 APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	APPENDIX A -	- 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT	
CERTIFICATE NO. 00920APPENDIX C – PUBLIC INFORMATION SESSION21• 1.1 Meeting Materials21• 1.2 Advertisements21LIST OF TABLES21Table 1: Hope Bay Projects History2Table 2: Project Components Visited on Ground6	CERTIFICATE	E NO. 003 AMENDMENT 2 1	9
APPENDIX C – PUBLIC INFORMATION SESSION 21 • 1.1 Meeting Materials 21 • 1.2 Advertisements 21 LIST OF TABLES 21 Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	APPENDIX B -	- 2021 SITE OBSERVATIONS FOR SELECT TERMS AND CONDITIONS OF PROJECT	
1.1 Meeting Materials 21 1.2 Advertisements 21 21 LIST OF TABLES Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	CERTIFICATE	E No. 009	0
1.2 Advertisements 21 LIST OF TABLES Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	APPENDIX C -	- Public Information Session 2	1
1.2 Advertisements 21 LIST OF TABLES Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	• 1.1 Me	eting Materials	1
Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6		8	
Table 1: Hope Bay Projects History 2 Table 2: Project Components Visited on Ground 6	ΙΙςτουΤασ	RES	
Table 2: Project Components Visited on Ground 6			_
LIST OF FIGURES	Table 2: Proje	ect Components Visited on Ground	6
	LIST OF FIG	URES	

LIST OF PHOTOS

Photo 1: Roberts Bay (2019)	. 3
Photo 2: Doris Mine Site (2019)	. 5
Photo 3: Roberts Bay	. 6
Photo 4: Roberts Bay Tank Farm	. 2
Photo 5: Fuel Bladder at Roberts Bay	. 2
Photo 6: Fuel Bladder at Roberts Bay	. 2
Photo 7: Seacans at Roberts Bay	. 3
Photo 8: Saline Discharge Line and Water Recirculation Line	. 4
Photo 9: Saline Line into Roberts Bay	. 4
Photo 10: Damage to Saline Line from Vehicles	. 5
Photo 11: Quarry 2	. 6
Photo 12: Quarry 2 Burn Pan	. 6
Photo 13: Incinerator Enclosure	. 7
Photo 14: Incinerator	. 7
Photo 15: North Dam (Photo by Agnico Eagle)	
Photo 16: South Dam (Photo by Agnico Eagle)	
Photo 17: South Dam Tailings Beach	. 9
Photo 18: Staking for South Dam Expansion	
Photo 19: Tailings August 2018	10
Photo 20: Tailings August 2019	
Photo 21: Tailing August 2021 (photo by AEM)	11
Photo 22: Doris-Madrid Road Looking South (2019)	
Photo 23: Madrid Portal	13
Photo 24: Naartok East Crown Pillar Pit	13
Photo 25: Madrid Waste Rock Pile Contact Pond	
Photo 26: Caribou Between Camp and Airstrip	15
Photo 27: Hikhik on Madrid Road	-
Photo 28: Hawk at Madrid	15
Photo 29: Sandhill Cranes Beside Madrid Road	16

1 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement) and is responsible for post environmental assessment monitoring of a Project in accordance with Part 7 of Article 12 of the Nunavut Agreement and s. 135(4) of the Nunavut Planning and Project Assessment Act, S.C. 2013, c. 14 (NuPPAA).

This report provides the findings that resulted from the NIRB's 2021 site visit of TMAC Resources Inc.'s (TMAC) Doris North Gold Mine and Phase 2 Hope Bay Belt Projects (Hope Bay Projects) that took place on August 25, 2021 and the public information session on September 14, 2021.

TMAC is a wholly-owned subsidiary of Agnico Eagle Mines Limited (Agnico Eagle) and on-site staff are Agnico Eagle employees; however, Project Certificates No. 003 and 009 are still held by TMAC.

1.1 Objectives and Purpose of Site Visit

The objective of the NIRB's site visit was to determine whether, and to what extent the land or resource use in question, is being carried out within the predetermined Terms and Conditions as set out in the amended Project Certificate as issued for the Doris North Gold Mine (Doris North) Project Certificate No. 003, in accordance with Section 12.7.2(b) of the *Nunavut Agreement* and [s. 135(3)(b) of the *NuPPAA*].

In November 2018, pursuant to Section 12.5.12 of the *Nunavut Agreement* the NIRB issued Project Certificate No. 009 for the Phase 2 Hope Bay Belt (Phase 2) Project, allowing the Phase 2 Project to proceed in accordance with the Terms and Conditions issued therein.

The observations resulting from the 2021 site visit shall, wherever possible, be incorporated into the measurement of the relevant effects of both the Doris and the Phase 2 Projects, provide the information necessary for agencies to enforce terms and conditions of land or resource use approvals, and will further be used to assess the accuracy of the predictions contained in the project impact statements for both projects in accordance with Section 12.7.2 of the *Nunavut Agreement* and s. 135(3) of the *NuPPAA*.

1.2 Doris North and Phase 2 Hope Bay Project History

September 2006	Issuance of Project Certificate No. 003 (Doris North) to Miramar Hope Bay Limited	
2008	Hope Bay Belt properties acquired by Newmont Mining Corporation	
2012	Project placed in care and maintenance	
March 2013	TMAC Resources Inc. (TMAC) acquires Hope Bay Belt properties	
April 2013	Project Certificate No. 003 amended to indicate TMAC as holder	
2015	Doris North operations resumed, and mine construction started	
September 2016	Amendment of Project Certificate No. 003	
February 2017	First gold pour	
May 2017	Start of commercial production at Doris North	
Winter 2018	Trenching and reclamation of Doris Crown Pillar	
November 2018	Issuance of Project Certificate No. 009 (Phase 2 Hope Bay, Madrid North/South and Boston deposits)	
Spring 2019	Start of construction at Madrid North (portal and Naartok East Crown Pillar pit)	
March 2020	COVID-19 Pandemic restrictions begin to be implemented	
2020	Operation of the saline discharge line to Roberts Bay begin	
March 2020	Agnico Eagle Mines Limited purchases TMAC and assumes operations at Hope Bay	
2021	Naartok East Crown Pillar pit mined out, portal temporarily closed, and operations at Madrid suspended	
2021	Plans for Madrid Being re-evaluated by Agnico Eagle	

 Table 1: Hope Bay Projects History

1.2.1 Hope Bay Projects Descriptions

The Hope Bay Belt properties are located 110 kilometres (km) south of Cambridge Bay and 65 km east of Omingmaktok (Bay Chimo) near Melville Sound in the West Kitikmeot region of Nunavut. The Project involves the construction, operation, and eventual decommissioning of underground gold mines and small open pits for crown pillar removal located on Inuit-owned lands and involving both Inuit and Crown-owned minerals. Doris is located at the north end of the Hope

Bay Belt while the Phase 2 Hope Bay Belt is divided into two (2) parts with the Madrid sites (North and South) located approximately eight (8) km south of Doris North, and the Boston site 80 km further south. The Project sites are accessed by sealift for fuel and supplies, and by air for select freight and all personnel movements (see Figure 1 and Photo 1).

1.2.2 Doris North Project

The Doris North mine site is comprised of a camp, airstrip, and associated mining infrastructure including fuel storage, jetty, laydown areas, and a single ramp access. The Amendment Application approved in 2016 extended the mine life for the Doris North Project from four (4) years of operations to six (6) years through the mining of two (2) additional mineralized zones (Doris Connector and Doris Central) to be accessed via the existing Doris North portal.

Also approved in the Amendment were the alteration of deposition of tailings fun subaqueous (underwater) to aerial (surface deposition). TMAC also uses a seven (7) km long pipeline (approximately five (5) km above ground and one (1) km under Roberts Bay) to dispose of water from the Tailings Impoundment Area (TIA) and saline water from underground.



Photo 1: Roberts Bay (2019)

1.2.3 Phase 2 Project

The Madrid North site is connected by an all-weather road to Doris North and mining will be carried out via portal and the ore transported to Doris North for processing with personnel based out of the Doris North camp.

Madrid South and Boston sites will be constructed later along with the all-weather road which will be extended to the Boston Site, with construction at Boston beginning when the road extension is

completed. The Boston site is approved to have its own camp, air strip, and other mining infrastructure/facilities.

Operations at Madrid were temporarily suspended in 2021 following the completion and mining out of the Naartok East Crown Pillar pit, and the portal temporarily closed with some infrastructure removed. Currently, Agnico Eagle is re-evaluating the design of the Madrid operations.

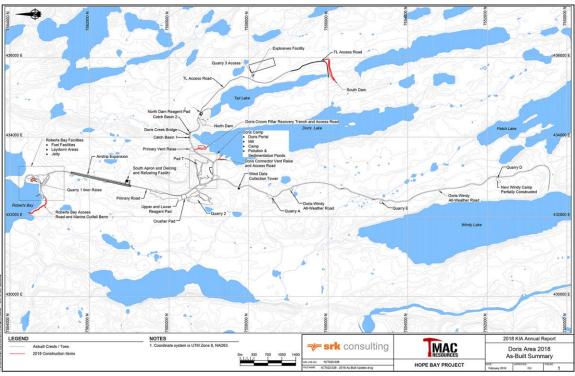


Figure 1: Hope Bay Layout

1.3 Preparations for the Site Visit

In preparation for the site visit, the Monitoring Officer reviewed the following items: the Doris North Gold Mine Project Certificate (PC) No. 003; the Phase 2 Hope Bay Belt PC No. 009; previous Site Visit or Site Update Reports (where relevant), TMAC's 2020 Hope Bay Belt Annual Report and associated appendices, as well as follow-up correspondence relevant to the monitoring of the approved Doris North and Phase 2 Projects.



Photo 2: Doris Mine Site (2019)

2 SITE VISIT

The NIRB's Monitoring Officer for the Hope Bay Projects, Keith Morrison, Monitoring Officer and Guillaume Daoust, Technical Advisor I (NIRB Staff) conducted the 2021 NIRB site visit on August 25, 2021 by flying from Cambridge Bay, Nunavut, to the Doris North Gold Mine Project site (<u>Photo 2</u>). Upon landing at site, NIRB staff were met by Nancy Duquet Harvey, Onsite Environmental Supervisor.

Once at Doris North, as per site protocols, NIRB staff received a COVID-19 test and a 2-hour isolation period pending the results. Following confirmation of negative test results, Site staff led a tour of the surface infrastructure. Throughout the site visit, the NIRB and Site staff discussed the infrastructure in place at the mine site and additional development such as operation of the saline discharge pipeline, wildlife, and plans for Madrid.

In order to minimize contact with on-site personnel and there was no viewing of camp facilities.

	Table 2. I Toject Components Visited on Oround		
	Roberts Bay area (PC 003, PC 009)		Quarry Area (PC 003)
0	Saline Discharge Pipe Jetty	0	Quarry 2 and Incinerator area
0	Roberts Bay Tank farm and laydown		
	areas		
	Madrid Area (PC 009)		Tailings Impoundment Area (PC 003, PC
0	All weather road to Madrid		<u>009)</u>
0	Madrid waste rock pile	0	Road to South Dam
0	Madrid portal area	0	South Dam
0	Naartok East crown pillar pit	0	Subaerial tailings deposition.

Table 2: Project Components Visited on Ground

3 GENERAL OBSERVATIONS

The following are general observations made during the site visit and do not pertain specifically to any terms or conditions of the Project Certificates No. 003 and No. 009.

3.1 Doris North

3.1.1 Roberts Bay

The Roberts Bay area (<u>Photo 3</u>) serves as the Project's marine access hub and is linked to the main camp and mine site by a 4.8 km all-weather road. The area is used for staging of fuel (<u>Photo 4</u>, <u>Photo 5</u>, <u>Photo 6</u>) and supplies in support of the ongoing construction and operation phases of both Projects.



Photo 3: Roberts Bay



Photo 4: Roberts Bay Tank Farm



Photo 5: Fuel Bladder at Roberts Bay

Photo 6: Fuel Bladder at Roberts Bay

Several hundred seacans were stored at Roberts Bay (<u>Photo 7</u>, example). NIRB Staff were informed that a sealift ship had been chartered to backhaul up to 500 seacans, with most filled with material such as solid waste, metal to be recycled, tires, and contaminated soil, for disposal in the south.



Photo 7: Seacans at Roberts Bay

3.1.2 Saline Discharge Pipeline

The saline discharge pipeline running from the mine site to Roberts Bay was observed alongside the Main road and proceeding to the outfall jetty (Photo 8, Photo 9). At the jetty, it was observed that the saline line had been struck multiple times by vehicles turning on the jetty based on the number of impact marks and scratches observed on the pipe insulation. While any damage appeared to be superficial, it is noted as an issue that should be addressed (Photo 10).



Photo 8: Saline Discharge Line and Water Recirculation Line



Photo 9: Saline Line into Roberts Bay



Photo 10: Damage to Saline Line from Vehicles

3.1.3 Quarry 2, Incinerator, and Future Landfill

Quarry 2 (Photo 11) is adjacent to the all-weather road and the sewage discharge outfall is approximately 60 metres west of the all-weather road adjacent to the laydown area south of Roberts Bay. Conversion of the quarried-out area to a landfill has not yet begun, with quarry operations still ongoing. The burn pan (Photo 12) continues to be used to manage applicable solid waste such as clean wood.

The incinerator which arrived in 2019 is surrounded by an enclosure made of seacans (Photo 13), as Site staff reported that operations during the winter of 2019-2020 was extremely uncomfortable for operators as the incinerator was open to the elements. The seacan wall that was constructed offered operators greater protection from wind (Photo 14), and planning is underway for the construction of a roof to provide additional protection.



Photo 11: Quarry 2



Photo 12: Quarry 2 Burn Pan



Photo 13: Incinerator Enclosure



Photo 14: Incinerator

3.1.4 North and South Dams

During the 2021 site visit, Site and NIRB staff visited the North (Photo 15) and South Dams (Photo 16, Photo 17) at the TIA. Site staff confirmed that monitoring of both dams indicated they were stable with no issues. Stakes are in place indicating the expanded base of the South Dam required for the increase in height, as per the plans for Phase 2 (Photo 18).



Photo 15: North Dam (Photo by Agnico Eagle)



Photo 16: South Dam (Photo by Agnico Eagle)



Photo 17: South Dam Tailings Beach



Photo 18: Staking for South Dam Expansion

3.1.5 Tailings Impoundment Area

Site and NIRB staff visited the main tailings outfalls/spigots and discharge areas within the TIA. Upon inquiry, Site staff indicated they have observed caribou that have accessed the drier part of the tailings at least once, apparently to escape flies during the summer.



Photo 19: Tailings August 2018



Photo 20: Tailings August 2019



Photo 21: Tailing August 2021 (photo by Agnico Eagle)

3.2 Phase 2 Hope Bay Belt

3.2.1 Madrid Road

Site and NIRB staff drove the all-weather road to the Madrid North site. The road was in a similar condition as noted in the 2019 Site Visit (Photo 22).



Photo 22: Doris-Madrid Road Looking South (2019)

3.2.2 Madrid North Site, Portal, and Naartok East Crown Pillar Pit

At the Madrid North site, NIRB staff observed drilling operations in progress to confirm the structure of the Madrid deposits for the re-evaluation of the mine plans for the area. Aside from drilling, no operational activities were being carried out at Madrid. The existing portal was temporarily closed with a curtain, some infrastructure was removed, and the access to the portal from the main road was removed. Coconut fibre mats were placed to control erosion and were functioning (Photo 23).

The Naartok East crown pillar pit has water collecting in the bottom and has not been remediated. Site staff indicated that the revised planning for Madrid operations currently underway, was considering the potential of relocating the primary portal to be in the pit, thus no remediation activities will be carried out until final plans are determined (Photo 24).

The waste rock pile was in use while construction was carried out at Madrid and the contact water pond associated with the pile was dry at the time of the 2021 site visit. Site staff indicated that a potential leak had been discovered with water emerging from the toe of the pond berm during spring melt, potentially from an undiscovered fracture in the bedrock. An engineering study is to be carried out to identify if this is the case and develop mitigation measures as required (Photo <u>25</u>).



Photo 23: Madrid Portal



Photo 24: Naartok East Crown Pillar Pit



Photo 25: Madrid Waste Rock Pile Contact Pond

3.2.3 Observed Wildlife

Unlike the 2019 Site Visit, assorted wildlife was observed during the site visit including a caribou (Photo 26), hikhiks (Photo 27), hawks (Photo 28), and sandhill cranes (Photo 29).



Photo 26: Caribou Between Camp and Airstrip



Photo 27: Hikhik on Madrid Road



Photo 28: Hawk at Madrid



Photo 29: Sandhill Cranes Beside Madrid Road

3.3 Observations based on NIRB's Project Certificates No. 003 and No. 009

<u>Appendix A</u> summarizes observations made during the site visit that pertain specifically to terms and conditions of Project Certificate No. 003 and <u>Appendix B</u> summarizes observations relevant to the pre-construction and construction phase of Project Certificate No. 009.

3.4 Public Information Session

Pursuant to the *Nunavut Agreement* and the Project Certificates No. 003 and No. 009; the NIRB monitoring responsibilities include providing periodic updates regarding its Monitoring Program for the communities most affected by the Hope Bay Projects. To further ensure ongoing awareness of Project-specific terms and conditions, and encourage effective participation throughout the Board's monitoring process, the NIRB scheduled a community information session in Cambridge Bay on September 14, 2021 in conjunction with the updates for the Jericho Diamond Mine Project (NIRB File No. 00MN059) and the Back River Project (NIRB File No. 12MN036).

For a summary of the NIRB's Public Information Session please refer to <u>Appendix C</u>.

4 RECOMMENDATIONS AND DIRECTION

Based on the observations made during this current site visit, the Hope Bay Project facilities in operation appear to be well managed, and generally are maintained with adequate environmental protection measures and procedures in place.

The work at the Madrid North site is currently suspended pending potential redesign.

4.1 Naartok Crown Pillar Open Pit

During the NIRB's August 2021 site visit, it was noted that the Naartok Crown Pillar Pit does not have any diversion or fencing to prevent wildlife from approaching the pit. As this represents a potential hazard, some form of protection or diversion should be considered to reduce the risk of wildlife injury and the NIRB will track the issue for future site visits.

4.2 Saline Discharge Pipeline

As previously stated, superficial damage was observed on the saline discharge line at the jetty due to vehicles striking it while turning. Adjustments to operations should be considered to either prohibit turning of vehicles on the jetty without a second person to direct the turning vehicle, or to have some form of barrier to prevent the pipeline from being struck by vehicles.

5 CONCLUSION

Throughout the 2021 site visit, Site and NIRB staff discussed how the Doris North and Phase 2 Hope Bay Projects will be changing as construction and operations activities continue at both sites, including construction and operations at Madrid. TMAC had completed most items that were approved as part of the original project certificate and is working on items as approved in the amendment of Project Certificate No. 003 and 009. The site visit discussions focused on the operational experience from the previous year and plans for the upcoming year.

The Monitoring Officer notes that overall TMAC has generally complied with the Terms and Conditions of the amended Project Certificate No. 003 and Project Certificate No. 009 and has been responsive in addressing any concerns raised by the Monitoring Officer during and following the site visit. The Project sites remained in good condition as construction and operations activities on site continue. The Monitoring Officer also commends the operation on the general cleanliness and tidiness of the Project sites.

Prepared by:Keith Morrison, B.Sc.Title:Manager, Impact AssessmentDate:October 12, 2021Signature:

72 A

Reviewed by:Kelli Gillard, PAg and CTAJTitle:Manager, Project MonitoringDate:October 12, 2021Signature:

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TC#*	Subject	Observation
7	Disposal of tailings	Tailings disposal proceeding as planned within TIA
8	Weather station	In place and operating
11, 13	Water monitoring of TIA	Water monitoring ongoing, no issues
15	Discharge to Doris Creek	Water monitoring ongoing, no issues
17	Reporting of incidents	Reporting has been carried out as per terms and conditions. No significant issues noted.
18	Acid Rock Drainage- Metal Leaching monitoring	Water monitoring of waste water holding ponds ongoing, holding ponds in good condition, no issues noted.
20, 33	Spill kits	In place and visible throughout mine site and Roberts Bay.
25, 26	Wildlife-TIA interaction	Site staff report no significant issues with wildlife interactions. Assorted wildlife (hikhiks, falcons, cranes, caribou) observed during site visit.
30	Air Quality	Dust monitoring stations observed
34	Planned Changes	Site staff confirmed lift of TIA South Dam is in the near future.
36	Doris Lake monitoring	Monitoring of Doris Lake ongoing
38, 39	Saline Discharge Pipeline	In operation
48	Archeological Resources	No significant changes in project footprint.

Appendix A – 2021 Site Observations for Select Terms and Conditions of Project Certificate No. 003 Amendment 2

*Doris North Gold Mine Project Certificate No. 003 Amendment 2 (September 2016)

TC#	Subject	Observation	
1	Air Quality Monitoring	Dust monitoring carried out at one (1) location on Doris- Madrid Road.	
5	Acid Rock Drainage and Metal Leaching Management	Possible bedrock fracture potentially allowing runoff water from Waste Rock Pile to escape contact water holding pond. Will be undergoing engineering study to confirm if leak is present and measures to be taken.	
7	Erosion Management	Silt fencing and coconut mats in place to reduce erosion at Madrid portal	
13, 16	Watercourses	Two (2) bridges in place on Doris-Madrid Road where there is significant water flow.	
20	Road Traffic Management	Due to limited traffic on the road prior to the start of operations at Madrid North, the need for traffic management during the period of the site visit was minimal.	
39, 40, 41	Employment and training	Inuit training and employment numbers affected by COVID-19 restrictions and restrictions on Nunavummiut accessing site.	
52	Spill response	Fuel containment and spill kits in place.	
53	Tailings pipeline monitoring	Breach detection system in place.	

Appendix B – 2021 Site Observations for Select Terms and Conditions of Project Certificate No. 009

*Phase 2 Hope Bay Belt Project Certificate No. 009 (November 2018)

Appendix C – Public Information Session

To further ensure ongoing awareness of Project-specific Terms and Conditions, and encourage effective participation throughout the Board's monitoring process, the NIRB scheduled a community information session for TMAC's Doris North Gold Mine Project (NIRB File No. 05MN047) and Phase 2 Hope Bay Belt Project (NIRB File No. 12MN001), Sabina's Back River Project (NIRB File No. 12MN036) and an update on the Jericho Diamond Mine Project (NIRB File No. 00MN059) site stabilization and remediation activities. The sessions consisted of an afternoon open house (2:00-4:00 pm) and a planned evening update meeting (7:00-9:00 pm) at the Luke Noviligak Community Hall in Cambridge Bay on September 14, 2021 and were open to all members of the public, subject to COVID-19 limits on the number of people gathered.

The Nunavut Water Board had three (3) staff attend the meeting to be available to the public.

The afternoon and evening sessions had no attendance, and the evening session was cancelled shortly after 7:00 pm due to a memorial event taking place in Cambridge Bay.

1.1 Meeting Materials

At the public meeting, the following materials were provided by the NIRB:

- The NIRB's PowerPoint presentation (in English and Inuinnaqtun)
- Comment Forms (in English and Inuinnaqtun)

All document received and pertaining to this project, including copies of consultation materials, the presentation, and advertisements, can be accessed from the NIRB's online Public Registry at:

Doris North Gold Mine: <u>www.nirb.ca/project/123632</u> Phase 2 Hope Bay: <u>www.nirb.ca/project/124148</u> Back River Project: <u>www.nirb.ca/project/124149</u> Jericho Diamond Mine: <u>www.nirb.ca/project/123035</u>

1.2 Advertisements

The NIRB advertised the meeting online through Facebook in Cambridge Bay both in English and Inuinnaqtun in the week prior to the meeting.