





# Baffinland Iron Mines Corporation

## Mary River Project

### 2021 QIKIQTANI INUIT ASSOCIATION (QIA) AND NUNAVUT WATER BOARD (NWB) ANNUAL REPORT FOR OPERATIONS

REV 0



2022-03-31	0		
		Connor Devereaux	Lou Kamermans
<b>Date</b>	<b>Rev.</b>	<b>Prepared By</b>	<b>Reviewed and Approved By</b>

**TABLE 0: REPORT SUBMISSION SUMMARY**

Year of Annual Report	2021
Annual Report Submission Date:	March 31, 2022
Name and contact information of the Baffinland representative responsible for the preparation and approval of the Annual Report.	<b>Lou Kamermans</b> <a href="mailto:Lou.Kamermans@baffinland.com">Lou.Kamermans@baffinland.com</a> T: 647 278 3317
The name and contact information of the Baffinland representative that QIA can contact should it have any questions or comments regarding the Annual Report	<b>Lou Kamermans</b> <a href="mailto:Lou.Kamermans@baffinland.com">Lou.Kamermans@baffinland.com</a> T: 647 278 3317

## 2021 QIKIQTANI INUIT ASSOCIATION (QIA) AND NUNAVUT WATER BOARD (NWB) ANNUAL REPORT FOR OPERATIONS

### EXECUTIVE SUMMARY

This report to the Qikiqtani Inuit Association (QIA) and the Nunavut Water Board (NWB) has been prepared to summarize the 2021 Mary River Project (the Project) activities and monitoring conducted under Baffinland Iron Mines Corporation's (Baffinland) Type 'A' Water Licence - 2AM-MRY1325 – Amendment No. 1 (Type 'A' Water Licence) and the Commercial Lease No. Q13C301 (Commercial Lease) between the QIA and Baffinland. A separate annual report has been prepared for the QIA and NWB to summarize the 2021 exploration and geotechnical activities conducted for the Mary River Project within the scope of Baffinland's Type 'B' Water Licence - 2BE-MRY2131 (Type 'B' Water Licence) and Commercial Lease, and a separate report for the QIA and NWB to summarize the 2021 exploration activities conducted for the Ege Bay Exploration Program within the scope of Baffinland's Type 'B' Water Licence 2BE-EQE1926 and Land Use Licence QL2-1910.

At Baffinland, the safety and wellbeing of our employees, contractors and the North Baffin communities remains our highest priority, while ensuring the continuity of our business during these evolving and challenging times. Baffinland has robust Emergency and Crisis Management Plans, which include an infectious disease component. Our response to COVID-19 not only includes industry leading health and safety measures, but also additional community support to help relieve some of the strain arising from this global pandemic. Together with its employees, Baffinland has taken strides to support North Baffin communities throughout the pandemic.

At the start of 2021, Baffinland's Nunavummiut employees continued to remain in their home communities with compensation to help protect themselves and their communities. This arrangement was first implemented in April 2020 when employees were put on standby pay rates with full group benefits. In April 2021 due to an outbreak of the Delta COVID-19 variant at the site, operations were temporarily suspended for a period of three weeks. During this shut down environmental monitoring programs were considered essential and continued to operate. This shut down led to decreased mining operations as described below. Throughout 2021, Baffinland continued to work with the Government of Nunavut and Nunavut Public Health on risk based initiatives, which led to Nunavummiut employees beginning their return to work in July of 2021. The timing of this allowed for Inuit researchers from local communities to participate in several of the summer environmental monitoring programs, when possible. Unfortunately, in December 2021, it was determined that due to the highly contagious Omicron variant, Nunavummiut employees would return home with paid-leave. Baffinland is pleased to report that as of March 2022, our Nunavummiut-based employees are re-transitioning back to site. For more information on Baffinland's COVID-19 response, please visit [www.baffinland.com/sustainability/health-and-safety/](http://www.baffinland.com/sustainability/health-and-safety/)

During 2021, mining operations continued at Deposit No. 1 and a total of total of 5.53 Mt of ore was transported by ore haul trucks along the Tote Road from the Mine Site and stockpiled at the Milne Port. During the 2021 shipping season a total of 5.6 Mt of ore was shipped from the Project's Milne Port to

international markets. In 2021, marine ore shipments involved 73 individual ore carrier vessel voyages. The shipping season was constrained in 2021 due to the implementation of a provisional Narwhal Adaptive Management Response Plan, which delayed the start of the shipping season and ultimately limited the volume of ore that could be shipped.

Mining operations along with development of Project infrastructure continued throughout 2021. A description of the key Project activities executed under the Type 'A' Water Licence and the Commercial Lease are presented below by Project area.

### **Mine Site**

At the Mine Site, key Project activities included:

- Mining of Deposit No. 1 and the crushing and stockpiling of ore at the KM 106 Run of Mine Facility and the Mine Site Crusher Facility;
- Continued deposition of non-hazardous wastes at the Mine Site Non-Hazardous Waste Landfill Facility (Landfill Facility);
- Continued deposition of waste rock generated by Project operations at the Waste Rock Facility;
- Maintenance of site surface water drainage infrastructure (i.e. culverts) to address sedimentation concerns and improve surface water drainage;
- Continued implementation of the Ore Crusher Pad Regrading Strategy to prevent the pooling of water on and around the Crusher Facility pad and installation of a pumping system to transfer collected emergency ditch water to Crusher Facility Pond MS-06;
- Continued operation of dedicated water treatment plant at the Waste Rock Facility Pond to ensure effluent water quality compliance;
- Installation of additional dustfall monitoring locations; and
- Construction of a surface water management dam (MS-11) at KM 104.5

### **Tote Road**

Along the Tote Road, key Project activities included:

- The transportation of ore using ore haul trucks from the Mine Site to Milne Port for stockpiling;
- Trucking of fuel and other supplies from Milne Port to the Mine Site to support Project operations and development;
- Continued maintenance of the Tote Road to improve surface water drainage and address safety and operational concerns, including works proposed in the Tote Road Earthworks Execution Plan (TREETP) and select implementation of the Hatch (2013) design;
- Implementation of preventative and corrective measures (i.e. check dams, silt fences, excavating culverts of snow and ice, etc.) to address sedimentation concerns during high flow periods;
- On-going progressive reclamation of priority historic borrow sources;
- Continued development of the Km 97 Borrow Source to support road maintenance; and,

- The continued application of dust suppression treatment under the commercial name DUST/BLOKR®.

### **Milne Port**

At Milne Port, key Project activities included:

- Continued stockpiling of ore at the Milne Port Ore Stockpile Facility prior to and following the 2021 shipping season;
- Marine shipment of ore to international markets via the Milne Port shiploader and ore carrier vessels;
- The continued application of a dust suppression on the Milne Port ore stockpiles under the commercial name DusTreat®.
- Extraction of aggregates from the Q1 Quarry; and
- Multiple sealifts, including the backhaul of equipment and waste to Southern Canada and the delivery of fuel, equipment, consumables and materials to support continued Project operations and development.

### **Waste Rock Facility Management**

During 2021, Baffinland continued to characterize Deposit No. 1 waste rock generated by Project operations and optimize waste rock deposition and management strategies to address outstanding concerns identified at the Waste Rock Facility (WRF) regarding acid rock drainage and metal leaching. Baffinland continued to conduct geochemical testing of waste rock to expand the analytical dataset, and monitor temperatures within the WRF to confirm the management strategy ensured that frozen conditions could be achieved and maintained within the waste rock pile.

Thermal monitoring in 2021 continued to demonstrate the WRF is frozen with the exception of a shallow seasonal active layer. Monitoring of water quality from the WRF demonstrated neutral pH conditions throughout the summer season, and generally did not require treatment with the WRF Water Treatment Plant to meet the applicable Water Licence and MDMER discharge criteria. No seepage was identified from the facility indicating that remedial works were effective to mitigate the uncontrolled release first identified in 2017.

Baffinland will continue to monitor the conditions at the WRF to ensure effective management results in achievement of the ultimate closure objectives for the facility. Future updates to the Phase 1 Waste Rock Management Plan will assess the monitoring data collected to date to determine if waste segregation criteria and placement strategies remain valid or if updates are required.

### **Key Modifications to Project Infrastructure**

Approved modifications implemented at the Project in 2021 included:

- Modification No.13 – Mine Site water management infrastructure

### **Spills**

During 2021, fourteen (14) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Line, CIRNAC and QIA by the Project. This is a similar frequency as 2020. In addition to the original spill report submitted within 24 hours of each spill event in 2021, a detailed follow-up report was submitted within thirty (30) days of each reported spill. Baffinland continued to investigate the basic causes of all spills that occurred on site in 2021 so that effective long-term corrective actions could be implemented to reduce the frequency of spills at Project sites.

### **Water Use and Freshwater Monitoring**

Under the authorization of the Type 'A' Water Licence, freshwater was withdrawn during 2021 to sustain three (3) key activities at the Project: potable water supply (domestic), dust suppression, and other industrial purposes. During 2021, total daily water volume withdrawal limits for dust suppression purposes were exceeded two (2) times at approved Project water sources. This is a 94% decrease and a significant improvement over 2020, when thirty-one (31) exceedances occurred, and is attributed to improved controls for tracking daily water use at the individual water sources with respect to the daily limits.

Throughout 2021, Baffinland continued to implement the Surveillance Network Program (SNP) outlined in Schedule I of the Type 'A' Water Licence, analyzing effluents (i.e. treated sewage, treated oily water) discharged to the receiving environment and monitoring surface water quality within specific Project areas (i.e. surface water runoff downstream of Project areas). Based on a review of 2021 SNP results reported to the NWB, CIRNAC and the QIA, exceedances of applicable discharge criteria in 2021 involved mainly surface water runoff and effluents with elevated total suspended solids (TSS) levels. In each case, appropriate control measures were implemented to restore TSS levels below applicable discharge criteria. Baffinland continues to assess and implement the appropriate corrective and mitigation measures to address ongoing sedimentation concerns at the Project.

In addition to the SNP, ongoing environmental monitoring and effects studies, including the Project's Aquatic Effects Monitoring Plan (AEMP) and Tote Road Monitoring Program (TRMP) were conducted during 2021 in accordance with the commitments made in the ERP, and the Final Environmental Impact Statement (FEIS) approved under the Project Certificate.

### **Community Consultations and Engagement**

With some easing of travel restrictions in 2021, Baffinland implemented a hybrid approach to community engagement activities in the five (5) North Baffin communities and Iqaluit, with some events and meetings being held in-person and others relying on video and telephone conference. Baffinland also continued to

maintain a presence on social media and local radio as a means to ensure that information about the Project is accessible to a wide audience. Although Baffinland acknowledges that in-person engagement is preferred, the hybrid model has proven effective in ensuring that effective lines of communication remained in place between community representatives and other stakeholders and Baffinland throughout the Pandemic.

As travel restrictions and public health orders continually evolved, Baffinland frequently evaluated what methods of engagement were most effective, while still maintaining individual and community health and safety as the top priority. This adaptive approach to engagement is predicted to continue as the COVID-19 Pandemic and associated public health orders evolve throughout 2022.

### **Summary of Plans for 2022**

The 2022 Work Plan was prepared and provided by Baffinland to relevant parties on November 1, 2021 as required under Section 6.1 of the Commercial Lease and under Part J, Item 3 of the Type 'A' Water Licence, for the purposes of an Annual Security Review for activities undertaken on an annual basis.

The 2022 Work Plan described the planned development and operation of the mine, ore crushing and land transportation, stockpiling and marine shipment of ore, and the continued development and construction of infrastructure required at Milne Port, the Tote Road, and the Mine Site. Baffinland is continuing to implement the Water Management Plan for the Mine Site following approvals of Modification no. 13 by the Nunavut Water Board.

The Project's Phase 2 Expansion Proposal continues to advance through a joint assessment administered by the Nunavut Impact Review Board (NIRB) and NWB. Baffinland's application to amend Water Licence No. 2AM-1325 is ongoing and will continue to work collaboratively with all parties to fully resolve outstanding issues in advance of the Pre-Hearing Conference and Public Hearing. Project environmental monitoring programs prescribed by the Project Certificate, water licences, authorizations, management plans and environmental effects monitoring plans will continue through 2022.













## **RAPPORT ANNUEL DES OPÉRATIONS 2021 DE L'ASSOCIATION INUITE QIKIQTANI (AIQ) ET DE L'OFFICE DES EAUX DU NUNAVUT (OEN)**

### **RÉSUMÉ**

Le présent rapport adressé à la Qikiqtani Inuit Association (QIA) et à l'Office des eaux du Nunavut (OEN) a été rédigé dans le but de présenter un résumé des activités et des contrôles du projet de la rivière Mary de 2021 (le projet), effectués dans le cadre de la modification n° 1 du permis d'utilisation des eaux de type « A » n° 2AM-MRY1325 (permis d'utilisation des eaux de type « A ») de Baffinland Iron Mines Corporation (Baffinland), et du bail commercial n° Q13C301 (Bail commercial) entre la QIA et Baffinland. Un rapport annuel distinct a été préparé pour la QIA et l'OEN dans le but de résumer les activités d'exploration et de géotechnique menées en 2021 pour le projet de la rivière Mary dans le cadre de la portée du permis d'utilisation des eaux de type « B » n° 2BE-MRY2131 (permis d'utilisation des eaux de type « B ») et du bail commercial, et un rapport distinct pour la QIA et l'OEN résumant les activités d'exploration menées en 2021 pour le programme d'exploration de la baie d'Eqe dans le cadre de la portée du permis d'utilisation des eaux de type « B » n° 2BE-EQE1926 et du permis d'utilisation des terres n° QL2-1910 de Baffinland.

Chez Baffinland, la sécurité et le bien-être de nos employés, des entrepreneurs et des collectivités du nord de l'île de Baffin demeurent notre plus grande priorité, tout en assurant la continuité de nos activités en ces temps changeants et difficiles. Baffinland dispose de solides plans de gestion des urgences et des crises qui comprennent un volet sur les maladies infectieuses. Notre réponse à la COVID-19 comprend non seulement des mesures de santé et de sécurité de premier plan dans l'industrie, mais également un soutien communautaire supplémentaire pour aider à soulager une partie des pressions découlant de cette pandémie mondiale. Baffinland, avec ses employés, a pris des mesures pour soutenir les collectivités du nord de l'île Baffin tout au long de la pandémie.

Au début de l'année 2021, les employés Nunavummiut de Baffinland ont continué de rester dans leur collectivité d'origine avec une rémunération pour les aider à se protéger et à protéger leurs collectivités. Cet arrangement a été mis en œuvre pour la première fois en avril 2020, lorsque les employés ont été soumis à des taux de rémunération de réserve assortis d'avantages sociaux collectifs complets. En avril 2021, à la suite de l'apparition du variant Delta de la COVID-19 sur le site, les opérations ont été suspendues provisoirement pour une période de trois semaines. Pendant cet arrêt des opérations, les programmes de surveillance environnementale étaient considérés comme essentiels et se sont poursuivis. Cet arrêt des opérations a entraîné une diminution des opérations minières comme décrite ci-dessous. Tout au long de l'année 2021, Baffinland a continué de travailler avec le gouvernement du Nunavut et le ministère de la Santé publique du Nunavut à des initiatives axées sur le risque, ce qui a conduit les employés Nunavummiut à amorcer leur retour au travail en juillet 2021. Le choix du moment a permis aux chercheurs inuits des collectivités locales de participer à plusieurs programmes de surveillance environnementale d'été, dans la mesure du possible. Malheureusement, en décembre 2021, il a été décidé qu'en raison du variant Omicron fortement contagieux, les employés Nunavummiut

retourneraient chez eux avec un congé payé. Baffinland a le plaisir d'annoncer qu'à compter du mois de mars 2022, nos employés Nunavummiut sont de retour sur le site. Pour des renseignements supplémentaires concernant la réponse de Baffinland à la COVID-19, veuillez vous rendre sur le site [www.baffinland.com/sustainability/health-and-safety/](http://www.baffinland.com/sustainability/health-and-safety/)

En 2021, les opérations minières se sont poursuivies au Gisement n° 1, et un total de 5,53 millions de tonnes de minerai a été transporté par des camions de transport de minerai le long du chemin d'approvisionnement depuis le site minier et stocké au Port de Milne. Pendant la saison de navigation de 2021, un total de 5,6 millions de tonnes de minerai a été expédié du Port de Milne du projet vers les marchés internationaux. En 2021, les expéditions de minerai ont nécessité 73 voyages individuels de navires de transport de minerai. La saison de navigation a été limitée en 2021 en raison de la mise en œuvre d'un plan d'intervention provisoire pour la gestion adaptative du narval, qui a retardé le début de la saison de navigation et a eu pour effet de limiter le volume de minerai pouvant être expédié.

Les opérations minières et le développement de l'infrastructure du projet se sont poursuivis tout au long de 2021. Une description des principales activités liées au projet, réalisées dans le cadre du permis d'utilisation des eaux de type « A » et du bail commercial, est fournie ci-dessous par zone de projet.

#### **Site minier**

Au site minier, les activités principales du Projet incluaient :

- l'exploitation du Gisement n° 1 ainsi que le broyage et le stockage du minerai à l'installation d'exploitation de la mine au KM 106 et à l'installation de concassage du site minier;
- le dépôt continu de déchets non dangereux sur le site d'enfouissement de déchets non dangereux du site minier (installation d'enfouissement);
- le dépôt continu de stériles générés par les opérations du projet à l'installation de stockage des stériles;
- l'entretien d'une infrastructure de drainage des eaux de surface (c.-à-d. ponceaux) pour répondre aux préoccupations relatives à la sédimentation, et pour améliorer le drainage des eaux de surface;
- la poursuite de la mise en œuvre de la stratégie de reclassement du concasseur à minerai afin d'éviter l'accumulation d'eau sur ou autour de l'installation de concassage et installation d'un système de pompage pour transférer les eaux collectées du fossé d'urgence vers le bassin MS-06 de l'installation de concassage;
- la poursuite de l'exploitation de l'usine de traitement des eaux dédiée au bassin de l'installation de stockage des stériles pour assurer la conformité de la qualité de l'eau des effluents;
- l'installation d'emplacements supplémentaires pour la surveillance des retombées de poussières; et

- construction d'une digue de retenue pour la gestion des eaux de surface (MS-11) au KM 104,5.

### **Chemin d'approvisionnement**

Le long du chemin d'approvisionnement, les activités principales du Projet incluaient :

- le transport du minerai par camion depuis le site minier au Port de Milne pour y être stocké;
- le transport par camion de carburant et de diverses fournitures depuis le Port de Milne au site minier afin de soutenir les opérations et le développement du Projet;
- la poursuite de l'entretien du chemin d'approvisionnement pour améliorer le drainage des eaux de surface et pour répondre aux préoccupations en matière de sécurité et d'exploitation, notamment les travaux proposés dans le cadre du plan d'exécution des travaux de terrassement du chemin d'approvisionnement (TREEP) et la mise en œuvre sélective de la conception Hatch (2013);
- la mise en œuvre de mesures préventives et correctives (c.-à-d. vérification des digues de retenue, des clôtures anti-érosion, l'excavation de la neige et de la glace des ponceaux, etc.) pour répondre aux préoccupations concernant la sédimentation pendant les périodes de haut débit;
- la remise en état progressive et continue des sources d'emprunt historiques prioritaires;
- le développement continu de la source d'emprunt au KM 97 pour soutenir l'entretien de la route; et
- l'application continue du traitement antipoussière sous le nom commercial DUST/BLOKR®.

### **Port de Milne**

Au Port de Milne, les activités principales du Projet incluaient :

- la poursuite du stockage de minerai dans l'installation de stockage au Port de Milne avant et après la saison de navigation de 2021;
- l'expédition maritime du minerai vers les marchés internationaux à l'aide de chargeur de navire du Port de Milne et par minéraliers;
- l'application continue du traitement antipoussière des piles de stockage de minerai au Port de Milne sous le nom commercial DusTreat®;
- l'extraction d'agrégats de la carrière Q1; et
- de nombreuses activités de transport maritime, notamment le retour de l'équipement et des déchets vers le Sud du Canada et la livraison de carburant, d'équipement, de consommables et de matériaux pour soutenir la poursuite des opérations et du développement du projet.

### **Gestion de l'installation des stériles**

En 2021, Baffinland a poursuivi la caractérisation du Gisement n° 1 de stériles générés par les opérations du projet et l'optimisation des stratégies de dépôt et de gestion des stériles afin de répondre aux préoccupations non résolues relevées à l'installation de stockage des stériles (WRF) concernant le drainage rocheux acide et la lixiviation des métaux. Baffinland a continué à effectuer des essais géochimiques sur les stériles pour élargir l'ensemble de données analytiques, et à surveiller les températures à l'intérieur de la WRF afin de confirmer que la stratégie de gestion garantissait que les conditions de gel pouvaient être atteintes et maintenues au sein de la pile de stériles.

La surveillance thermique en 2021 a continué à démontrer que l'installation de stockage des stériles est gelée, à l'exception d'une couche active saisonnière peu profonde. La surveillance de la qualité de l'eau à partir de l'installation de stockage des stériles a démontré des conditions de pH neutre tout au long de la saison estivale et n'a généralement pas nécessité de traitement par l'usine de traitement de l'eau de l'installation de stockage des stériles pour satisfaire aux critères applicables de permis d'utilisation des eaux et de rejet du REMMMD (*Règlement sur les effluents des mines de métaux et des mines de diamants*). Aucun suintement n'a été décelé à partir de l'installation, indiquant l'efficacité des travaux d'assainissement pour atténuer les rejets non contrôlés identifiés pour la première fois en 2017.

Baffinland continuera de surveiller les conditions à la WRF pour garantir des résultats de gestion efficaces dans l'atteinte des objectifs finaux de clôture de l'installation. Les futures mises à jour du plan de gestion des stériles de la phase 1 évalueront les données de surveillance recueillies à ce jour afin de déterminer si les critères de séparation des déchets et les stratégies de placement sont toujours valables ou si des mises à jour sont nécessaires.

### **Modifications clés à l'infrastructure du projet**

Les modifications approuvées mises en œuvre sur le projet en 2021 comprenaient :

- Modification n° 13 – Infrastructure de gestion des eaux du site minier

### **Déversements**

En 2021, quatorze (14) déversements ont été signalés par le projet à la Northwest Territories-Nunavut (NT-NU) Spill Line, les RCAANC et la QIA. Il s'agit d'une fréquence semblable à celle notée en 2020. Outre le rapport original des déversements présenté dans les 24 heures suivant chaque déversement en 2021, un rapport de suivi détaillé a été présenté dans les trente (30) jours après chaque déversement signalé. Baffinland a continué d'enquêter sur les causes fondamentales de tous les déversements qui se sont produits sur le site en 2021, de sorte que des mesures correctives efficaces à long terme puissent être mises en œuvre pour réduire la fréquence des déversements sur les sites du projet.

### **Consommation d'eau et surveillance de l'eau douce**

En vertu de l'autorisation du permis d'utilisation des eaux de type « A », l'eau douce a été prélevée en 2021 pour soutenir trois (3) activités essentielles du projet : l'approvisionnement en eau potable

(domestique), la suppression de la poussière et d'autres objectifs industriels. En 2021, les limites de prélèvement du volume d'eau total quotidien à des fins de suppression de la poussière ont été dépassées à deux (2) reprises aux sources d'eau approuvées pour le projet. Cela représente une réduction de 94 % et une amélioration sensible par rapport à 2020, où trente-et-un (31) dépassements des limites ont eu lieu. Cela est attribué à l'amélioration des contrôles de suivi de l'utilisation quotidienne de l'eau aux sources d'eau individuelles par rapport aux limites quotidiennes.

Tout au long de l'année 2021, Baffinland a continué à mettre en œuvre le programme du réseau de surveillance (SNP) décrit à l'Annexe I du permis d'utilisation des eaux de type « A », en analysant les effluents (c.-à-d. les eaux d'égout traitées, les eaux huileuses traitées) déversés dans l'environnement récepteur et en surveillant la qualité des eaux de surface dans certaines zones du projet (c.-à-d. le ruissellement des eaux de surface en aval des zones du projet). D'après un examen des résultats du SNP de 2021 présentés à l'OEN, aux RCAANC et à la QIA, les dépassements des critères de rejet applicables en 2021 concernaient principalement le ruissellement des eaux de surface et les effluents présentant des niveaux élevés de total des solides en suspension (TSS). Dans chaque cas, des mesures de contrôle appropriées ont été mises en œuvre pour rétablir les niveaux de TSS en deçà des critères de rejet applicables. Baffinland continue d'évaluer et de mettre en œuvre les mesures d'atténuation et correctives appropriées pour répondre aux préoccupations actuelles en matière de sédimentation dans le cadre du projet.

Outre le SNP, une surveillance environnementale continue et des études sur les effets, notamment le Programme de surveillance des répercussions sur le milieu aquatique (AEMP) et le programme de surveillance du chemin d'approvisionnement (TRMP) du projet ont été entrepris en 2021 conformément aux engagements pris dans le cadre de l'EGRA, et de l'énoncé des incidences environnementales final (EIEF) qui a été approuvé aux termes du certificat de projet.

### **Consultations et engagement communautaires**

Étant donné un certain assouplissement des restrictions de voyage en 2021, Baffinland a mis en œuvre une approche hybride pour les activités d'engagement communautaire dans les 5 collectivités du Nord-de-l'île-de-Baffin et à Iqaluit, certains événements et réunions se déroulant en personne et d'autres reposant sur la vidéoconférence et la téléconférence. Baffinland a également maintenu sa présence sur les médias sociaux et la radio locale comme moyen de s'assurer que les informations sur le projet sont accessibles à un large public. Baffinland reconnaît que la participation en personne est préférable, malgré tout, le modèle hybride s'est avéré efficace pour garantir le maintien de voies de communication entre les représentants des collectivités et autres parties intéressées et Baffinland tout au long de la pandémie.

À mesure que les restrictions de voyage et les ordonnances de santé publique évoluaient, Baffinland a fréquemment évalué quelles méthodes de participation s'avéraient les plus efficaces, tout en maintenant la santé et la sécurité des personnes et des collectivités comme priorité absolue. Cette approche adaptative à la participation devrait se poursuivre à mesure que la pandémie de COVID-19 et les ordonnances de santé publique connexes évoluent tout au long de 2022.

### **Résumé des plans pour 2022**

Le plan de travail pour 2022 a été préparé, puis distribué par Baffinland aux parties intéressées le 1<sup>er</sup> novembre 2021, conformément à la section 6.1 du bail commercial et de la partie J, article 3 du permis d'utilisation des eaux de type « A », en vue d'un examen annuel de la sécurité des activités entreprises sur une base annuelle.

Le plan de travail de 2022 décrit le développement et l'exploitation prévus pour la mine, le concassage de minerai et le transport terrestre, le stockage et l'expédition maritime de minerai et la poursuite du développement et de la construction des infrastructures nécessaires au Port de Milne, sur le chemin d'approvisionnement et sur le site minier. Baffinland continue de mettre en œuvre le plan de gestion des eaux pour le site minier à la suite de l'approbation de la modification n° 13 par l'Office des eaux du Nunavut.

La proposition d'expansion de la phase 2 du projet continue de progresser à travers une évaluation conjointe administrée par la CNER et l'OEN. La demande de Baffinland visant à modifier le permis d'utilisation des eaux n° 2AM-1325 est en cours et Baffinland continuera de travailler en collaboration avec toutes les parties pour résoudre entièrement les questions en suspens avant la conférence préparatoire et l'audience publique. Les programmes de surveillance environnementale du projet conformément au certificat de projet, les permis d'utilisation des eaux, les autorisations, les plans de gestion et les plans de suivi des effets sur l'environnement se poursuivront en 2022.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY (ENGLISH)</b> .....	<b>II</b>
<b>EXECUTIVE SUMMARY (INUKTITUT)</b> .....	<b>VII</b>
<b>EXECUTIVE SUMMARY (FRENCH)</b> .....	<b>XIII</b>
<b>1 INTRODUCTION</b> .....	<b>1</b>
1.1 PURPOSE AND SCOPE .....	1
1.2 REGULATORY FRAMEWORK .....	1
1.3 COVID-19 SUMMARY .....	2
<b>2 PROJECT ACTIVITIES, MODIFICATIONS AND INFRASTRUCTURE CHANGES</b> .....	<b>3</b>
2.1 OVERVIEW OF PROJECT .....	3
2.2 SUMMARY OF 2021 PROJECT ACTIVITIES .....	4
2.3 MODIFICATIONS .....	5
2.3.1 Modification Applications Summary .....	5
2.3.2 Modifications Implemented .....	6
2.4 OTHER CONSTRUCTION ACTIVITIES .....	6
2.5 INBOUND AND OUTBOUND SHIPMENTS TO AND FROM THE PROJECT .....	7
<b>3 MINING AND EXPLORATION ACTIVITIES</b> .....	<b>8</b>
3.1 EXPLORATION AND GEOTECHNICAL DRILLING ACTIVITIES.....	8
3.2 MINING ACTIVITIES .....	8
3.3 SHIPPING ACTIVITIES .....	8
3.4 SPECIFIED SUBSTANCES EXTRACTED FROM QUARRIES AND BORROW SOURCES.....	8
<b>4 WATER USE</b> .....	<b>9</b>
4.1 QUANTITIES OF FRESHWATER USED FOR DOMESTIC AND INDUSTRIAL PURPOSES .....	9
4.2 QUANTITIES OF FRESHWATER USED FOR DUST SUPPRESSION .....	9
4.3 QUANTITIES OF RECLAIMED AND RECYCLED WATER .....	10
<b>5 WASTE MANAGEMENT</b> .....	<b>12</b>
5.1 WASTEWATER MANAGEMENT .....	12
5.1.1 Quantities of Sewage Effluent and Sludge from STPs and PWSPs.....	12
5.1.2 Quantities of Effluent from Containment Areas.....	13
5.1.3 Quantities of Effluent from Surface Water Management Ponds .....	14
5.2 SOLID AND HAZARDOUS WASTE MANAGEMENT .....	14
5.2.1 Site Incinerators.....	15
5.2.2 Open Burning.....	15
5.2.3 Mine Site Landfill Facility .....	16
5.2.4 Milne Port Landfarm Facility.....	16
5.2.5 Hazardous Waste Storage and 2021 Backhaul Sealift .....	17
5.3 WASTE ROCK MANAGEMENT .....	18
5.3.1 Mine Site Waste Rock Facility .....	18
<b>6 REPORTED INCIDENTS</b> .....	<b>20</b>

6.1	SPILLS .....	20
6.2	HEALTH & SAFETY INCIDENTS .....	21
<b>7</b>	<b>MONITORING .....</b>	<b>22</b>
7.1	SEWAGE DISPOSAL .....	22
7.1.1	2021 Mine Site PWSP Effluent Discharge to Sheardown Lake NW .....	23
7.1.2	2021 Milne Port PWSP Effluent Discharge to Milne Inlet.....	23
7.2	STORMWATER FROM CONTAINMENT AREAS .....	23
7.3	SURFACE WATER RUNOFF AND SEEPAGE.....	26
7.3.1	Milne Port Ore Stockpile Facility .....	26
7.3.2	Mine Site Landfill Facility .....	27
7.3.3	Mine Site Waste Rock Facility .....	27
7.3.4	Mine Site Crusher Facility .....	28
7.3.5	KM 106 Run-of-Mine (ROM) Ore Stockpile Facility .....	29
7.3.6	Deposit No. 1 .....	30
7.3.7	Tote Road Monitoring Program.....	31
7.3.8	Snow Stockpile Monitoring.....	32
7.4	SURFACE WATER RUNOFF DOWNSTREAM OF PROJECT AREAS AND QUARRIES .....	33
7.5	NATURAL SEDIMENTATION EVENTS .....	37
7.6	AQUATIC EFFECTS MONITORING PLAN (AEMP) .....	37
7.7	2021 GROUNDWATER MONITORING PROGRAM .....	39
7.8	QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) .....	41
<b>8</b>	<b>RECLAMATION, CLOSURE AND FINANCIAL SECURITY .....</b>	<b>43</b>
8.1	PROGRESSIVE AND FINAL RECLAMATION .....	43
8.2	CURRENT RESTORATION LIABILITY .....	44
<b>9</b>	<b>PLANS, REPORTS AND STUDIES .....</b>	<b>45</b>
9.1	SUMMARY OF STUDIES REQUESTED BY THE NUNAVUT WATER BOARD .....	45
9.2	REVISIONS TO PLANS, REPORTS AND MANUALS.....	45
9.3	SUMMARY OF FUEL STORAGE .....	45
9.4	RESULTS OF CHEMICAL ANALYSIS OF INCINERATOR BOTTOM ASH .....	46
9.5	SUMMARY OF GEOCHEMICAL ANALYSIS FOR OPERATED QUARRIES.....	47
9.6	WASTE ROCK STUDIES AND OPERATIONAL TESTING RESULTS.....	48
9.6.1	WRF QA/QC Program.....	48
9.6.2	Geochemistry Monitoring Program.....	48
9.6.3	Water Quality Monitoring Program.....	49
9.6.4	Thermal Monitoring Program .....	50
9.7	RECLAMATION RESEARCH .....	50
<b>10</b>	<b>REGULATORY INSPECTIONS AND COMPLIANCE .....</b>	<b>51</b>
10.1	REGULATORY INSPECTIONS .....	51
10.1.1	CIRNAC Inspections.....	51
10.1.2	QIA Inspections.....	51
10.1.3	ECCC Inspections .....	51

10.1.4	Workers' Safety and Compensation Commission (WSCC) Mine Inspections and Visits .....	51
10.2	REGULATORY ENFORCEMENT ACTIONS .....	52
<b>11</b>	<b>AMENDMENTS – PENDING AND COMPLETED .....</b>	<b>53</b>
11.1	TYPE 'A' WATER LICENCE .....	53
11.2	COMMERCIAL LEASE .....	53
11.2.1	Options Exercise Notices .....	53
11.2.2	Tote Road Adjustment Notices .....	53
<b>12</b>	<b>PUBLIC CONSULTATIONS.....</b>	<b>54</b>
<b>13</b>	<b>SUMMARY OF PROJECT PLANS FOR 2022.....</b>	<b>55</b>
<b>14</b>	<b>REFERENCES.....</b>	<b>56</b>

## LIST OF TABLES

Table 0	Report Submission Summary
Table 1.1	Current Approvals, Permits and Authorizations - 2021
Table 2.1	Summary of Project Activities, Modifications and Infrastructure Changes – 2021
Table 2.2	Type 'A' Water Licence Modifications Summary and Approvals Status - 2021
Table 2.3	Equipment and Materials Shipped off the Property – 2021
Table 2.4	Equipment and Materials Shipped to and Stored on the Property – 2021
Table 3.1	Monthly and Annual Quantities of Ore Generated by the Project – 2021
Table 3.2	Monthly and Annual Quantities of Ore Shipped by the Project - 2021
Table 3.3	Quantities of Specified Substances Removed from Borrows and Quarries (BCMs) by Quarter and Calendar Year – 2021
Table 3.4	Quantities of Specified Substances Removed from Borrows and Quarries (BCMs) October 1, 2020 to September 30, 2021 Reporting Period
Table 4.1	Annual Volumes of Water Used for Project Activities on Inuit-Owned and Crowns Lands by Source – 2021
Table 4.2	Daily, Monthly, and Annual Volumes of Water Used for Domestic and Industrial Purposes on Inuit-Owned Land and Crown Lands – 2021
Table 4.3	Daily, Monthly, and Annual Volumes of Water Used for Dust Suppression Purposes on Inuit-Owned and Crown Lands – 2021
Table 5.1	Daily and Monthly Quantities - Sewage Management - 2021
Table 5.2	Monthly and Annual Quantities - Sewage Sludge Management - 2021
Table 5.3	Daily, Monthly, and Annual Quantities of Discharge Stormwater - Containment Areas - 2021
Table 5.4	Daily, Monthly, and Annual Quantities of Discharge Stormwater - Surface Water Management Ponds - 2021
Table 5.5	Locations of Temporary and Permanent Storage Areas for Wastes - 2021

Table 5.6	Monthly and Annual Quantities of Waste Deposited - Landfill Facility - 2021
Table 5.7	Monthly and Annual Quantities of Hydrocarbon Impacted Soil, Water, and Snow Deposited - Milne Port Landfarm Facility - 2021
Table 5.8	Monthly and Annual Quantities - Deposit No. 1 Waste Rock Management – 2021
Table 6.1	Summary of Unauthorized Discharge by Area and Product - 2021
Table 6.2	List of Reported Spills and Unauthorized Discharges - 2021
Table 6.3	List of Reported Health & Safety Incidents - 2021
Table 7.1	Water Licence Water Quality Monitoring Locations - 2021
Table 7.2	Water Quality Results for Milne Port Water Licence Monitoring Location
Table 7.3	Water Quality Results for Mine Site Water Licence Monitoring Location
Table 7.4	Water Quality Results for Snow Stockpile Water Licence Monitoring Locations
Table 7.5	Water Quality Results for Other Water Licence Monitoring Locations
Table 7.6	Field QA/QC Water Quality Data Analysis - Field Duplicates – 2021
Table 7.7	Field QA/QC Water Quality Data Analysis - Field Blanks and Travel Blanks - 2021
Table 7.8	Summary - QA/QC Analysis of Duplicates with an RPD > 30% - 2021
Table 7.9	Water Quality Monitoring Results – Natural Sedimentation Events - 2021
Table 8.1	Reclamation Works Related to Project Operations on Inuit-Owned and Crown Lands - 2021
Table 8.2	Mary River Project Total Closure and Reclamation Security Summary - 2021
Table 9.1	Management and Monitoring Plan Updates - 2021
Table 9.2	Sample Results from 2021 QA/QC Sample Program
Table 12.1	Meetings with the Public, Government, and Inuit Organizations – 2021
Table 12.2	Site Visits to the Mary River Project – 2021

## LIST OF FIGURES

Figure 1	Baffinland Iron Mines Project Location
Figure 2	Mary River Project Activities Overview
Figure 3	Milne Port Site Layout
Figure 4	Northern Corridor
Figure 5	Mine Site Layout
Figure 6	Mid Rail Camp Location
Figure 7	Steensby Port Layout
Figure 8	Bruce Head Camp
Figure 9	2021 Unauthorized Discharge Locations
Figure 10	Deposit 1 Waste Rock Facility
Figure 11	Natural Sedimentation Events

## APPENDICES

- Appendix A    Concordance Tables
- Appendix B    NWB Annual Report Forms
- Appendix C    As Built And Infrastructure Monitoring Reports
  - C.1    Construction Summary Reports
  - C.2    Geotechnical Inspection Report
  - C.3    DFO Tote Road Annual Report
  - C.4    Tote Road Priority Action Schedule
- Appendix D    Photo Journal
  - D.1    Mine Site Photo Sheet
  - D.2    Tote Road Photo Sheet
  - D.3    Milne Port Photo Sheet
  - D.4    Steensby Port, Mid-Rail Photo Sheet
  - D.5    Community Consultation Photo Sheet
- Appendix E    Other Supporting Documents
  - E.1    Waste Backhaul Report
  - E.2    Incinerator Ash Testing Results
  - E.3    SNP Hydrometric Monitoring Locations
  - E.4    Shipping Manifests (Inbound and Outbound)
  - E.5    2021 Management Plan Updates
    - E.5.1    Snow Management Plan
    - E.5.2    Quality Assurance and Quality Control (QA/QC) Plan
    - E.5.3    Aquatic Effects Monitoring Plan (AEMP)
    - E.5.4    Hazardous Materials and Hazardous Waste Management Plan
    - E.5.5    Fresh Water Supply, Sewage, and Wastewater Management Plan (FWSSWMP)
    - E.5.6    QMR2 Quarry Management Plan
  - E.6    Waste Rock Geochemistry Analytical Sampling Results
  - E.7    Quarry Geochemistry Analytical Sampling Results
  - E.8    Regulatory Correspondence
    - E.8.1    CIRNAC Inspection Reports and Baffinland Responses
    - E.8.2    QIA Inspection Reports and Baffinland Responses
    - E.8.3    Initial and Follow-Up Spill Reports
  - E.9    Aquatic Effects Monitoring Reports
    - E.9.1    2021 CREMP Monitoring Report
    - E.9.2    2021 Lake Sedimentation Monitoring Report
    - E.9.3    2021 AEMP Hydrometric Monitoring Report
  - E.10    Reclamation Research Studies

- E.11 2021 Freshet Monitoring Report
- E.12 2021 Groundwater Monitoring Report
- E.13 SNP Modification Application
- E.14 Response to Outstanding 2020 Annual Report Comments
- E.15 MDMER Annual Report Submission

## ABBREVIATIONS

ABA.....	Acid Base Accounting
AEMP.....	Aquatic Effects Monitoring Plan
AG.....	Acid Generating
ALS.....	ALS Canada Ltd.
ARD.....	Acid Rock Drainage
Baffinland.....	Baffinland Iron Mines Corporation
BOD.....	Biochemical Oxygen Demand
CCME.....	Canadian Council of Ministers of the Environment
CEQG.....	Canadian Environmental Quality Guidelines
CF.....	Crusher Facility
CIRNAC.....	Crown Indigenous Relations and Northern Affairs Canada
Commercial Lease.....	Commercial Lease No. Q13C301
CREMP.....	Core Receiving Environment Monitoring Program
CWS.....	Canadian-wide Standards
DAF.....	Dissolved Air Flotation
DFO.....	Department of Fisheries and Ocean
ECCC.....	Environment and Climate Change Canada
EEM.....	Environmental Effects Monitoring
ERP.....	Early Revenue Phase
ERp.....	Emergency Response Plan
FDP.....	Final Discharge Point
FEIS.....	Final Environmental Impact Statement
FIGQ.....	Federal Interim Groundwater Quality Guidelines
GN.....	Government of Nunavut
Golder.....	Golder Associates Ltd.
HWB.....	Hazardous Waste Berms
IOL.....	Inuit Owned Land
Landfill Facility.....	Mine Site Non-Hazardous Waste Landfill Facility
LDL.....	Lowest Detection Limit
LOA.....	Letters of Advice
LTWMP.....	Long Term Water Management Plan
MBR.....	Membrane Bioreactor
MDMER.....	Metal and Diamond Mining Effluent Regulations
ML.....	Metal Leaching
mL.....	Milliliter
mg/L.....	Milligrams per Liter
Mt.....	Million Tonnes

---

Mtpa.....	Million Tonnes Per Annum
NaOH.....	Sodium Hydroxide Solution
NIRB.....	Nunavut Impact Review Board
Non-AG.....	Non-Potentially Acid Generating
NPR.....	Neutralization Potential Ratio
NT-NU.....	Northwest Territories-Nunavut
NWB.....	Nunavut Water Board
OEN.....	Options Exercise Notice
OPEP.....	Oil Pollution Emergency Plan
OPPP.....	Oil Pollution Prevention Plan
OWTS.....	Oily Water Treatment System
PAG.....	Potentially Acid Generating
PWSP.....	Polishing Waste Stabilization Pond
QA.....	Quality Assurance
QC.....	Quality Control
QE.....	Qikiqtaaluk Environmental
QIA.....	Qikiqtani Inuit Association
ROM.....	Run of Mine
Rpd.....	Relative Percent Difference
SCP.....	Spill Contingency Plan
SRM.....	Standard Reference Material
SNP.....	Surveillance Network Program
STP.....	Sewage Treatment Plants
TCLP.....	Toxicity Characteristic Leaching Procedure
TDGA.....	Transportation of Dangerous Goods Act
TDS.....	Total Dissolved Solids
the Mine Site.....	Mary River Mine Site
the Port Site.....	Milne Port Facility
the Project.....	Mary River Project
Tote Road.....	Milne Inlet Tote Road
TOG.....	Total Oil and Grease
TRMP.....	Tote Road Monitoring Program
TRAN.....	Tote Road Adjustment Notice
TREEP.....	Tote Road Earthworks Execution Plan
TSS.....	Total Suspended Solids
Type 'A' Water Licence.....	Type 'A' Water Licence - 2AM-MRY1325 – Amendment No. 1
Type 'B' Water Licence.....	Type 'B' Water Licence - 2BE-MRY2131
VEC.....	Valued Ecosystems Components
WRF.....	Waste Rock Facility

WSCC.....Workers' Safety & Compensation Commission  
WTP.....Water Treatment Plant

## 1 INTRODUCTION

### 1.1 PURPOSE AND SCOPE

This report to the Qikiqtani Inuit Association (QIA) and the Nunavut Water Board (NWB) has been prepared to summarize the 2021 Mary River Project (the Project) activities and monitoring conducted under Baffinland Iron Mines Corporation's (Baffinland) Type 'A' Water Licence - 2AM-MRY1325 – Amendment No. 1 (Type 'A' Water Licence), the Commercial Lease No. Q13C301 (Commercial Lease) between the QIA and Baffinland, and Crown Land leases for the Tote Road (N2020Q0011) and Bruce Head (N2020J0010). All annual reporting requirements for the Commercial Lease, except a summary of the exploration and drilling activities conducted in 2021, are included within this report. A separate annual report has been prepared for the QIA and NWB to summarize the 2021 exploration and geotechnical activities conducted within the scope of Baffinland's Type 'B' Water Licence - 2BE-MRY2131 (Type 'B' Water Licence) and Commercial Lease, as well as the QIA Land Use Licence QL2-2012 and Crown Land Use Permit for Steensby Inlet (N2020C0009). Concordance tables referencing where in this report the annual reporting requirements outlined in the Commercial Lease and Type 'A' Water Licence have been met are presented in Appendix A.

The Type 'A' Water Licence includes provisions for sampling programs that involve recording data related to the volume of water extracted for any purpose, testing of effluents (e.g., treated sewage effluents) discharged to the environment, and monitoring water quality within specific Project areas (e.g., surface discharge downstream of Project infrastructure, stormwater from containment structures, etc.). These data are summarized and referenced in the completed NWB Annual Report Forms, included as Appendix B, and are described in greater detail in the subsequent sections.

Figures 1 and 2 present the locations of the key areas associated with the Project where activities in 2021 were undertaken. These areas included Milne Port (Figure 3), the Milne Inlet Tote Road (Tote Road; Figure 4) and the Mary River Mine Site (Mine Site; Figure 5). Accommodations at the Mid-Rail Camp and Steensby Port, as shown in Figures 6 and 7, respectively, remained closed and unoccupied during 2021. The Bruce Head camp, shown in Figure 8, was occupied throughout 2021 in support of the marine monitoring studies conducted in Milne Inlet and along the shipping route. See Appendix D – Photo Journals for detailed photos of various site activities and infrastructure.

### 1.2 REGULATORY FRAMEWORK

Although the key regulatory and legal documents that relate to this report are the Commercial Lease and the Type 'A' Water Licence, this report is presented in the context of other applicable regulatory authorizations and schedules for the Project. A list of the key regulatory permits, approvals and authorizations that allowed for the work to be completed at the Project in 2021 is presented in Table 1.1.

### 1.3 COVID-19 SUMMARY

In response to the COVID-19 Pandemic, additional precautions were applied to the 2021 Environmental Monitoring Programs. Baffinland and its consultants implemented comprehensive safety plans and protocols to minimize the risk of COVID-19 exposure to their employees and communities. To protect communities in Nunavut from COVID-19, Baffinland requested that all Nunavummiut remain home on paid leave during the first half of 2021. When easing of public health restrictions allowed, Nunavummiut returned to work in late summer 2021, but were sent home again in December due to the presence of the Omicron variant.

To minimize risk of exposure to employees and contractors traveling to Mary River, pre flight COVID-19 testing and screening for symptoms was implemented for all inbound personnel as a prerequisite for site access. Baffinland protocols, established in consultation with federal and territorial public health experts included: preventive measures such as physical distancing, proper hand washing, frequent sanitizing, and mask use during travel and on site at Mary River. Baffinland and its consultants implemented comprehensive safety plans and protocols to minimize the risk of COVID-19 exposure to their employees and local communities.

Baffinland has also implemented a COVID-19 testing facility on site to test all employees and contractors at Mary River. Additionally, the staff undergo daily health screenings to monitor for any symptoms of COVID-19; if any symptoms are experienced, these staff members did not conduct field work. If testing yields positive results or if symptoms develop while on-site, Public Health is contacted and the employee is immediately quarantined until medically cleared.

With the extensive precautions and protocols in place by Baffinland, the risk of COVID-19 exposure to Nunavut communities was minimized, and the environmental monitoring programs were completed with minimal risk. Maintaining a continuous monitoring program in all survey years is critical to detect any effects and trends of the Mary River Project on the environment, to ensure a statistically strong dataset, and to comply with conditions outlined in the Water Licence and Commercial Lease.

## 2 PROJECT ACTIVITIES, MODIFICATIONS AND INFRASTRUCTURE CHANGES

### 2.1 OVERVIEW OF PROJECT

The Mary River iron ore deposit on North Baffin Island is considered to be one of the largest and highest quality iron ore open pit deposits in the world. The Project currently comprises an operating open pit iron ore mine and deep water port (Milne Port) that is operated by Baffinland and jointly owned by ArcelorMittal and Nunavut Iron Ore.

The Project is located in the Qikiqtani Region of Nunavut on northern Baffin Island (Figure 1). The current mine operation is expected to last for more than 20 years, with the ability for the operation to last for generations if it is allowed to expand to include other deposits which have been identified. This represents a potential multi-generational opportunity for resource-driven socio-economic development in the North Baffin region. The Project is an open pit iron ore mine located in the Qikiqtani Region of Nunavut on northern Baffin Island, approximately 160 kilometers south-southwest of the nearest community of Pond Inlet (Mittimatalik) and 1,000 kilometers north-northwest of the territorial capital of Iqaluit (Figure 1).

The Project has gone through a number of important milestones prior to operating at the 2021 approved production rate of 6 Mtpa. Baffinland's initial proposal consisted of mining iron ore from the reserve at Deposit No. 1 at a production rate of 18 Mtpa (with operational flexibility) and using a port south of the mine in Steensby Inlet, serviced by an approximately 160 km southern railway to transport the ore to market (i.e., Southern Transportation Corridor; Figure 1). The NIRB issued Project Certificate No. 005 for this proposal on December 28, 2012.

From 2013 to 2014, in response to changing iron ore market price conditions, Baffinland prepared an alternative development approach, the ERP, supported by an addendum to the FEIS for the Mary River Mine. The Project Certificate was subsequently amended to include the mining of an additional 4.2 Mtpa of ore to be hauled on the existing Milne Inlet Tote Road (Tote Road) north to a port at Milne Inlet (Milne Port). In 2018 and 2020, the Project Certificate (PC) was amended following approval of the Production Increase Proposal (PIP) and PIP Extension Request, allowing for up to 6 Mtpa to be transported and shipped through Milne Port until the end of 2021.

In parallel to the operation of the mine, Baffinland also developed the Phase 2 Proposal, which has been in the regulatory review process since 2015. While there have been revisions to the Phase 2 Proposal since its inception, the current Phase 2 proposal outlines an increase in output from Milne Port Facility (Milne Port), from the originally approved 4.2 Mtpa to 12 Mtpa supported by the construction of a new railway running largely parallel to the existing Tote Road within the Northern Transportation Corridor. Should this be approved, the total mine production approved would include up to 30 Mtpa, with 12 Mtpa being transported via the North Railway to Milne Port and 18 Mtpa via the South Railway to Steensby Port.

During the ERP phase, the Project includes three (3) primary components (Figure 2):

- Mary River Mine Site (the Mine Site);
- Milne Inlet Tote Road (the Tote Road); and

- Milne Port facility (the Port Site).

Operational activities include:

- Ore extraction;
- Ore processing via crushing;
- Transportation of the ore from the Mine Site to Milne Port via the Tote Road;
- Loading and shipping of ore from Milne Port;
- Stakeholder and Inuit community engagement; and
- Environmental monitoring and reporting.

During 2021 (the seventh (7) shipping season), mining operations at Deposit No. 1 resulted in a total of 5.3 million tonnes (Mt) of ore crushed, which was a decrease from the 6.0 Mt crushed in 2020. A total of 5.3 Mt of ore was transported by ore haul trucks along the Tote Road and stockpiled at Milne Port. Between July 24 to October 31, a total of 5.6 Mt of ore was shipped from the Milne Port to international markets. The shipments included ore mined, transported and stockpiled after the 2020 shipping season ended. In 2021, marine ore shipments involved 73 individual ore carrier vessel round trip voyages during the shipping season. An additional vessel was called to Milne Port, but not loaded due to timing constraints at the end of the shipping season.

In addition to the primary components of the current operation, the Approved Project includes construction, operation, closure and post-closure activities associated with the following proposed Project components:

- A 150 Km South Railway from the Mine Site to a new port facility at Steensby Inlet (Figure 7);
- Steensby Port, which will operate year-round; and
- Year-round shipping along the Southern Shipping Route (Foxe Basin - Hudson Strait).

## 2.2 SUMMARY OF 2021 PROJECT ACTIVITIES

The Project activities undertaken in 2021 were conducted at Milne Port, the Mine Site and along the Tote Road. No Project activities were undertaken related to the development of the South Railway or at Steensby Port in 2021, with the exception of studies to update baseline information on fish and fish habitat along the South Railway and at Steensby Port.

Operation activities in 2021 included:

- The continued development and construction of Project infrastructure required at Milne Port and the Mine Site, and along the Tote Road;
- Development and operation of the mine at Deposit No. 1, including the crushing, trucking, stockpiling and shipping of ore to international markets;
- Continued year-round operation of camp facilities at the Mine Site and Milne Port, and seasonal operation of the Bruce Head camp for marine monitoring programs, which included the use of water and deposition of waste as authorized under existing permits;

- At Milne Port, vessels carrying fuel, equipment and supplies for activities at the Mine Site and Milne Port arrived during the shipping season;
- Material, fuel and supplies required for construction and operational activities were transported from Milne Port to the Mine Site year-round via the Tote Road;
- Operation of the aerodrome at the Mine Site, which supported year round passenger and freight service by aircraft to/from local communities, Iqaluit and southern Canada;
- Operation of helicopter and fixed wing aircraft to service regional exploration and environmental monitoring studies, and other general Project activities;
- Care and maintenance of the inactive Steensby Port camp;
- Continued progressive reclamation of areas of current and past use;
- Remediation of historic borrow pits along the Tote Road;
- Construction of new surface water management infrastructure at KM 105,
- Construction of a landfarm for impacted soil and snow adjacent to the landfill at the mine site;
- Expansion of the Waste Rock Facility and associated water management infrastructure ditching (refer to Appendix C.1 for the Construction Summary Report);
- Construction of a laydown at KM110.5 and the start of construction of a new maintenance building located on the laydown;
- Expansion of the Mine Site helicopter landing pad on previously disturbed area at the Mine Site Weatherhaven;
- Expansion of a laydown located near the site services building to enable parking of heavy equipment;
- Completion of environmental studies and monitoring programs identified in the Final Environmental Impact Statement (FEIS), FEIS Addendum and Type 'A' Water Licence; and
- Continued engineering and environmental studies to support future phases of the Project (i.e. Phase 2 Expansion).

As required by the Commercial Lease and Type 'A' Water Licence, Baffinland submitted to the Nunavut Water Board (NWB), Qikiqtani Inuit Association (QIA) and Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) a 2022 Work Plan on November 1, 2021. Table 2.1 reconciles the activities, construction and infrastructure changes completed in 2021 to the works proposed in 2021 Work Plan.

## 2.3 MODIFICATIONS

### 2.3.1 Modification Applications Summary

During 2021, one modification application was submitted to the NWB, under the Section G of the Type 'A' Water Licence. Table 2.2 summarizes the modification applications submitted to date and their current approvals status.

## 2.3.2 Modifications Implemented

The following subsections outline the construction works completed during 2021 and the current status of the Project's modifications approved by the NWB.

### 2.3.2.1 Modification No. 7 – 2018 Work Plan and 2018 Work Plan Addendum

All works outlined in this modification have been completed, with the exception of construction on the mine haul road widening, Milne Port effluent discharge point relocation and the Milne Port marine fuel manifold building relocation and was on-going in 2021.

### 2.3.2.2 Modification No.10 – Mine Site Upgrades

Expansion of the Mine Site Non-Hazardous Waste Landfill Facility (Landfill Facility) was initiated in 2018 and involved the construction of and deposition of waste at the Landfill Facility's second waste cell (Cell No. 2). In 2021, construction began on a section of the Mine Site Landfarm facility (MS-05).

### 2.3.2.3 Modification No.11 – Installation of an Incineration Unit at Milne Port's 380-Person Camp

Following approval, Baffinland installed one (1) new incinerator to support the 380-Person Camp infrastructure at Milne Port. Prior to operating the unit, the incinerator was subject to stack testing to confirm emissions standards were being met immediately following commissioning of the unit, consistent with Project Certificate Condition No. 12. Due to the results of the initial stack testing, Baffinland has not commissioned the 380-Person Camp Incineration Unit. Baffinland will complete additional stack testing to confirm emissions standards are being met prior to operation. A Construction Summary Report will be completed and submitted following the commissioning of the unit.

### 2.3.2.4 Modification No.12 – Milne Port Ore Stockpile #1 and Water Management Expansion

The further expansion of Stockpile #1 at Milne Port was initiated in 2019 following approval of the modification request. Note that construction is divided into two (2) stages, where the second stage is dependant on receipt of a fisheries act authorization from DFO. Construction of the first stage was completed in 2021. The second stage is planned to proceed on approval from DFO.

### 2.3.2.5 Modification No.13 – Mine Site Water Management

The Long Term Water Management Plan (LTWMP) for the Mine Site was developed with Knight Piésold in 2021 to address erosion and sedimentation at the Mine Site. In 2021, construction of the MS-11 Surface Water Management Pond began, as part of the first phase of the implementation of the Long Term Water Management Plan at the Mine Site, and is ongoing into 2022.

## 2.4 OTHER CONSTRUCTION ACTIVITIES

Other construction activities completed in 2021, not outlined in Sections 2.1 and 2.2, focused around the ongoing maintenance and repair of existing Project infrastructure, including roads, laydowns and surface water management infrastructure; such as drainage ditches, culverts and free-span bridges.

There was no construction work at fish-bearing stream crossings along the Tote Road in 2021 (See Appendix C.3 for monitoring work at fish bearing stream crossings along Tote Road). Future Tote Road improvements/realignments required in support of on-going operations and future expansion projects will continue to follow the original Hatch 2013 drawings and the TREEP. Baffinland will work with Department of Fisheries and Ocean (DFO) as necessary to ensure planned modifications to fish bearing crossings are in compliance of the *Fisheries Act*.

## 2.5 INBOUND AND OUTBOUND SHIPMENTS TO AND FROM THE PROJECT

Equipment, materials, consumables and fuel required for the operation and continued development of the Project were transported to Milne Port via marine shipments between July and October, 2021. In 2021 inbound marine shipments included:

- Four (4) cargo sealifts to Milne Port delivering equipment, materials, and consumables; and
- Fuel shipments to Milne Port to the Milne Port Bulk Fuel Storage Facility via floating-hose transfer;

Equipment, materials, consumables and fuel received by the Project at Milne Port during 2021 are summarized in Table 2.4 and listed in Appendix E.4. Once at the Project, received equipment, materials, consumables and fuel were either stored at Milne Port or transported to the Mine Site via the Tote Road.

Equipment and materials not required by Project operations, including non-hazardous and hazardous wastes generated by Project activities, were shipped off site from Milne Port via marine shipments between July and October 2021.

Equipment, materials, and wastes shipped off the Project in 2021 are summarized in Table 2.3 and listed in Appendix E.4. All wastes backhauled in 2021 were unloaded at the Port of Valleyfield, Quebec and subsequently transported to licensed, waste disposal facilities in Quebec. No wastes were backhauled to communities in Nunavut for disposal. Details on the wastes backhauled and disposed in 2021, including shipping manifests and the waste disposal facilities utilized, are outlined in Appendix E.1.

### **3 MINING AND EXPLORATION ACTIVITIES**

#### **3.1 EXPLORATION AND GEOTECHNICAL DRILLING ACTIVITIES**

For details on the 2021 exploration and geotechnical activities conducted within the scope of Baffinland's Type 'B' Water Licence and Commercial Lease, please refer to Baffinland's 2021 QIA & NWB Annual Report for Exploration and Geotechnical Activities. Additionally, exploration activities for the Ege Bay Exploration Program are captured in the 2021 QIA & NWB Annual Report for the Ege Bay Exploration.

#### **3.2 MINING ACTIVITIES**

During 2021, mining operations at Deposit No. 1 continued to advance. A total of 5.3 Mt of ore produced by mining operations at the Mine Site was transported by ore haul trucks along the Tote Road and stockpiled at Milne Port for marine shipment to international market during the open-water shipping season.

Monthly and annual quantities of ore generated by the Project during 2021 are provided in Table 3.1.

#### **3.3 SHIPPING ACTIVITIES**

During the 2021 shipping season, a total of 5.6 Mt of ore was shipped from the Project's Milne Port to international markets. This required a total of seventy-three (73) individual ore carrier voyages. An additional vessel was called to Milne Port, but not loaded due to timing constraints at the end of the shipping season. Following the shipping season, ore continued to be stockpiled at Milne Port for subsequent shipment to markets in 2023.

Monthly and annual quantities of ore shipped to international markets from the Project's Milne Port during 2021 are provided in Table 3.2.

#### **3.4 SPECIFIED SUBSTANCES EXTRACTED FROM QUARRIES AND BORROW SOURCES**

During 2021, Baffinland operated multiple quarries and borrow sources to support Project road maintenance and infrastructure construction. Quarries and borrow sources in operation during 2021 included the Q1 Quarry at Milne Port and the KM 97 Borrow Source near the Mine Site. As per the requirements of the Commercial Lease (Part 6.4, item d) iv) and Type 'A' Water Licence (Schedule B, Item (g), x), Tables 3.3 and 3.4 provide quantities of each specified substance removed by quarter, calendar year and annual reporting period (October 1, 2020 to September 30, 2021), broken down by individual quarry and borrow source. It should be noted that while specified substances were crushed and removed from the Q1 quarry 2021, there were no blasting activities to support this extraction, as blasting had been completed in 2019. Aggregate from the blasting activities in 2019 was stored in the quarries for use in 2020 and 2021.

## 4 WATER USE

During 2021, water was withdrawn from approved sources and used at Milne Port, the Mine Site and along the Tote Road for Project activities under the authorization of the Type 'A' Licence. Water volumes used to support 2021 exploration and geotechnical drilling activities was withdrawn under the authorization of the Type 'B' Water Licence and has been provided to the NWB and QIA in a separate annual report titled 2021 QIA and NWB Annual Report for Exploration and Geotechnical Activities.

Under the authorization of the Type 'A' Water Licence, freshwater was withdrawn and used by the Project during 2021 to sustain three (3) key activities: potable water supply for camp use, dust suppression and other industrial purposes. See Appendix E.5.5 – Fresh Water Supply, Sewage, and Wastewater Management Plan (FWSSWMP). The following subsections describe water use at the Project during 2021.

### 4.1 QUANTITIES OF FRESHWATER USED FOR DOMESTIC AND INDUSTRIAL PURPOSES

Camp Lake (MS-MRY-1) was used to supply the Mine Site with freshwater for domestic and industrial purposes. Water was withdrawn from Camp Lake using a wet well jetty structure positioned 30 metres from shore. Potable water (domestic) was transported from the jetty to water storage tanks located at the Mine Site's Potable Water Treatment Systems (Mine Site Complex, Sailiivik Camp) using heat traced water pipelines and/or water trucks. Water required for industrial purposes at the Mine Site was withdrawn and transported from the Camp Lake jetty using water trucks or other equipment (i.e. fire trucks).

KM 32 Lake (MP-MRY-3) was used to supply Milne Port with freshwater for domestic and industrial purposes. Water was withdrawn and transported from KM 32 Lake to Milne Port using water trucks. Potable water (domestic) was pumped from water trucks into water storage tanks located at Milne Port's Potable Water Treatment Systems (Port Site Complex, Milne Port 380-person Camp).

Water volumes withdrawn from approved water sources were monitored and documented using flow meters and/or flow extrapolation in accordance with the Type 'A' Water Licence (Part I, Item 9). Total volumes of water withdrawn and used for domestic and industrial purposes were monitored for compliance with the maximum daily withdrawal limits stipulated by the Type 'A' Water Licence (Part E, Item 4; Table 3).

Approved water source locations used for Project sites in 2021 are detailed in Table 4.1 and presented in Figure 4, and Tables 4.2 and 4.3 present the daily, monthly, and annual volumes of freshwater withdrawn from approved water sources on Inuit-Owned Lands (IOL) during 2021. As Steensby Port and Mid-Rail camps were not operated in 2021, water was not withdrawn and/or used at these Project sites in 2021. There were no exceedances of the daily withdrawal limits for domestic and industrial water uses in 2021.

### 4.2 QUANTITIES OF FRESHWATER USED FOR DUST SUPPRESSION

Water was withdrawn from the approved water sources along the Tote Road, outlined in Table 2-3 of the Type 'A' Water Licence, using water trucks and applied to Project roads for dust suppression purposes.

Daily, monthly and annual water volumes withdrawn from these approved water sources during 2021 for dust suppression purposes are outlined in Tables 4.2 and 4.3.

As identified in Table 4.3, total daily water volume withdrawal limits for dust suppression purposes were exceeded two (2) times at approved Project water sources in 2021, including; one (1) exceedance at Muriel Lake, and one (1) exceedance at KM 32 Lake. This is 94% decrease and a significant improvement over 2020, when thirty-one (31) exceedances of the daily water volume for dust suppression use exceeded the dust suppression daily withdrawal limits, and is attributed to improved controls for tracking daily water use at the individual water sources with respect to the daily limits. In 2020, a third party consultant reviewed the dust suppression water withdrawals to assess the effects of the daily water withdrawal exceedances on instantaneous flows of streams and lake outflows at several locations, including at KM 32 Lake, using estimated mean monthly and 10-year low flows, and concluded that the exceedances in 2020 were not environmentally significant and are not expected to adversely affect stream flows, lake flows, fish, or fish habitat (Knight Piésold, 2021). Water withdrawal exceedances of daily limits in 2021 were of significantly less volume when compared to the 2020 exceedances.

Both of the exceedances which occurred in 2021 resulted from a water use accounting issue which occurred because the water use limits are daily limits and do not correspond with operator work shifts which occur over two (2) partial days.

Corrective actions that Baffinland has taken to prevent similar incidents from re-occurring include installing signs at dust suppression water sources that indicate the daily water use limits in numbers of truckloads per day, and implementing an improved water truck operator log that indicates when the maximum daily volume of water has been collected from each source based on the number of water truck loads filled. Waterproof storage systems were installed at each water source in 2021 to house daily water use logs, which enabled the use of a common log sheet for all operators and improved tracking between different trucks using the same source on the same day.

Baffinland is committed to continue to improving controls for tracking source specific daily water withdrawal limits as necessary and maintaining effective record keeping practices for the approved dust suppression water sources.

#### 4.3 QUANTITIES OF RECLAIMED AND RECYCLED WATER

Under the Type 'A' Water Licence (Part E, Item 5), freshwater was reclaimed and recycled throughout the Project and applied to roads for dust suppression purposes. A recycled water sample from MS-RW-01 on June 14, 2021 indicated elevated TSS concentrations that were greater than the Type 'A' Water Licence criteria for grab samples of 30 mg/L. Water use from this location occurred from June 5 to June 8 and did not resume following the observation of the elevated TSS concentrations. On June 9, 2021, a recycled water sample from MS-RW-02 also indicated elevated TSS concentrations that were greater than the applicable criteria for grab samples. Following receipt of the laboratory results on June 11, 2021 indicating the elevated TSS, recycled water use from the location was stopped and was not resumed in 2021. It should be noted that this water was applied directly to roadways for dust suppression efforts and did not

migrate to receiving water bodies. Baffinland is proposing to remove the TSS criteria requirement in its current application to amend the Type 'A' Water Licence for Phase 2 before the Nunavut Water Board. Recycled water location HR-CD-05 was not utilized as a source of water for dust suppression in 2021; therefore, no results for this location are reported in Table 7.5. Water quality monitoring for water recycled from Mine Site, Milne Port and Tote Road locations is provided in Tables 7.5.1 through 7.5.5. A summary of reclaimed and recycled water used during 2021 is provided in Table 4.3.

## 5 WASTE MANAGEMENT

### 5.1 WASTEWATER MANAGEMENT

Under the Type 'A' Water Licence, the Project generated domestic sewage, retained stormwater and runoff at containment areas and ore and waste rock management facilities, and discharged compliant effluents, treated and untreated, to receiving environments at Milne Port and the Mine Site during 2021. These activities are carried out via the FWSSWMP (Appendix E.5.5).

Steensby Port and the Mid-Rail camp remained closed in 2021 and as a result no wastewater was generated and/or discharged at these Project sites. Domestic sewage from the Bruce Head camp was transported to the Milne Port Sewage Treatment Plant for treatment and discharge.

Wastewater and effluents generated in 2021 were managed in accordance with the Project's Fresh Water Supply, Sewage and Wastewater Management Plan (FWSSWMP; BAF-PH1-830-P16-0010).

#### 5.1.1 Quantities of Sewage Effluent and Sludge from STPs and PWSPs

Throughout 2021, residual sewage sludge (sludge) and treated sewage effluents were generated at the Project's Sewage Treatment Plants (STPs), equipped with Membrane Bioreactor (MBR) technology. Sewage wastes generated by the Project in 2021 were treated and managed using the following facilities:

- Mine Site STP No. 1 (MS-01);
- Mine Site STP No. 2 (MS-01B);
- Mine Site Polishing Waste Stabilization Ponds (PWSPs; MS-MRY-04A, B, C);
- Milne Port STP (MP-01);
- Milne Port STP (MP-01B); and,
- Milne Port PWSP (MP-01A).

At the Mine Site, treated sewage effluent that met the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence was either direct discharged via a dedicated pipeline (MS-01 and MS-01B) or transported by vacuum truck to the approved discharge location located near the Mary River.

At Milne Port, compliant treated sewage effluent from the Milne Port STP was either direct discharged via a dedicated pipeline (MP-01) or transported by vacuum truck to the approved discharge point near Milne Inlet. Compliant treated sewage effluent from Milne Port STP MP-01B, servicing the 380-person camp, was transported by vacuum truck to the approved discharge point.

As part of routine operation of the Project's STPs, dewatered sludge (cake) generated at the STPs was removed regularly and transported to site incinerators for disposal. Cake that could not be incinerated onsite during 2021 was shipped off site during the Milne Port backhaul sealift and disposed at a licensed waste disposal facility in Southern Canada.

During 2021, PWSPs at the Mine Site and Milne Port were utilized to store treated sewage effluent that did not meet the discharge criteria stipulated in the Type 'A' Water Licence. During upset conditions, when

untreated sewage was required to be removed from accommodation lift stations and/or Project STPs (during maintenance), sewage, inclusive of non-compliant effluent, and sludge were transported and discharged to PWSPs for temporary storage. In cases where the wastewater stored in the PWSPs required to be discharged, the wastewater was analysed, treated (if required) and discharged to the receiving environment, in accordance with the Type 'A' Water Licence, Part F, Items 17 & 18. During 2021, approximately 401 m<sup>3</sup> of treated wastewater was discharged from the Milne Port PWSP (MP-01A) to the approved discharge point near Milne Inlet.

Daily, monthly and annual quantities of sewage effluent discharged from Project STPs and PWSPs to approved discharge locations are provided in Table 5.1. Table 5.2 also presents the quantities of sewage and sludge diverted to the PWSPs from accommodation facilities as well as the quantities of cake removed from Project STPs and incinerated or backhauled for off-site disposal.

Figures 3 and 5 show the locations of the Milne Port and Mine Site STPs, PWSPs and approved discharge points.

#### 5.1.2 Quantities of Effluent from Containment Areas

During 2021, stormwater retained within containment areas associated with the Project's bulk fuel storage facilities and hazardous materials storage berms (HWB) was analysed in accordance with the Type 'A' Water Licence (Part F, Item 9), treated if required using the mobile Oily Water Treatment System (OWTS), and discharged to the receiving environment. Stormwater analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence was directly discharged to the receiving environment using pumps and non-rigid hose.

At Milne Port, the OWTS was operated intermittently from July to early September at the Landfarm Facility (MP-04) and the Contaminated Snow Containment Facility (MP-04A). Effluent was also discharged from Milne Port Fuel Storage Facility (MP-03) in July and August, which did not require OWTS treatment.

At the Mine Site, the OWTS was operated from July to early August at the Hazardous Waste Berm No. 7 (MS-MRY-06). A pre-discharge exploratory sample was taken on August 24<sup>th</sup>, 2021. The sample exceeded water license criteria for lead (0.001 mg/l / 0.00390 mg/l) and thus discharge did not resume. The result was mistakenly reported in the August 2021 Water License Monitoring Report; however it was confirmed that no discharge occurred and the water was recirculated for further treatment. Effluent was also discharged from Mine Site Bulk Fuel Storage Facility (MS-03B) in July and August, which did not require OWTS treatment. During 2021, a total of approximately 2458 m<sup>3</sup> of stormwater was discharged from Project containment areas. Table 5.3 provides the daily, monthly and annual volumes of effluent discharged from Project containment areas at the Mine Site and Milne Port during 2021.

Figures 3 and 5 show the locations of the Milne Port and Mine Site containment areas associated with the bulk fuel storage facilities, hazardous materials storage berms, and Milne Port Landfarm and Contaminated Snow Containment Facility (MP-04 and MP-04A).

### 5.1.3 Quantities of Effluent from Surface Water Management Ponds

To manage and monitor stormwater retained by ore and waste rock management facilities, the following five (5) surface water management ponds have been established at the Project:

#### *Mine Site*

- Crusher Facility Pond (CF Pond; MS-06);
- Run-of-Mine (ROM) Ore Stockpile Facility (KM106 ROM Pond; MS-07);
- Waste Rock Facility Pond (WRF Pond; MS-08).

#### *Milne Port*

- Ore Stockpile - East Pond (MP-05);
- Ore Stockpile - West Pond (MP-06).

Stormwater retained by Project ore and waste rock management facilities at Milne Port and the Mine Site are directed to surface water management ponds by a network of berms and ditches established around the perimeter of each facility.

At the Mine Site, a total of approximately 207,950 m<sup>3</sup> was actively discharged from the Waste Rock Facility (WRF) Pond (MS-08) through an approved Final Discharge Point (FDP) within the catchment of Mary River Tributary F (Figure 5) using pumps and rigid hose in 2021. Total volumes of approximately 3,636 m<sup>3</sup> and 10,286 m<sup>3</sup> was actively discharged from the Crusher Facility (CF) Pond (MS-06) and KM 106 ROM Pond (MS-07), respectively, in 2021. Effluent from MS-06 was discharged using a pump and a direct-discharge pipeline to the approved discharge location near the Mary River. Effluent from MS-07 was discharged using a portable pump and rigid and lay-flat hose to the approved discharge location, which is also near the Mary River.

At Milne Port, approximately 14,397 m<sup>3</sup> (6,945 m<sup>3</sup> at MP-05 and 7,452 m<sup>3</sup> at MP-06) of effluent was actively discharged from the Milne Port Ore Stockpile Ponds to Milne Inlet during 2021. Effluent from MP-05 and MP-06 was discharged to Milne Inlet using pumps and non-rigid hose. Any storm water contained in Pond 3, which is located along the west perimeter of the Ore Pad, was pumped from Pond 3 to MP-06, where the water quality was monitored.

Table 5.4 provides the daily, monthly and annual quantities of effluent discharged from Project surface water management ponds during 2021. Inline flow meters and pumping rate extrapolation were used to monitor volumes discharged to the receiving environment.

Figures 3 and 5 show the locations of the surface water management ponds located at Milne Port and the Mine Site, respectively.

## 5.2 SOLID AND HAZARDOUS WASTE MANAGEMENT

During 2021, Project operations generated various waste types, including domestic, hazardous, and non-hazardous wastes. Waste types were managed as outlined in the Project's Waste Management Plan

(BAF-PH1-830-P16-0028) and Hazardous Materials and Hazardous Waste Management Plan Appendix E.5.4, (BAF-PH1-830-P16-0011), utilizing the following facilities at the Mine Site and Milne Port:

#### *Mine Site*

- Waste Management Building (includes incinerator);
- Hazardous waste and materials containment berms (includes MS-HWB-1 to MS-HWB-7) and polishing waste stabilization ponds (PWSP-MS-MRY-4A, B, C);
- Non-Hazardous Waste Landfill Facility; and,
- Open Burning Facility (near KM 98).

#### *Milne Port*

- Waste Management Building (includes incinerator);
- Hazardous waste and materials containment berms (includes MP-HWB-1 to MP-HWB-4) and polishing waste stabilization pond (PWSP-MP-01A);
- Milne Port Landfarm Facility (MP-04) (includes contaminated snow containment berm [MP-04A]); and,
- Open Burning Facility (near KM 2)

Locations of the Project waste management facilities listed above are detailed in Table 5.5 and presented in Figures 3 and 5. Steensby Port and the Mid-Rail Camp remained closed in 2021 and as a result no wastes were generated and/or managed at these Project sites. Domestic waste generated during activities at the Bruce Head Camp was transported to Milne Port waste management facilities for disposal.

In 2021, the groundwater monitoring program was expanded to include installation and monitoring of new shallow monitoring wells both up-gradient and down-gradient of the Mine Site Hazardous Waste Berms, and additional wells were installed at the Landfill Facility. For further information on the 2021 groundwater monitoring, refer to Section 7.7 and Appendix E.12.

The following subsections describe the waste management and disposal activities conducted at the Project during 2021.

#### 5.2.1 Site Incinerators

In 2021, Mine Site and Milne Port incinerators were operated throughout the year to incinerate solid waste as per regulatory guidelines, including the Canadian-wide Standards (CWS), and the Project's Waste Management Plan (BAF-PH1-830-P16-0028). Refer to Section 9.4 for information pertaining to 2021 monitoring activities completed for incinerator bottom ash generated at the Project.

#### 5.2.2 Open Burning

Open burning was conducted throughout 2021 as a method to dispose of untreated wood, cardboard, and paper products generated on site as per Baffinland's Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (BAF-PH1-300-PRO-0001). Open-burning disposal reduces the volume of inert waste directed to Project incinerators and the Mine Site Non-Hazardous Landfill Facility (Landfill

Facility). Baffinland's open-burning authorization prohibits the burning of hazardous wastes, non-combustible materials, food waste, plastics, Styrofoam and/or treated wood products (i.e. plywood). To ensure removal of prohibited waste, secondary waste segregation was completed during the loading process at Project open burn facilities. Bottom ash generated from open burn activities is suitable to be deposited at the Project's Landfill Facility.

Open burning locations at Milne Port and the Mine Site are shown in Figures 3 and 5, respectively.

### 5.2.3 Mine Site Landfill Facility

In 2021, inert, non-combustible wastes (plastics, cement, used construction materials, scrap metal, pipes, glass, etc.) generated by Project activities were deposited at the Landfill Facility located at the Mine Site. Non-hazardous wastes, including ash from Project incinerators and open-burning activities, and non-hazardous waste that could not be salvaged or incinerated, were also deposited at the Landfill Facility. Disposal of domestic (food) waste, hazardous and biomedical materials at the Landfill Facility is prohibited. Visual inspections of the Landfill Facility were completed and documented regularly throughout 2021 to ensure operational compliance to the Project's Waste Management Plan (BAF-PH1-830-P16-0028). These inspections are part of the weekly inspections of structures designed to contain, withhold, divert or retain waters or wastes during periods of flow; conducted in accordance with the Type 'A' Water Licence (Part E, Item 11) and are completed with a focus on waste volume, composition and overall conformance to the Project's Waste Sorting Guidelines (BAF-PH1-300-P25-002). Any items requiring corrective actions identified during the weekly inspections are addressed and follow up actions implemented. Baffinland also continues to focus on ongoing employee training around waste management and continues to improve upon housekeeping and debris management across the Project.

A total of approximately 7,389 m<sup>3</sup> of waste was deposited at the Landfill Facility in 2021. Table 5.6 provides the monthly and annual quantities of waste deposited at the Landfill Facility during 2021. Since the commissioning of the Landfill Facility, a total volume of approximately 81,363 m<sup>3</sup> of non-hazardous waste has been deposited at the Landfill Facility.

### 5.2.4 Milne Port Landfarm Facility

The Milne Port Landfarm Facility (Landfarm Facility) consists of two geomembrane lined containment cells. The larger west cell is used as a landfarm for the stockpiling and biotreatment of soils contaminated by hydrocarbons from spills. The smaller east cell is used to contain hydrocarbon contaminated snow generated during winter operations. The east cell is also used as a repository for other sources of oily water at Milne Port and provides a practical location where oily water can be effectively treated at Milne Port using the OWTS.

During 2021, the OWTS was used to treat water at the Landfarm Facility. Prior to discharge, water retained in the Landfarm Facility (MP-04) and Contaminated Snow Containment Facility (MP-04A) was sampled to ensure compliance with the applicable discharge criteria stipulated in the Type 'A' Water Licence. Upon determining that the water met the applicable discharge criteria, water was discharged to the tundra

adjacent to the Landfarm Facility. Refer to Section 5.1.2 and Table 5.3 for volumes of water discharged from the Landfarm Facility in 2021.

In previous years, hydrocarbon contaminated soils generated from spills were placed and managed in the Landfarm Facility during summer months for remediation through natural microbiological and evaporative processes, where possible, however the Landfarm Facility reached capacity at the end of 2019. Throughout 2021, hydrocarbon contaminated soils generated from spills were securely packaged in Quatrex bags or sealed drums and stored in hazardous materials storage berms (HWB) at both the Mine Site and Milne Port for shipment off the Project and transport to licenced waste receiving facilities in Southern Canada. Baffinland has retained a third party consultant to develop a remediation research plan for hydrocarbon impacted soils at the Milne Port Landfarm Facility. Details of the remediation research plan will be provided in the 2022 QIA and NWB Annual Report for Operations. Construction began on the Mary River Landfarm in 2021, and it is expected to be operational in 2022 to manage hydrocarbon-contaminated soils generated from any spills. Table 5.7 provides the estimated monthly and annual quantities of soil and contaminated water deposited at the Milne Port Landfarm Facility during 2021.

#### 5.2.5 Hazardous Waste Storage and 2021 Backhaul Sealift

During 2021, there were three (3) sealift backhaul events for Project waste. The backhaul sealift vessels departed Milne Port in August and September 2021 carrying non-hazardous and hazardous waste materials generated and stored on site by the Project since the previous sealift backhaul in 2020. Prior to the 2021 backhaul, non-hazardous and hazardous waste materials were collected, packaged, and manifested at Milne Port under the direction of Qikiqtaaluk Environmental (QE). The shipments of waste materials off the Project and transport to licenced waste receiving facilities in Southern Canada was conducted under the direction of QE. Appendix E.1 provides additional information pertaining to Baffinland's 2021 waste backhaul program, including inventories and shipping manifests identifying materials shipped off the Project in 2021 for disposal, treatment and/or recycling in Southern Canada. No Project wastes were transported and deposited in communities located in Nunavut during 2021. Appendix E.5.4 provides Baffinland's Hazardous Materials and Hazardous Waste Management Plan.

Hazardous waste materials backhauled off the Project in 2021 that are regulated by the Transportation of Dangerous Goods Act (TDGA) included (in alphabetical order):

- Empty bags and other contaminated debris of ammonium nitrate – UN 1942
- Waste diesel fuel - UN 1202
- Waste flammable aerosol cans - UN 1950
- Waste gasoline – UN 1203
- Waste wet lead-acid batteries – UN 2794
- Sodium hydroxide solution (NaOH) – UN 1824

Non-hazardous and hazardous waste materials backhauled off the Project in 2021 that were not regulated by the TDGA included (in alphabetical order):

- Antifreeze - coolant
- Broken glass
- Calcium chloride
- Empty contaminated drums
- Empty contaminated overpack drums
- Empty contaminated plastic totes
- Electronic waste (E-Waste)
- Empty lime bags
- Grease
- Hazardous ash
- Hydrated lime
- Hydrocarbon contaminated soil
- Hypochlorite solution
- Kitchen grease
- Mixed garbage, filtration cakes and berm liner debris
- Mixed laboratory waste
- Oily sludge
- Oily solids
- Oily water
- Oil filters
- Sewage liquid
- Water treatment solid residuals
- Rubber tubes
- Used tires

Hazardous waste and waste material generated after the 2021 backhaul sealift continues to be sorted and stored in designated waste storage areas at the Project as per Baffinland's Hazardous Materials and Hazardous Waste Management Plan Appendix E.5.4. Wastes that cannot be treated, recycled or disposed at the Project will be packaged and prepared for the next backhaul sealift in 2022.

### 5.3 WASTE ROCK MANAGEMENT

#### 5.3.1 Mine Site Waste Rock Facility

Mining operations at Deposit No. 1 (Nuluujaak Pit) continued throughout 2021. A total of approximately 6.03 Mt of waste rock was generated during 2021. The waste rock generated at Deposit No. 1 was analytically tested based on operational testing protocols outlined in the Project's Phase 1 - Waste Rock Management Plan (BAF-PH1-830-P16-0029). Based on the analytical testing results, waste rock was classified as Potentially Acid Generating (PAG) or Non-Acid Generating (Non-AG) material. The 2021 results for the geochemical operational testing program are discussed in Section 9.6 and provided in Appendix E.6. All PAG waste rock generated from mining operations in 2021 was deposited at the WRF.

Table 5.8 presents the monthly and annual quantities of waste rock generated, deposited at the WRF and used for construction purposes.

## 6 REPORTED INCIDENTS

### 6.1 SPILLS

During 2021, fourteen (14) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Report Line, CIRNAC and QIA by the Project, as presented in Table 6.1. Sediment, sewage (untreated) and oil (transmission fluid/hydraulic oil) were the most commonly spilled products reported with sediment accounting for three (3) spills, and sewage (untreated) and oil each accounting for two (2) spills in 2021. Unauthorized releases also occurred at three (3) facilities.

In addition to the original spill report submitted within 24 hours of each spill event in 2021, a detailed follow-up report was submitted within thirty (30) days of each reported spill. The follow-up reports included a description of the event, the immediate cause(s), corrective and preventative action(s), photos, and a map showing the location of the spill.

To further outline the corrective actions taken in 2021 and planned in future years to address the sediment releases reported during freshet 2021, Baffinland has submitted the 2021 Freshet Monitoring Report, provided as Appendix E.11.

All spills reported to the NT-NU Spill Line in 2021 are summarized in Table 6.2, including the clean-up details and corrective actions taken to ensure that the necessary equipment has been maintained as well as the necessary training provided to personnel. In addition, the 2021 spills are also presented in Figure 9. The follow-up spill reports and original spill reports are provided in Appendix E.8.3. Table 6.2 also highlights the spill's proximity to waterbodies in which eight (8) of the fourteen (14) reported spills occurred over 100 m away from a waterbody.

A general analysis of all spills that occurred across the Project in 2021 indicated that the most common causes for the spills were equipment failure (including component malfunction), followed by procedural issues (inadequate procedure or training). The analysis indicated the most common causes of reportable spills in 2021 were surface water management infrastructure deficiencies, equipment failure, and improper procedure. Baffinland continues to work to identify basic causes so that effective long-term corrective actions can be implemented. An incident investigation was conducted for all spills that were reported to the 24-hour NT-NU Spill Report Line, or other applicable reporting process, to assist in determining the root cause of a spill event and in identifying effective corrective actions.

A summary of initiatives undertaken by Baffinland to reduce the frequency of spills include:

- Mandatory spill reporting enforced at all levels in the organization;
- Improved preventive maintenance plans;
- Daily pre-operational checks of all equipment;
- Spill tray usage memos;
- Tool box meetings;
- Prescribed training sessions;

- Specific product handling and spill reduction plans.
- Construction began in 2021 on approved surface water management infrastructure outlined in the Long Term Water Management Plan (LTWMP), approved under Modification No. 13, to enable effective management of surface water at the Mine Site. The LTWMP will continue to be implemented in 2022.

To ensure Baffinland’s emergency response teams have the skills needed to safely and effectively respond to marine spills, marine spill response training was provided by external consultants at Milne Inlet, prior to the 2021 fuel resupply. During the training, the Project’s Emergency Response Plan (ERP; BAF-PH1-840-P16-0002), Spill Contingency Plan (SCP; BAF-PH1-830-P16-0036) and the Milne Inlet Oil Pollution Emergency Plan (OPEP; BAF-PH1-830-P16-0013) and Oil Pollution Prevention Plan (OPPP; BAF-PH1-830-P16-0058) were reviewed. During the practical deployment exercises, the responders were provided with the opportunity to learn and then practice skills by responding to marine spill scenarios using the Milne Port resident spill response equipment. The findings related to the annual training sessions continue to be used to inform revisions to the OPEP, ERP and SCP.

## 6.2 HEALTH & SAFETY INCIDENTS

Under the Mine Health and Safety Act, several health and safety incidents were reported by the Project during 2021. Details of the incidents are presented in Table 6.3. All incidents were reported to the Worker’s Safety and Compensation Commission as required by the Mine Health and Safety Act. Moving forward, to ensure compliance with the requirements of the Commercial Lease, Baffinland will ensure reportable health & safety incidents, as defined in Section 6.2, a), vii of the Commercial Lease, are reported to the QIA in a timely manner following their occurrence in accordance with the Lease Operations Guide.

## 7 MONITORING

The following subsections discuss and summarize the results of the monitoring program outlined in Schedule I of the Type 'A' Water Licence, known as the Surveillance Network Program (SNP), as well as other relevant aquatic effects monitoring programs conducted at the Project in 2021.

It should be noted that several monitoring stations listed in Schedule I of the Type 'A' Water Licence were originally established during the Exploration Phase of the Project and have since become inactive as a result of continued development and infrastructure changes at the Project. An application to the NWB to discontinue and/or relocate these inactive monitoring stations, including MP-MRY-4, MP-MRY-4A, MP-MRY-7, MP-MRY-12, MS-MRY-09, MS-MRY-10 and MS-MRY-11, was provided in the 2018 Annual Report. These changes were accepted by NWB on September 10, 2020. In 2021, the NWB approved Modification No. 13, which included five (5) additional monitoring stations to be included in Schedule I of the Type 'A' Water Licence (MS-10, MS-11, MS-12, MS-13, MS-14). In 2021, Baffinland is proposing to create unique station IDs for existing infrastructure for one (1) station at Milne Port (MP-04A) and, at Mary River, Baffinland is proposing to create unique station IDs for existing infrastructure for two (2) stations (MS-MRY-04B and MS-MRY-04C), to update coordinates for existing infrastructure at one (1) station (MS-MRY-04A) and to discontinue monitoring station MS-MRY-10 as this water will ultimately now report to MS-11 which will be active in 2022. Baffinland also proposed a change in location for SNP station MS-MRY-13A in 2021; however, due to the ongoing construction of the Mine Site Landfarm Facility (MS-05), the field investigation to determine an appropriate location is ongoing and will be completed during summer 2022. Appendix E.13 includes an application of proposed 2022 changes to the SNP stations.

### 7.1 SEWAGE DISPOSAL

Sewage generated and managed by the Project in 2021 was managed as described in the Project's FWSSWMP (BAF-PH1-830-P16-0010) and in accordance with the Type 'A' Water Licence (Part F, Items 17- 19).

During 2021, sewage generated from Project sites was directed to the Project STPs located at Milne Port (MP-01, MP-01B) and the Mine Site (MS-01, MS-01B). Treated sewage effluent was discharged to Mary River (freshwater) and Milne Inlet (ocean) in accordance with the applicable effluent discharge criteria outlined in the Type 'A' Water Licence. Figures 3 and 5 show the locations of the Milne Port and Mine Site STPs, PWSPs and approved discharge points. In 2021, there were no exceedances of the effluent discharge criteria for treated sewage effluent generated by Project operations.

Table 5.1 provides the daily, monthly and annual quantities of treated sewage effluent discharged to the receiving environment in 2021. Table 7.2 (7.2.1, 7.2.3) and Table 7.3 (7.3.1, 7.3.2) provide the effluent quality monitoring results for treated sewage effluents discharged from Project STPs (MP-01, MP-01B and MS-01, MS-01B) to the receiving environment during 2021.

### 7.1.1 2021 Mine Site PWSP Effluent Discharge to Sheardown Lake NW

In 2021, adequate freeboard was maintained at Mine Site PWSPs and therefore no wastewater was discharged from the Mine Site PWSPs to Sheardown Lake NW in 2021. Baffinland continues to monitor PWSPs to ensure sufficient freeboard levels are maintained.

### 7.1.2 2021 Milne Port PWSP Effluent Discharge to Milne Inlet

In accordance with the PWSP Effluent Discharge Plan, provided in the Project's FWSSWMP (BAF-PH1-830-P16-0010), wastewater stored at the Milne Port PWSP (MP-01A) was discharged to Milne Inlet in August and September 2021.

During the August 26 to September 4, 2021 effluent discharge period, a Dissolved Air Flotation (DAF) water treatment system, consistent with the specifications described in the PWSP Effluent Discharge Plan, was used to treat and discharge effluent from the Milne Port PWSP (MP-01A) to Milne Inlet. During the discharge, a total volume of approximately 401 m<sup>3</sup> of compliant effluent was discharged to Milne Inlet. During the discharge, field monitoring was conducted to ensure effluent discharged to Milne Inlet remained in compliance with applicable discharge criteria.

Table 5.1 provides the daily, monthly and annual quantities of effluent discharged from the Milne Port PWSP in 2021. Table 7.2.2 presents the water quality results for the 2021 discharge. There were no indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from external laboratory results or in field monitoring.

## 7.2 STORMWATER FROM CONTAINMENT AREAS

During 2021, stormwater retained within containment areas associated with the Project's bulk fuel storage facilities (MP-03, MS-03, MS-03B), hazardous materials storage berms (HWB) and Milne Port Landfarm Facility (MP-04/ MP-04A) was analysed in accordance with the Type 'A' Water Licence (Part F, Item 9), treated if required using the mobile OWTS, and discharged to the receiving environment.

Stormwater from the Milne Port Bulk Fuel Storage Facility (MP-03) was discharged to the Milne Inlet receiving environment using pumps and non-rigid hose on an intermittent basis during the July to August period. Stormwater discharge samples were collected and submitted to an external laboratory to be analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence. There was one (1) exceedance of the applicable discharge criteria for the concentration of total lead of 0.001 mg/L in a grab sample collected from the MP-03 stormwater discharge on July 9, 2021. The elevated concentration of total lead (0.00656 mg/L) are suspected to be the result of either sampling error or external laboratory error, as the concentrations of total lead in four (4) pre-discharge samples collected from MP-03 on June 26, 2021 were all below the discharge criteria of 0.001 mg/L and subsequent samples taken in August at MP-03 confirmed total lead levels below the applicable total lead criteria. Table 5.3 provides the daily, monthly and annual quantities of stormwater discharged from the Milne Port Bulk Fuel Storage Facility in 2021. Table 7.2.4 presents the water quality results for the 2021 stormwater discharge from MP-03. Aside from the total lead exceedance in the

July 9, 2021 sample, there were no other indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from MP-03 from external laboratory results or in field monitoring.

Stormwater from the Mine Site Bulk Fuel Storage Facility MS-03B was discharged to the Sheardown Lake receiving environment using pumps and non-rigid hoses on an intermittent basis. Stormwater was discharged from MS-03B in August. Stormwater discharge grab samples were collected from MS-03B and submitted to an external laboratory to be analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence. There was no stormwater discharge from Mine Site Bulk Fuel Storage Facility MS-03 in 2021. Throughout August, stormwater from MS-03 was transferred to Mine Site Hazardous Waste and Materials Containment Berm MS-HWB-07 in preparation for OWTS treatment and subsequent discharge, however, due to elevated total lead in a pre-discharge sample, the stormwater discharge did not occur. Monitoring and either treatment or backhaul for offsite treatment and disposal in Southern Canada of this stormwater, which is still contained in MS-HWB-07, is planned for 2022. Table 5.3 provides the daily, monthly and annual quantities of stormwater discharged from the Mine Site Bulk Fuel Storage Facilities in 2021. Table 7.3.3 presents the water quality results for the 2021 stormwater discharge from MS-03B. There were no indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from MS-03B from external laboratory results.

Treated water was discharged from the Milne Port Landfarm Facility (MP-04) to a ditch near Milne Inlet on an intermittent basis during the July to August period. Prior to discharge, the water from the landfarm facility was treated using a portable solids filter treatment system consisting of a 30 gal/min cartridge filter skid with 5-micron filter cartridges fed by a submersible pump. A treated water discharge sample was collected and submitted to an external laboratory to be analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence. There was one (1) exceedance of the applicable discharge criteria for the concentration of Total Suspended Solids (TSS) of 15 mg/L in a grab sample collected from the MP-04 discharge on July 12, 2021. Upon receiving the lab results of the elevated concentration of TSS (17.3 mg/L), discharge from the Milne Port Landfarm Facility was temporarily halted and was not resumed until it had been confirmed that the effluent's water quality was compliant with the monitoring station's water quality criteria. Baffinland continues to make the necessary adjustments to the OWTS at the Milne Port Landfarm Facility to ensure effluent discharged from the Milne Port Landfarm Facility is compliant with all applicable criteria. There were no other indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from MP-04 from external laboratory results or in field monitoring. Table 5.3 provides the daily, monthly and annual quantities of treated water discharged from the Milne Port Landfarm Facility in 2021 and Table 7.2.5 presents the water quality results for the 2021 water discharge from MP-04.

Treated water was discharged from the Milne Port Contaminated Snow Containment Berm (MP-04A) to a ditch near the Milne Inlet on an intermittent basis in August 2021. Prior to discharge, the water from the contaminated snow berm was treated using the mobile OWTS, coupled with polishing trains of metal removal media, to remove the organic constituents of 'oil and grease' and reduce monitored metals to

concentrations that are compliant with the acceptable discharge criteria, stipulated by the Type 'A' Water Licence. To monitor the performance of the OWTS in the field and ensure the removal of organics constituents from the influent, sampling and analyses were also conducted in the field on a daily basis utilizing a portable total oil and grease (TOG) analyser. A treated water discharge sample was collected and submitted to an external laboratory to be analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence. There were two (2) exceedances of the applicable discharge criteria for the concentration of total lead of 0.001 mg/L and for the concentration of TSS of 15 mg/L in grab samples collected on August 2 and August 20, respectively. Potential causes for the elevated concentrations of total lead (0.00403 mg/L) and TSS (19.8 mg/L) observed in August include sampling error, elevated turbidity in the containment berm due to high winds or rain that disturbed sediment in the berm, and/ or external laboratory error. Upon becoming aware of the elevated levels of total lead and TSS observed on August 2 and August 20, respectively, discharge of effluent from the Milne Port Snowdump Facility (MP-04A) was halted immediately. Effluent discharge was only reinitiated once it had been confirmed that the effluent's water quality was compliant with the monitoring station's water quality criteria. There were no other indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from MP-04A from external laboratory results or in field monitoring. Table 5.3 provides the daily, monthly and annual quantities of treated water discharged from the Milne Port Contaminated Snow Containment Berm in 2021 and Table 7.2.6 presents the water quality results for the 2021 treated water discharge from MP-04A.

Treated water was discharged from the Mine Site Hazardous Waste and Materials Containment Berm MS-HWB-07 to the adjacent tundra using pumps and non-rigid hose on an intermittent basis during the July to August period. Stormwater discharge samples were collected at the facility's effluent monitoring station (MS-MRY-6) and submitted to an external laboratory to be analysed and demonstrated to be compliant with the applicable water quality discharge criteria stipulated in the Type 'A' Water Licence. There were no indicated exceedances of the applicable water quality discharge criteria during the 2021 discharge from MS-MRY-6 from external laboratory results or in field monitoring. An exceedance of total lead was incorrectly reported in the monthly report to the NWB as having occurred during discharge at effluent monitoring station MS-MRY-6 on August 24, 2021; however, effluent discharge from MS-HWB-07 had ended on August 1, 2021 and no additional discharges occurred in 2021. Throughout August, water from MS-03 was transferred to MS-HWB-07 in preparation for OWTS treatment and subsequent discharge. The sample collected at MS-MRY-6 on August 24, 2021 was an exploratory pre-discharge sample from the berm which indicated elevated levels of total lead and, as a result, discharge from MS-HWB-07 did not resume in 2021. Prior to resumption of effluent discharge from MS-HWB-07 in 2022, Baffinland will confirm that effluent water quality is compliant with applicable water quality criteria. The August monthly effluent discharge sample at MS-MRY-6 was scheduled to be collected following the resumption of effluent discharge from MS-HWB-07; however, since effluent discharge from MS-HWB-07 did not resume in 2021, the monthly sample could not be collected during August 2021.

### 7.3 SURFACE WATER RUNOFF AND SEEPAGE

In accordance with the terms of the Type 'A' Water Licence (Part I), surface run-off/ seepage in facilities designed to contain, withhold, divert and retain water or wastes were monitored during periods of flow and after significant precipitation events. The monitoring locations and associated facilities at Milne Port and the Mine Site are presented in Figures 3 and 5, respectively, and in Table 7.1.

In accordance with the terms of the Type 'A' Water Licence, Schedule I, active monitoring stations were monitored during periods of flow for the required parameters to protect receiving waters from the identified potential contaminants. A summary of the monitoring stations and 2021 monitoring results is provided in the subsections below. Monitoring of surface water at select crossings along the Tote Road in accordance with the Project's Tote Road Monitoring Program (TRMP) was also conducted during 2021 and is summarized in Section 7.3.7 below.

#### 7.3.1 Milne Port Ore Stockpile Facility

Monitoring stations MP-05 and MP-06 under Schedule I of the Type 'A' Water Licence represent the east and west surface water management ponds, respectively, that collect surface water runoff from the stockpile pad associated with the Milne Port Ore Stockpile Facility (refer to Figure 3). Surface water runoff from the pad is directed to the ponds by a network of ditches along the pad's perimeter.

During 2021, retained stormwater within both ponds (MP-05 and MP-06) was actively discharged to Milne Inlet using pumps and sections of non-rigid hose. During discharges, water quality monitoring of the effluent discharged was conducted to ensure compliance with the applicable discharge criteria outlined in the Type 'A' Water Licence. No exceedances of the applicable discharge criteria were observed during the discharges from both ponds (MP-05 and MP-06) in 2021.

Volumes of effluent discharged from the east (MP-05) and west (MP-06) ponds in 2021 are presented in Table 5.4. Water quality monitoring results for the 2021 discharges are provided in Tables 7.2.7 and 7.2.8.

A seepage event was identified at the Milne Port Ore Stockpile Facility west ore pad ditch while Ore Stockpile runoff water was being pump from Pond 3 to MP-06 via the perimeter ditch during routine water management activities. Modifications were subsequently implemented to the pond-to-pond transfer process configuration to ensure water is not routed through the west ore pad ditch until corrective actions are implemented to address the seepage. After review with the design engineers of this facility it was determined that a direct pond to pond transfer must occur and the west ditch cannot be utilized. The design engineers also confirmed that if the ditch is used for its intended purpose to passively direct runoff from the ore pad to MP-06, then there should not be any future seepage issues. Baffinland will monitor this area during Freshet 2022 to confirm it is functioning as designed and will continue to implement the re-configured direct pond-to-pond transfer via non-rigid hose and pumps, and the Ore Pad Regrading Strategy to prevent the pooling of water on and around the Ore Stockpile Facility pad.

The seepage event identified at the Milne Port west ore pad ditch was reported by Baffinland to relevant regulators and is documented in the NT-NU Spill Report 21-280. Copies of the original and follow-up spill

reports for the release are provided in Appendix E.8.3 and provide additional details on the release and the corrective actions taken by Baffinland.

### 7.3.2 Mine Site Landfill Facility

Monitoring stations MS-MRY-13A and MS-MRY-13B under Schedule I of the Type 'A' Water Licence represent the surface runoff sample locations downstream of the Landfill Facility at the Mine Site (refer to Figure 5). In 2021, surface water runoff from the Landfill Facility was initially sampled in May and continued to be sampled during flowing conditions until freeze-up in September.

During 2021, there were no exceedances of the applicable water quality criteria involving surface water runoff downstream of the Landfill Facility. Water quality monitoring results for MS-MRY-13A and MS-MRY-13B are presented in Tables 7.3.10 and 7.3.11.

Surface flow volumes continued to be monitored at MS-MRY-13A in 2021 using an existing weir and a pressure transducer logger installed in early June 2021. Daily surface flows at MS-MRY-13A during 2021 are presented in Appendix E.3. Similar to previous years, this monitoring station was observed to be dry for the latter period of the summer. Flows were consistent at the monitoring station downslope of this location, MS-MRY-13B. Field investigations will continue in 2022 to determine if relocation of MS-MRY-13A is possible.

Baffinland continued the groundwater monitoring program at the Landfill Facility in 2021. During September 2021, Baffinland installed shallow groundwater wells up-gradient and down-gradient of the Landfill Facility using drive point piezometers. Groundwater wells were established to the depth of permafrost (approx. 1.1 – 1.8 metres). Water samples were collected at monitoring well locations where groundwater was detected. For a complete discussion of the 2021 groundwater monitoring program at the Landfill Facility, refer to Section 7.7 and Appendix E.12 of this report.

### 7.3.3 Mine Site Waste Rock Facility

Monitoring station MS-08 under Schedule I of the Type 'A' Water Licence represents the surface water management pond (WRF Pond) that collects surface water runoff from the WRF's footprint. Surface water runoff from the WRF's footprint is directed to the WRF Pond by a network of ditches along the WRF's perimeter.

Baffinland continued to operate a dedicated Water Treatment Plant (WTP) at the WRF to treat surface water runoff retained by the WRF Pond when necessary in 2021. The WRF WTP was approved under Water Licence Modification No. 7 and uses a combination of coagulation, pH adjustment, precipitation, flocculation and filtration to ensure effluent discharged from the WRF Pond meets the applicable water quality effluent criteria stipulated by the Type 'A' Water Licence and Metal and Diamond Mining Effluent Regulations (MDMER). A full description of the WRF WTP treatment processes is provided in the Project's FWSSWMP (BAF-PH1-830-P16-0010).

During 2021, the water quality of the WRF Pond (MS-08) was found to be compliant with the applicable water quality effluent criteria stipulated by the Type 'A' Water Licence and MDMER. Beginning in June

2021, controlled discharges of effluent from the WRF Pond were conducted and resulted in no exceedances of the water licence water quality discharge criteria in 2021 observed in samples collected under Schedule I of the Type 'A' Water Licence. Additional effluent discharge sampling was completed to satisfy the requirements of the MDMER. The results of sampling completed to satisfy MDMER requirements are detailed in Baffinland's 2021 MDMER annual effluent monitoring report for the Mary River Mine Site in Appendix E.15.

Controlled effluent discharges from the WRF in 2021 involved pumping retained surface water runoff from the WRF Pond through the WRF WTP and releasing the treated effluent at an established discharge location located within the catchment of Mary River Tributary F.

During periods of effluent discharge, the water quality of effluent was monitored at various stages of the WRF WTP by dedicated water treatment operators to ensure the plant was operating as designed and that treatment processes were achieving the target effluent quality. The WRF WTP operators also monitored any direct discharge from the WRF Pond through the Final Discharge Point (FDP) to ensure the water quality was compliant with effluent discharge criteria. As outlined in the Project's FWSSWMP (BAF-PH1-830-P16-0010), in the event that water quality monitoring indicated that effluent no longer met the applicable water quality discharge criteria, discharge of effluent was halted and effluent was recirculated back to the WRF Pond until compliance with effluent discharge criteria was confirmed by additional water quality monitoring results.

Diversion structures constructed in 2021 following the observation of non-contact water entering the WRF continue to be routinely monitored to ensure non-contact water does not enter the facility. In 2021, an expansion of the WRF footprint and associated water management infrastructures (i.e. ditches) was completed; further details can be found in the Construction Summary Report in Appendix C.1.

Volumes and water quality results associated with the 2021 controlled effluent discharges from the WRF (MS-08) are provided in Table 5.4 and Table 7.3.6, respectively. Locations of the WRF effluent monitoring and discharge points are shown in Figure 5 and provided in Table 7.1.

#### 7.3.4 Mine Site Crusher Facility

Monitoring station MS-06 under Schedule I of the Type 'A' Water Licence represents the surface water management pond (CF Pond) that collects surface water runoff from the Mine Site Crusher Facility's (Crusher Facility; CF) footprint. Surface water runoff from the CF's footprint continues to be directed to the CF Pond by a series of pumps and hoses, due to identified integrity issues with the perimeter ditch network.

Periodic controlled discharges of the treated effluent from the CF Pond occurred from May to early September. Controlled effluent discharges from the CF in 2021 involved pumping retained surface water runoff from the CF Pond through a direct-discharge pipeline shared with the Mine Site STPs and releasing the effluent at an approved discharge point near the Mary River (Figure 5). During periods of discharge, water quality monitoring was conducted to ensure compliance with the applicable water quality discharge

criteria outlined in the MDMER and the Type 'A' Water Licence. No exceedances of the applicable water quality discharge criteria were observed during the 2021 CF effluent discharges. The results of sampling completed to satisfy MDMER requirements are detailed in Baffinland's 2021 MDMER annual effluent monitoring report for the Mary River Mine Site in Appendix E.15. Volumes and water quality results associated with the 2021 controlled effluent discharges from the CF (MS-06) are provided in Table 5.4 and Table 7.3.4, respectively. Locations of the CF effluent monitoring and discharge points are shown in Figure 5 and provided in Table 7.1.

Interim contingency measures including diversion, containment structures and pumping strategies implemented in accordance with Part H Item 8 and 11 of the Type 'A' Water Licence and consistent with the Project's FWSSWMP (BAF-PH1-830-P16-0010) and MDMER Emergency Response Plan (BAF-PH1-830-P16-0047), remained in place in 2021 to manage water at the CF. The interim measures were implemented to address concerns regarding the integrity of the ditch network identified in 2019 and following the subsequent observation of seepage water in 2020 and 2021. The interim measures continue to be inspected on a regular basis and are functioning as intended to convey all water into MS-06. Baffinland will continue to implement the Ore Crusher Pad Regrading Strategy to prevent the pooling of water on and around the Crusher Facility pad. All contact water will continue to be captured and conveyed to the surface water management pond via the interim measures to prevent potential seepage to the tundra until construction of permanent corrective actions.

Water management measures for the CF are being addressed as part of the ongoing implementation of Baffinland's Long Term Water Management Plan (LTWMP). As part of the LTWMP, Baffinland plans to construct a new surface water management pond downstream of the Crusher Facility to collect runoff from a large portion of the mine infrastructure area including the existing Crusher Facility. The pond will be formed by constructing perimeter berms along the northwest (Tote Road) and southwest (proposed northern railway embankment) sides. The engineering design work is currently on hold while the NIRB review of the Phase 2 Proposal concludes, as the facility would interface with key Phase 2 infrastructure (railway) that must be considered. In accordance with the Type 'A' Water Licence, Part D, Baffinland will submit Issued for Construction drawings for any new structures designed to contain or divert water from the CF pad that were included in Modification No. 13.

The seepage event identified at the Crusher Facility in 2021 was reported by Baffinland to relevant regulators and is documented in the NT-NU Spill Report 21-322. Copies of the original and follow-up spill reports for the release are provided in Appendix E.8.3 and provide additional details on the release and the corrective actions taken by Baffinland.

#### 7.3.5 KM 106 Run-of-Mine (ROM) Ore Stockpile Facility

Monitoring station MS-07 under Schedule I of the Type 'A' Water Licence represents the surface water management pond that collects surface water runoff from the Mine Site KM 106 Run of Mine (ROM) Ore Stockpile pad (KM 106 Ore Stockpile). Surface water runoff from the KM 106 Ore Stockpile is directed to the KM 106 Pond by a network of ditches along the KM 106 Ore Stockpile's perimeter, including a

temporary sump with pumps and hoses due to identified integrity issues with the perimeter ditch network in 2021.

Periodic controlled discharges of the treated effluent from the KM 106 Pond occurred during July and August 2021. Controlled discharges of the treated effluent from the KM 106 Pond in 2021 involved pumping retained surface water runoff from the KM 106 Pond through rigid and lay-flat hose and releasing the effluent at an approved discharge point near the Mary River (Figure 5). During periods of discharge, water quality monitoring was conducted to ensure compliance with the applicable water quality discharge criteria outlined in the MDMER and the Type 'A' Water Licence. No exceedances of the applicable water quality discharge criteria were observed during the 2021 KM 106 Pond effluent discharges. The results of sampling completed to satisfy MDMER requirements are detailed in Baffinland's 2021 MDMER annual effluent monitoring report for the Mary River Mine Site in Appendix E.15.

Volumes and water quality results associated with the 2021 controlled effluent discharges from the KM 106 ROM Ore Stockpile Facility (MS-07) are provided in Table 5.4 and Table 7.3.5, respectively. Locations of the KM 106 ROM Ore Stockpile Facility effluent monitoring and discharge points are shown in Figure 5 and provided in Table 7.1.

Interim ground work measures including temporary diversion swales and a sump, implemented in accordance with Part H Item 8 and 11 of the Type 'A' Water Licence and consistent with the Project's FWSSWMP (BAF-PH1-830-P16-0010) and MDMER Emergency Response Plan (BAF-PH1-830-P16-0047), were constructed in 2021 following the observation of seepage from the KM106 ROM Ore Stockpile Facility. The interim measures continue to be inspected on a regular basis and are functioning as designed to convey all seepage water into the KM106 Pond. Baffinland has retained a third party consulting firm to investigate the KM 106 diversion berm to determine appropriate corrective actions to ensure the berm functions as per design criteria. The preliminary remedial measures include additional grading be completed as a first course of action once the ground has sufficiently thawed to main positive surface drainage towards the surface water management pond. Regular inspections will continue to ensure all contact water will continue to be captured and conveyed to the surface water management pond.

The seepage event identified at the KM 106 Ore Stockpile Facility in 2021 was reported by Baffinland to relevant regulators and is documented in the NT-NU Spill Report 21-268. Copies of the original and follow-up spill reports for the release are provided in Appendix E.8.3 and provide additional details on the release and the corrective actions taken by Baffinland.

### 7.3.6 Deposit No. 1

Monitoring stations MS-MRY-09, MS-MRY-10, MS-MRY-11 and MP-MRY-12 under the original Schedule I of the Type 'A' Water Licence represent surface flow/ seepage monitoring locations associated with the 2008 Bulk Sample Program's Deposit No. 1 Pit and associated ore stockpiling/processing locations at the Mine Site and Milne Port. As a result of continued development and infrastructure changes at the Project, these monitoring stations had become inactive. The 2018 Annual Report included an application to the NWB to discontinue and/or relocate these monitoring stations to reflect current Project infrastructure.

On September 10, 2019, the NWB accepted the proposed changes, issuing the relocations of stations MS-MRY-09, MS-MRY-10 and removal of stations MS-MRY-11 and MP-MRY-12 in Table 13 Monitoring Program: Milne Port Site and Table 14 Monitoring Program: Mary River Mine Site within Schedule I. Water quality monitoring has since been occurring at the relocated MS-MRY-09 and MS-MRY-10 monitoring stations.

During 2021, there was one (1) exceedance of the applicable water quality criteria involving surface water runoff downstream of Deposit No. 1. At the surface water monitoring station MS-MRY-09, TSS was 16.1 mg/L on June 10, 2021, exceeding the monitoring station's total TSS grab sample criteria of 15 mg/L. The elevated levels of TSS in the grab sample is likely a result of conditions associated with annual freshet conditions, which typically occur from mid-May to end of June. Water quality monitoring results for MS-MRY-09 and MS-MRY-10 are presented in Table 7.3.8 and Table 7.3.9, respectively. Locations of the Deposit 1 monitoring stations are shown in Figure 5 and provided in Table 7.1. In 2022, Baffinland is proposing to discontinue monitoring station MS-MRY-10, as this water will ultimately now report to MS-11, which will be active in 2022.

### 7.3.7 Tote Road Monitoring Program

During 2021, monitoring was conducted along the Tote Road to monitor the quality of surface water flows at select water crossings (culverts, bridges) in accordance with the Tote Road Monitoring Program (TRMP). Water crossings monitored under the TRMP were selected to provide a geographically representative sample set of water crossings for each watershed intersected by the Tote Road (Phillips Creek, Ravn River, Mary River), as well as proximity to snow dump locations and locations of historical sedimentation events. During 2021, upstream and downstream water quality was monitored for pH, Total Suspended Solids (TSS), Total Dissolved Solids (TDS) and turbidity at twenty (20) locations along the Tote Road.

The objective of the program is to identify potential project-related impacts to surface water as a result of operation and maintenance of the Tote Road throughout freshet and the remainder of the flowing water season, by comparing upstream of the Tote Road concentrations to downstream of the Tote Road concentrations at defined distances and sampling intervals. In screening the data to determine if the Project infrastructure has resulted in a change to the surface water quality, a potential Project related change is defined as a greater than 50 mg/L increase in TSS concentrations in the downstream sample when upstream concentrations are less than 250 mg/L. When concentrations are greater than 250 mg/L in the upstream sample, a potential Project related change is defined as a greater than 20% increase in TSS concentrations in the downstream sample.

In 2021, a total of 310 samples were collected for water quality under the TRMP. Based on the water quality monitoring completed in 2021 under the TRMP, there were six (6) sampling events (CV-001-DS on May 26, BG-24-DS on June 8, CV-093-DS on June 9, CV-115-DS on June 1, CV-112-DS on June 1, and CV-154-A-DS on June 1) when there was a greater than 50 mg/L increase in TSS concentrations between the downstream sample and the upstream sample. There were no sampling events in which an increase of 20% or more occurred in the downstream sample when TSS concentrations were greater than 250 mg/L

in the upstream sample. All of the sampling events that had a downstream TSS concentration greater than the screening criteria occurred during the May 26 to June 9, 2021 period when freshet conditions resulted in elevated sediment loading into the affected watercourses over a short period of time, and suggest the potential for Project related change in water quality. Following this period, all results demonstrated that there were no Project related changes to water quality as a result of the operation of the Tote Road. The September sampling event identified all water crossings to be either dry or frozen; thus there are no 2021 September monthly water samples. Field investigations of the affected culvert crossings were completed and erosion and sediment control measures were subsequently implemented where possible, consistent with the Surface Water and Aquatic Ecosystem Management Plan (SWAEMP; BAF-PH1-830-P16-0026). Riprap was placed at the inlets and outlets of culvert embankments at culvert crossings CV-115 and CV-093 to slow runoff water prior to the water entering the streams. A plan is being developed to complete permanent corrective actions at the remaining identified culvert crossings and embankments in 2022; pending further engagement with DFO and any additional authorizations that may be required.

Locations where the screening criteria was exceeded and the potential for Project related changes to water quality were identified will be reviewed as part of the freshet preparedness planning process, to ensure that previously identified issues can be addressed in a timely and effective manner during freshet 2022, and confirm if Project related changes persist at these locations. Prior to the start of freshet 2022, excess snow along the Tote Road will be removed and relocated to approved snow stockpile locations to reduce the amount of surface water runoff from snowmelt as described in the Snow Management Plan Appendix E.5.1. Additional excess snow around the inlets and outlets of select culvert locations will be removed to further reduce the volume of snowmelt and subsequent amount of overland flow present to mobilize sediment, and steam will be applied to culverts as necessary to remove ice and snow blockages to ensure the effective movement of water during freshet conditions.

The TRMP is included as Appendix D of the Project's Roads Management Plan (BAF-PH1-830-P16-0023). Water quality results for the 2021 TRMP monitoring are presented in Table 7.10.1 to 7.10.20.

The TSS exceedances identified at the six (6) Tote Road water crossings (CV-001, CV-154-A, CV-112, CV-115, BG-24 and CV-093) were reported by Baffinland to relevant regulators and is documented in the NT-NU Spill Report 21-247. Copies of the original and follow-up spill reports for the release are provided in Appendix E.8.3 and provide additional details on the release and the corrective actions taken by Baffinland.

#### 7.3.8 Snow Stockpile Monitoring

In accordance with the terms of Type 'A' Water Licence (Part F, Item 26), surface runoff water from snow stockpiles was monitored at active snow stockpile locations on the Project Mine Site and Tote Road in 2021. Monitoring of snowmelt at Milne Port is captured by existing monitoring stations under the SNP program. Grab samples were taken at each active location weekly during periods of flow and submitted to an external lab for analysis.

Snow stockpile monitoring at the Mine Site resulted in four (4) sampling events that resulted in TSS concentrations that were greater than the Type 'A' Water Licence criteria for grab samples of 30 mg/L, out of a total of seventeen (17) sampling events. There was one (1) exceedance at MS-SN-01 on June 1, one (1) exceedance at MS-SN-02 on May 25, and two (2) exceedances at MS-SN-03 on June 9 and June 14, 2021. After review of the location of sampling at MS-SN-01 throughout 2021, it was determined that the water quality results for the month of June are not representative of the receiving water body. Samples were collected directly downslope of the snow stockpile from a small runoff channel, rather than from the receiving water body and the designated sample location, which prevented proper sampling technique and collection of a representative sample. Training programs in 2022 will ensure all staff are monitoring MS-SN-01 at the designated location to enable collection of representative samples.

Snow stockpile monitoring along the Tote Road resulted in sixteen (16) sampling events that resulted in TSS concentrations that were greater than the Type 'A' Water Licence criteria for grab samples of 30 mg/L, out of a total of eighteen (18) sampling events at six (6) sample locations. The snow stockpile at KM 92 was not used in 2021, therefore there are no sample events at monitoring station TR-SN-05. Following the observance of high TSS at TR-SN-01, TR-SN-02, TR-SN-03, TR-SN-06 and TR-SN-07 on June 5, full suite samples (Group 8) were collected on June 7, which also indicated TSS concentrations above the applicable criterion for TSS. It is suspected that the high TSS from five (5) of the sixteen (16) grab sample exceedances (TR-SN-01 and TR-SN-02 on June 5, TR-SN-02 and TR-SN-03 on June 13, and TR-SN-02 on June 29) is not representative of the actual water quality as there was limited water flow that prevented the collection of representative samples during these sampling events. Additionally, current sampling locations do not have consistent flow throughout the entire monitoring period due to source of the flow at these locations originating from only certain locations of the snow stockpile, therefore a comprehensive dataset is not able to be collected. Sampling locations for Tote Road snow stockpile sampling will be re-evaluated prior to sampling in 2022 to ensure sample locations enable collection of water quality samples that are representative of snow stockpile runoff to downstream receiving water systems.

Snow stockpile monitoring occurs in late May and June, when the stockpiles are actively melting and freshet conditions resulted in elevated sediment loading from the snow stockpile areas to the downslope runoff sampling locations over a short period of time. Erosion and sedimentation control measures, such as coir logs and silt fences, were installed and maintained where necessary in accordance with Baffinland's SWAEMP (BAF-PH1-830-P16-0026) to mitigate sediment impacts in the runoff water from the snow stockpile areas. Water quality results for the 2021 snow stockpile monitoring locations are presented in Table 7.4.1 to Table 7.4.9.

#### 7.4 SURFACE WATER RUNOFF DOWNSTREAM OF PROJECT AREAS AND QUARRIES

In accordance to the terms of Type 'A' Water Licence (Part I, Item 25), surface runoff and/or discharge was monitored at stations established downstream of construction and operation areas at Milne Port and the Mine Site. Similar to 2020, managing surface water drainage at the Project during freshet remained a challenge and resulted in several sedimentation events and incidents where surface water flows downstream of Project areas exceeded the applicable discharge criterion for TSS. However, prompt

implementation of sedimentation mitigation measures, outlined in the Project's SWAEMP (BAF-PH1-830-P16-0026), proved effective in controlling the mobilization of sediments and returning TSS levels to below the applicable TSS criterion stipulated by the Type 'A' Water Licence at these locations.

In accordance to the terms of the Type 'A' Water Licence (Part I, Item 23), runoff and/or discharge water quality monitoring from construction and operation areas was conducted during 2021. During 2021, there were three (3) incidents where water samples collected downstream of project areas exceeded the applicable grab sample criterion of 30 mg/L for TSS. Two (2) grab sample exceedances occurred on May 9, 2021 at water quality monitoring stations MS-C-D and MS-C-E, and one (1) exceedance occurred on August 22, 2021 at water quality monitoring station MS-C-F. Additionally, there were four (4) incidents where the samples exceeded the permitted monthly average TSS criteria of 15 mg/L. Two (2) monthly average TSS exceedances occurred in May 2021 at MS-C-D and MS-C-E, and two (2) exceedances occurred in August and September 2021 at MS-C-F.

The two (2) TSS exceedances on May 9, 2021 at Mine Site surface discharge monitoring stations MS-C-D and MS-C-E are believed to be the result of conditions associated with annual freshet conditions, which typically occur from mid-May to June 30. In preparation for freshet and in response to sediment concerns and/or exceedances, corrective and mitigative actions were implemented across the Project site as necessary in accordance with Baffinland's SWAEMP (BAF-PH1-820-P16-0026). The elevated grab samples at MS-C-D and MS-C-E contributed to the exceedances of the monthly average concentrations for TSS, which occurred in May 2021. As part of the Mine Site LTWMP new water management measures include construction of a SDLT-1 Pond to collect runoff from this area and water would be temporarily retained in a pond to allow for sufficient setting of solids to address elevated TSS issues.

MS-C-F is a surface water monitoring station located at the base of Deposit No. 1 and is positioned north of the Mine Site Mobile Maintenance Pad and Mine Haul Road. Surface flows from MS-C-F discharge northwest through a drainage route that is also monitored by surface monitoring stations MS-C-A and MS-C-B. Elevated TSS levels observed in August 22, 2021 were attributed to large rainfall events and upstream runoff from the Mine Haul Road. In response to elevated TSS levels, corrective actions were implemented to settle out sediment from the runoff, including the installation of additional sedimentation controls upstream of the MS-C-F monitoring station along the Mine Haul Road. TSS concentrations at MS-C-A and MS-C-B during August were observed to range between non-detect (<2.0 mg/L) and a maximum of 3.4 mg/L, confirming minimal impact from MS-C-F surface water runoff. TSS levels observed in the subsequent samples taken at MS-C-F on September 2 and 7, 2021 were below the grab sample criterion for TSS, indicating that the elevated TSS levels observed in August were transitory and that corrective actions taken were effective at reducing TSS levels below the applicable criteria.

Elevated TSS levels (26.7 mg/L) on September 2, 2021, which were below the applicable grab sample criterion, contributed to the September exceedance of the TSS monthly average criteria. The elevated TSS levels that were observed at MS-C-F were do to large rainfall events and upstream runoff from dam construction activities near the Mine Haul Road. In response to elevated TSS levels, corrective actions were implemented to settle out sediment from the runoff, including the repair and readjustment of the

existing sedimentation controls upstream of the MS-C-F monitoring station below the Mine Haul Road. The dam is part of the infrastructure which is being constructed as part of the Mine Site LTWMP to provide settling capacity for TSS. TSS concentrations at MS-C-A and MS-C-B during September were observed to range between non-detect (<2.0 mg/L) and a maximum of 3.7 mg/L, confirming minimal impact from MS-C-F surface water flows and that the elevated TSS levels observed on September 2, 2021 were transitory and corrective actions taken were effective at reducing TSS levels below the applicable criteria. In addition to the exceedances outlined above, a full suite sample (Group 8) was not collected at Mine Site surface water monitoring stations MS-C-C and MS-C-D during June 2021. The full suite sample collected at the downstream monitoring location MS-C-E on June 13 was compliant with all applicable water quality criteria, suggesting compliant water quality at upstream MS-C-C and MS-C-D locations. In addition, full suite samples were collected at both MS-C-C and MS-C-D on July 4, 2021 and were compliant with all applicable water quality criteria.

During 2021, there were nine (9) incidents where water samples collected downstream of quarry locations exceeded the applicable grab sample criterion of 30 mg/L for TSS. Three (3) grab sample exceedances occurred on May 26, June 7 and August 11, 2021 at MQ-C-B downstream of the QMR2 Quarry, and six (6) exceedances occurred on June 8, June 15, June 24, June 29, July 13 and August 24, 2021 at MP-Q1-02 downstream of the MP-Q1 Quarry. Additionally, there were eight (8) incidents where the permitted monthly average TSS criteria of 15mg/L was exceeded. Four (4) of the exceedances of the monthly average TSS criteria occurred in May, June, August and October 2021 at MQ-C-B and four (4) of the exceedances of the monthly average TSS criteria occurred in June, July, August and October, 2021 at MP-Q1-02.

The two (2) exceedances on May 26 and June 7, 2021 at MQ-C-B are believed to be a result of high flows and rapid snowmelt conditions associated with annual freshet conditions which typically occur from mid-May to June 30. In preparation for freshet and in response to sediment concerns and/or exceedances, corrective and mitigative actions were implemented across the Project as necessary in accordance with Baffinland's SWAEMP (BAF-PH1-830-P16-0026). Silt fencing and sand bags were deployed at MQ-C-B in response to the elevated TSS observed during the June 7 sampling event. Elevated TSS levels observed on August 11, 2021 at MQ-C-B were attributed to large rainfall events coupled with dewatering activities at the QMR2 Quarry. In response to the elevated TSS levels, corrective actions were implemented to modify the dewatering activities at the QMR2 Quarry to allow for suspended sediments to settle out before reaching surface water drainage routes near the QMR2 Quarry. TSS levels observed in the subsequent samples taken at MQ-C-B on August 17 and 22, 2021 were non-detect (<2.0 mg/L), indicating that the elevated TSS levels observed on August 11, 2021 were transitory and that the corrective actions taken were effective at reducing TSS levels below the applicable criteria. Elevated levels of TSS in the grab samples contributed to the exceedances of the monthly average concentrations for TSS at MQ-C-B in May, June and August 2021. Elevated TSS levels below the applicable grab sample criterion were observed on October 4, 2021 at MQ-C-B and were attributed to recent rainfall events. In combination with frozen conditions which allowed for only one sample to be collected in October 2021 at MQ-C-B, this contributed

to the monitoring station's elevated monthly average TSS levels and limited the implementation of effective sediment mitigation measures.

MP-Q1-02 is a monitoring station located within the drainage ditch that collects surface water runoff from the Q1 Quarry and is not located within a natural waterbody. Surface flows from the drainage ditch discharge north of the Q1 Quarry onto the tundra. In response to the elevated TSS levels within the drainage ditch in June mitigative actions were implemented including the placement of crushed stone at problematic areas on the quarry pad and the installation of sandbags and spring berms within the ditch system, to reduce the amount of sediment available for mobilization and settle sediments from the runoff. Under the Type 'A' Water Licence, Milne Port surface water monitoring station MP-C-H is used to monitor water quality in the nearest receiving waterbody. TSS concentrations at MP-C-H during all sampling events in 2021 were observed to vary between non-detect (<2.0 mg/L) and 3.2 mg/L, confirming minimal impact from MP-Q1-02 surface water runoff. TSS levels observed in subsequent samples from MP-Q1-02 in July and September indicated that the elevated TSS levels observed on July 13 and on August 24 were transitory and that mitigative measures were effective at reducing TSS levels below the applicable criteria. Elevated levels of TSS in the grab samples resulted in the monthly average exceedances for TSS observed in June, July and August. Frozen conditions allowed for only one sample to be collected in October 2021 at MP-Q1-02, contributing to the monitoring's station elevated monthly average TSS levels and limiting the implementation of effective sediment mitigation measures.

Acute toxicity testing was also performed at surface runoff and/or discharge locations downstream of active quarries Q1 at Milne Port and QMR2 at the Mine Site during 2021. During 2021, all acute toxicity samples collected downstream of active quarries (Q1 and QMR2) were demonstrated to be non-acutely toxic. Monthly acute toxicity (Group 3) samples were not collected at surface water monitoring stations downstream of the Q1 and QMR2 Quarries in October 2021. The monthly acute toxicity samples were not collected at these monitoring stations during sampling conducted on October 4 and October 6 at the Mine Site and Milne Port, respectively, and then could not be collected during the remainder of the month due to frozen conditions. Corrective actions have been implemented to ensure parameters that are required to be sampled monthly are included in the first sample set collected that month.

2021 water quality monitoring results for stations MP-Q1-01, and MP-Q1-02 representing surface water runoff from developed quarries at Milne Port are provided in Table 7.2.13 and Table 7.2.14, respectively, and are compared to the applicable water quality discharge criteria. 2021 water quality monitoring for Mary River stations MQ-C-A, MQ-C-B, and MQ-C-D representing surface water runoff from developed quarries are provided in Table 7.3.20, 7.3.21 and 7.3.22, respectively, and are compared to the applicable water quality discharge criteria. Monitoring locations downstream of developed quarries are presented in Figures 3 and 5, and in Table 7.1.

Daily surface flow volumes were measured at or near most of the surface water monitoring locations in 2021 and are detailed in Appendix E.3.

To address the 2021 sedimentation events and on-going sedimentation concerns at the Project, Baffinland continued to implement corrective and mitigation measures, including initiatives outlined in the Sedimentation Mitigation Action Plan (Golder, 2016a), Dust Mitigation Action Plan (Golder, 2016b) and Tote Road Earthworks Execution Plan (TREP; Golder, 2017). Corrective actions and mitigation measures implemented to address sedimentation concerns at the Project in 2021 during freshet are fully discussed in the 2021 Freshet Monitoring Report provided in Appendix E.11. The reader is referred to the Project's SWAEMP (BAF-PH1-830-P16-0026) for the best management practices and mitigation measures implemented at the Project to manage and mitigate the impacts of sedimentation and erosion on receiving waterbodies, aquatic ecosystems, fish and fish habitat.

In addition to the above, Baffinland developed the Mine Site LTWMP submitted under Modification No. 13 and has proposed various measures and facilities to address erosion and sedimentation effects at the Mine Site. The LTWMP will be developed in a phased approach to manage surface water and sedimentation impacted runoff identified through ongoing monitoring at the Project. The areas targeted include the Mary River, Sheardown and Camp Lake catchment areas. In accordance with the Type 'A' Water Licence, Part D, detailed design and Issued for Construction drawings will be submitted to the NWB prior to construction. The implementation of this plan is a direct result of adaptive management and regulator feedback to date and due to the scale of the planned work the detailed engineering and construction earthworks will require significant time and effort.

## 7.5 NATURAL SEDIMENTATION EVENTS

During 2021, natural sedimentation surveys were conducted in various locations across Baffin Island. Targeted flights were completed on June 12 and July 16, 2021. During these flights, previously known source locations of natural sedimentation were observed and conditions documented. Additionally, environmental staff continually monitored for natural sedimentation events while implementing other monitoring programs.

On June 11, 2021, a natural sedimentation event was observed at an undisturbed watercourse north of Milne Port. The watercourse, labelled MP-NS-04, was observed to be turbid thus upstream and downstream water quality samples were collected. Analysis of the water samples indicated that upstream and downstream TSS concentrations were 33.3 mg/L and 8,090 mg/L, respectively. The source of the sedimentation was documented with photographs and was not related to Project activities or infrastructure. Additional details of the event are provided in Figure 11, including a photo, coordinates and a figure showing the location of MP-NS-04. During the July 16 survey, no observations of natural sedimentation were noted at the locations monitored or along the flight route and therefore no samples were collected. Water quality monitoring analytical results for TSS for natural sedimentation sampling are presented in Table 7.9.

## 7.6 AQUATIC EFFECTS MONITORING PLAN (AEMP)

The Aquatic Effects Monitoring Plan (AEMP) describes how monitoring of the aquatic environment will be undertaken at the Project. The AEMP was identified as a follow-up monitoring program in Baffinland's

Final Environmental Impact Statement (FEIS; Baffinland, 2012) and is prescribed by the Type 'A' Water Licence. The AEMP, specifically, is a monitoring program designed to:

- Detect the short-term and long-term effects of the Project's activities on the surrounding aquatic environment;
- Evaluate the accuracy of impact predictions;
- Assess the effectiveness of planned mitigation measures; and
- Identify additional mitigation measures to avert or reduce unforeseen environmental effects.

The AEMP focuses on the key potential impacts to freshwater environment valued ecosystems components (VECs), as identified in the Final Environmental Impact Statement and Addendum for the Early Revenue Phase (ERP). The freshwater VECs include water quantity, sediment quality, and freshwater biota and fish habitat. The AEMP has been structured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individually monitored but related aquatic monitoring programs, and includes the evaluation of Project related influences on chemical and biological conditions at mine-exposed waterbodies.

The following are the component studies that comprise the AEMP. The 2021 study reports are provided in Appendix E.9:

- Core Receiving Environment Monitoring Program (CREMP), provides a basis for the evaluation of any mine-related influences on water quality, sediment quality and/or biota (including phytoplankton, benthic invertebrates and/or fish) within aquatic environments located near the Mine Site. The 2021 study report is provided as Appendix E.9.1.
- Multiple low level action items were recommended in the 2021 CREMP report. This included continuing benthic invertebrate monitoring at CLT1 upper main stem, harmonizing the lake sediment quality and benthic invertebrate monitoring stations at Camp Lake, continuing water quality monitoring at Sheardown Lake Tributaries 9 and 12, and establishing new AEMP benchmarks for sediment quality.
- Lake Sedimentation Monitoring Program evaluates baseline and Project-influenced lake sedimentation rates at Sheardown Lake NW. The 2021 study report is provided as Appendix E.9.2. Unfortunately, lake sedimentation samples from the 2020 to 2021 ice-cover period were lost in transit to the laboratory and not able to be located prior to preparation of this report. Therefore, only the 2021 open-water period data were able to be presented and discussed in this report. Corrective actions have been put in place to ensure the responsibilities of various stakeholders involved in the sample shipment process are understood to prevent recurrence of lost samples.
- Hydrometric Monitoring Program assesses flow in several streams and rivers near Project sites and supports the AEMP. The 2021 study report is provided in Appendix E.9.3.
- Dustfall Monitoring Program evaluates total dustfall deposition in proximity to the Tote Road, Milne Port and Mine Site. The 2021 results are discussed in the 2021 Terrestrial Annual Monitoring

Report (EDI, 2022) and the 2021 Annual Report to the Nunavut Impact Review Board (Baffinland, 2022).

- Stream Diversion Barrier Study was an initial study evaluating the potential for fish barriers under natural conditions and due to Project-related stream diversions. This study has been deferred due to the low impact anticipated by the reduced footprint of the WRF during the Early Revenue Phase of the Project.

On November 8 and 9, 2017, Baffinland chaired the 2017 Freshwater Workshop in Iqaluit, Nunavut with regulators and stakeholders (ECCC, CIRNAC, Government of Nunavut (GN), NWB, QIA) to discuss the Project's freshwater monitoring programs and the proposed changes to the Project's Core Receiving Environment Monitoring (CREMP), included in Revision 2 of the AEMP; submitted to regulators in April 2016. Taking into account discussions and feedback received at the 2017 Freshwater Workshop, Baffinland resubmitted a modified Revision 2 of the AEMP in July 2020 to regulators and stakeholders through the Phase 2 Proposal water licence amendment, for review and approval. Additionally, in 2021 Baffinland submitted an updated application package through the water licence amendment process to various regulatory agencies for technical review and comment. Baffinland subsequently hosted a workshop in February 2022 to discuss any remaining outstanding technical comments. Baffinland has since updated the AEMP incorporating feedback from various regulators and QIA and has included this submission in Appendix E.5.3.

## 7.7 2021 GROUNDWATER MONITORING PROGRAM

Baffinland continued to conduct groundwater monitoring at the Project in 2021. Groundwater consultants, specialized in Arctic environments, were retained again in 2021 to further assess the current program and provide additional recommendations. The consultants completed a desktop review of available groundwater monitoring data, as well as available data regarding lithology and hydrogeology in the area of the Mary River Project, to further assess and identify any trends in groundwater quality, groundwater flow, and any discernable information about the condition of subsurface and stratigraphy of the investigated area. Following this review, the consultants made recommendations on the implementation of the groundwater monitoring program for 2021 and subsequently executed the recommendations during the 2021 field season and completed the groundwater monitoring program. The 2021 monitoring program was expanded to include the installation of additional temporary shallow monitoring wells around the Mine Site Hazardous Waste Berms to establish background conditions and assess down-gradient groundwater quality. The groundwater monitoring program was completed using the same methodology as in previous years and involved establishing shallow groundwater wells up-gradient and down-gradient of the Landfill Facility and Mine Site Hazardous Waste Berms using drive-point piezometers and collecting water samples near the depth of the active layer (approximately 1.1 to 1.8 metres) during 2021. The expanded program involved sampling six (6) monitoring wells at the Mine Site Hazardous Waste Berm area; two (2) of which were up-gradient of the berms, and five (5) monitoring wells at the Landfill Facility; two (2) of which were up-gradient of the facility. Two (2) additional monitoring wells were installed at the Mine Site Hazardous Waste Berm area, however, samples could not be

collected from these monitoring wells due to insufficient amount of water for sample collection and frozen conditions, respectively. Two (2) additional monitoring wells were also installed at the Landfill Facility, however, ground water could not be brought to surface for sample collection from these two locations. Additionally, one (1) monitoring well at the Landfill Facility was dry at the time of sampling.

Water quality was compared to the Federal Interim Groundwater Quality (FIGQ) Guidelines, for reference. These guidelines are based on a critical review and evaluation of existing approaches used by other jurisdictions in Canada and in other countries and were developed as an interim measure until Canadian Environmental Quality Guidelines (CEQGs) for groundwater are available. Water quality results for groundwater samples collected during the 2021 program demonstrated potential impacts in wells down gradient of the landfill that were limited to the immediate vicinity of the facility. Parameters with elevated concentrations relative to the FIGQ Guidelines included; chloride, sulphate, and dissolved metals parameters including boron, cadmium, copper, lead, nickel, and uranium. The presence of elevated dissolved copper in reference (up gradient) locations, suggests that copper may be naturally occurring; however, this will need to be confirmed with future monitoring. At the Mine Site Hazardous Waste Berm area; dissolved copper and nickel were greater than their respective FIGQ Guideline at one or more drive-point piezometers during the 2021 monitoring program, including at the reference locations. All PAH parameters were reported below their respective FIGQ Guidelines with the exception of naphthalene which was reported above the FIGQ Guideline at MS-HWB-GW7. Further sampling will be conducted in 2022 to evaluate potential PHC impacts. On-going monitoring is required to gain a better understanding of natural groundwater chemistry and any impacts at the Project site. As additional monitoring is conducted in future years, Baffinland will be able to better characterize natural groundwater chemistry at the Project and identify any trends, including potential impacts from Project activities or infrastructure. For additional details on the 2021 groundwater monitoring program, refer to Appendix E.12 of this report.

Baffinland will continue the groundwater monitoring program in 2022, and will continue to retain consultants to execute the program which will be implemented based on the assessment and recommendations from the 2021 groundwater monitoring report. In 2022, Baffinland plans to evaluate the implementation of further expansion of the program to gain a better understanding of natural groundwater chemistry and potential project related effects at additional Project sites. Due to the challenges associated with sampling methodologies for groundwater data collection in a permafrost environment and the challenges in interpreting this data, further statistical trend analysis is recommended to evaluate the significance of changes in water quality between up-gradient and down-gradient monitoring locations as additional water quality data is collected in future years. Given the challenges associated with sampling methodologies for groundwater collection in a permafrost environment and the challenges in interpretation this data, however, long-term trends may not be identified even with an expanded dataset. Despite these operational challenges, Baffinland is committed to continuing to expand the groundwater monitoring program in 2022 to gain a better understanding of natural groundwater chemistry at the Project site, including the evaluation of additional Project areas where monitoring is warranted.

## 7.8 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

Water quality samples collected in 2021 as required by Schedule I of the Type 'A' Water Licence are presented in Table 7.2 and Table 7.3. Samples collected for analysis in 2021 followed the general recommendations presented in the Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class A Licensees in meeting SNP Requirements and for Submission of a QA/QC Plan (CIRNAC, 1996).

Field QA/QC procedures adopted by the Project are described in detail in the Project's Surface Water Sampling Program - Quality Assurance and Quality Control Plan (QA/QC) Plan Appendix E.5.2; BAF-PH1-830-P16-0001). Field QA/QC samples include the collection of field duplicates and the use of field and travel blanks. Of the 430 discrete sets of Type 'A' Water Licence regulatory samples collected in 2021, field QA/QC samples (47 duplicates, 12 field blanks and 21 travel blanks) comprised 18.6 % of the total samples collected. This satisfied the minimum 10% QA/QC sampling requirement stipulated in the QA/QC Plan. Baffinland will continue to adhere to the water sampling protocols outlined in the QA/QC Plan, including the 10% QA/QC sampling requirement, to ensure the collection of representative water quality data at the Project.

The results and interpretation of the QA/QC program are presented in Table 7.6 and 7.7. The results for the field QA/QC program are mostly acceptable, however, there was some variations observed in field duplicates. There were six (6) samples that had relative percent differences (RPD) greater than 30% and where the reported value was greater than 5 times the lowest detection limits (LDL). This was a decrease from 2020 where there were sixteen (16) instances where the RPD was greater than 30% and where the reported value was greater than 5 times the lowest detection limits (LDL). A summary of these duplicates is presented in Table 7.8. In addition, a total of twenty-seven (27) parameters in the field and travel blanks with result values greater than their respective parameter LDL were identified in 2021, however all were within five (5) times the value of their respective LDLs, with the exception of magnesium in field blank MS-0802 on July 8, and total dissolved solids in field blank MS-C-G02 on June 28. Poor quality distilled water and/ or laboratory analytical error is a likely explanation for these elevated parameter values.

To ensure the continued collection of representative, accurate and reliable water quality data at the Project, Baffinland will continue to require all personnel involved with water quality sampling to be experienced and fully trained in the Project's QA/QC procedures and processes outlined in the Project's QA/QC Plan.

Laboratory analyses of water samples were carried out by accredited analytical laboratories during 2021. A laboratory operated by ALS Environmental located in Waterloo, Ontario and run by ALS Canada Ltd. (ALS) performed the majority of sample analyses in 2021. An on-site accredited field laboratory, located at the Mine Site and also operated by ALS, performed select analyses in 2021 (i.e. pH, TSS, Total Dissolved Solids [TDS], turbidity), reducing logistical costs while providing timely results.

ALS adheres to a designated QA/QC Management System, which includes documentation and document control, staff training and internal audits. The practices exceed accreditation requirements for high confidence in data reliability utilising:

- Calibration verification standards and drift control standards;
- Surrogate standards and internal standards;
- Replicate analyses and blanks on submitted samples;
- Standard reference materials (SRM's) and matrix spikes; and,
- Standards Data Quality objectives, established for each QC sample, based on a combination of reference method objectives, customer requirements and historical test method performance.

The laboratory QA/QC data is reported in individual analytical certificates.

## 8 RECLAMATION, CLOSURE AND FINANCIAL SECURITY

### 8.1 PROGRESSIVE AND FINAL RECLAMATION

In 2019, evaluation of the condition of the Tote Road by Tetra Tech led to the implementation of a 2020 action plan to address the historic borrow sources on the Tote Road (Appendix C.4). While the remaining activities are planned for completion in 2022, throughout 2021, many progressive reclamation activities were completed according to the action plan including the following:

- Completion of reclamation works on the Tote Road, specifically near KM 49 using material available on the east side of the roadway from the previous road alignment.
- Completion of reclamation works for slope stabilization at KM 29.1, to reduce hill slope degradation using fill located in the area.
- Completion of reclamation works on the Tote Road, specifically near KM 16.9 using material available at KM 13 from the previous road alignment.
- Completion of reclamation works on the Tote Road, specifically near KM 15 using material available at KM 13 from the previous road alignment.
- Completion of reclamation works for slope stabilization and shaping at KM 9.7, to reduce and the hill slope degradation and to stabilize the embankment on the east side.
- Completion of reclamation works, regrading and bulk fill of material at KM 7.2.
- Continued implementation of a long term multi-year plan to address localized areas of permafrost degradation associated with the current borrow areas, including the borrow areas near KM 97. Borrowing in the KM 97 areas has led to thawing of the underlying permafrost soils, which has caused a considerable increase in ponded water, and as a result there is settlement from thaw of both the ground ice in the soil matrix and the thaw of ice wedges. To address the permafrost degradation, a reclamation plan for the historical KM 97 borrow areas was developed by Baffinland and is outlined in Appendix B of the Borrow Source Management Plan – KM 97 (BAF-PH1-830-P16-0032). During 2021, Baffinland continued the reclamation efforts by executing significant dewatering of the Km 97 borrow areas to reduce permafrost degradation. Works outlined in the reclamation plan are expected to continue in 2022.
- Demobilization and backhaul of equipment and supplies not required for near term activities, including the current inventory of hazardous waste and other materials by means of sealifts from Milne Port.
- On-going management of hydrocarbon impacted soils at the Milne Port Landfarm Facility generated from historical decommissioning efforts and ongoing operations.

A summary of the reclamation works listed above and their implications on financial security held by both the QIA and the Crown (CIRNAC) for the Project are presented in Table 8.1.

## 8.2 CURRENT RESTORATION LIABILITY

During 2021, a total of \$ 7,628,500 CAD of additional security was posted with the QIA, and \$1,197,000 of additional security with CIRNAC for activities outlined in the 2021 Work Plan. This also reflects the outcome of the arbitration with QIA regarding the 2019 Work Plan. Closure and reclamation security posted for Project activities as of December 31, 2021 is summarized in Table 8.2

## 9 PLANS, REPORTS AND STUDIES

### 9.1 SUMMARY OF STUDIES REQUESTED BY THE NUNAVUT WATER BOARD

In 2021, studies were not requested by the NWB.

### 9.2 REVISIONS TO PLANS, REPORTS AND MANUALS

Management and monitoring plans that have been updated since the submission of 2020 QIA & NWB Annual Report for Operations can be accessed on Baffinland's Document Portal located on the Baffinland corporate website. Refer to Table 9.1 and Appendix E.5 for the updated management plans included with the annual report submission.

### 9.3 SUMMARY OF FUEL STORAGE

During 2021, bulk fuel storage and dispensing facilities located at the Mine Site and Milne Port were used to support Project activities, including diesel electric power generation and building heat, light and heavy vehicle and equipment operation, fixed-wing aircraft and helicopter flights, and shiploader operations.

At the end of 2021, the Milne Port Bulk Fuel Storage Facility included the following:

- three (3) 12 mL Arctic Diesel field-fabricated tanks;
- one (1) 13 mL Arctic Diesel field-fabricated tank;
- two (2) 5 mL Arctic Diesel field-fabricated tanks;
- one (1) 3 mL Arctic Diesel field-fabricated tank; and
- four (4) 0.75 mL Jet-A1 pre-fabricated tanks.

All tanks are vertical single wall steel construction and designed to API 650 specifications. Fuel inventories at the Milne Port Bulk Fuel Storage Facility on December 31, 2021 consisted of 30.76 mL of Arctic Diesel and 2.16 mL Jet-A1. No significant modifications to the fuel management infrastructure at Milne Port were completed in 2021.

At the end of 2021, the Mine Site bulk fuel storage and dispensing facilities included the following:

- Mine Site bulk diesel fuel facilities:
  - one (1) 15 ML Arctic Diesel field-fabricated tank; and,
  - four (4) 0.5 ML Arctic Diesel pre-fabricated tanks.
- Mine Site Aerodrome Bulk Jet-A1 fuel facility:
  - two (2) 50,000 L Jet-A1 steel tanks.

The bulk fuel storage facilities at the Mine Site are equipped with lined secondary containment berms, engineered to comply with the Canadian Council of Ministers of the Environment (CCME) "Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products" (2015). Fuel inventories at the Mine Site on December 31, 2021 consisted of 16.04 mL of Arctic Diesel at the Mine Site

Bulk Fuel Storage Facility and 109,935 L of Jet-A1 at the Mine Site Aerodrome. No significant modifications to the fuel management infrastructure at the Mine Site were completed in 2021.

During 2021, the Milne Port Bulk Fuel Storage Facility was resupplied by fuel tanker vessels during the open-water shipping season via ship-to-shore floating hose fuel transfers. Throughout the year, fuel at the Mine Site Bulk Fuel Storage Facility and Mine Site Aerodrome were resupplied by bulk fuel tanker trucks transporting fuel from Milne Port via the Tote Road. The remaining fuel requirements needed for the various aspects of the Project during 2021 were supplied using day tanks and 205 L drums.

As described in the 2021 QIA and NWB Annual Report for Exploration and Geotechnical Activities, drummed fuel was used mainly to support on site helicopters involved with exploration and environmental field studies in 2021. As of December 31, 2021, there were 844 drums (205 L) or 173,020 L of fuel (624 drums or 127,920 L of Arctic Diesel and 220 drums or 45,100 L of Jet-A1) stored at Steensby Port, 1520 drums (205 L) or 311,600 L of fuel (1,281 drums or 262,605 L of Jet-A1 and 239 drums or 48,995 L of gasoline) at the Mine Site, 336 drums (205 L) or 68,880 L of fuel (12 drums (205 L) or 2,460 L of Jet-A1 and 324 drums (205 L) or 66,420 L of gasoline) at Milne Port, and 7 drums (205 L) or 1,435 L of fuel (five (5) drums of diesel and 2 drums of gasoline) at Bruce Head. No fuel was stored at the Mid-Rail camp in 2021.

It is Baffinland's practice to construct and operate its fuel storage/dispensing facilities in accordance with applicable guidelines and regulations such as the CCME "Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products" (2015), Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (Canadian Environmental Protection Act, 1999 SOR/2008-197 June 12, 2008) and the National Fire Code of Canada. To protect receiving waters, it is Baffinland's practice to store drummed fuel, petroleum based wastes, and other potentially hazardous products within lined containment areas whenever possible. Engineered lined containment areas are in place at the Mine Site, Milne Port, Steensby Port and Mid-Rail camp for the storage of drummed fuel and hazardous products and wastes (See Baffinland's Hazardous Materials and Hazardous Waste Management Plan in Appendix E.5.4)

Part D, Item 18 in the Type 'A' Water Licence requires that Baffinland shall ensure the proper function of earthworks associated with facilities at the Mine Site and Milne Port such as the bulk fuel storage and ancillary fuel facilities. Bi-annual geotechnical inspections are required to be performed by a geotechnical engineer registered in Nunavut. To fulfil the requirement, geotechnical inspections of Project sites were conducted in June and September 2021. Reports for the geotechnical inspections, which include Baffinland's plan for implementing the identified recommendations, were submitted to the NWB within 60 days of each inspection. Copies of the 2021 geotechnical inspection reports are provided in Appendix C.2.

#### 9.4 RESULTS OF CHEMICAL ANALYSIS OF INCINERATOR BOTTOM ASH

To confirm that Project incinerators at the Mine Site and Milne Port were operating as designed (per manufacturer's specifications), routine process monitoring was completed throughout 2021. This

included monitoring the temperature in the primary chamber, secondary chamber and stack, as well as burn times, system pressure and fuel level.

Prior to disposal at the Mine Site Landfill Facility, residual bottom ash generated from the site incinerators was tested using Toxicity Characteristic Leaching Procedure (TCLP) analysis. TCLP testing of residual bottom ash was conducted to ensure compliance with the Type 'A' Water Licence (Part F, Item 7) and confirm that disposal of residual bottom ash at the Landfill Facility will not generate leachate at concentrations above the applicable water quality criteria. In comparing the TCLP analytical results for the 2021 composite ash samples with the applicable environmental guidelines for non-hazardous solid waste (Government of Nunavut, 2011), all ash samples were below the threshold values for monitored parameters with the exception of one (1) ash sample from Milne Port on March 2, 2021 which was above the applicable criteria of 5 mg/L for lead. The ash was subsequently placed into Quatrex bags and resampled; four (4) confirmatory samples were collected and showed compliant results. In 2021, a total volume of 83.08 m<sup>3</sup> of compliant incinerator ash was disposed in the Landfill Facility, including 41.81 m<sup>3</sup> generated from the Mine Site incinerator and 41.27 m<sup>3</sup> generated from the Milne Port incinerator as presented in Table E.2.2 and Table E.2.3, respectively. Summary tables detailing the disposal method for ash generated by Project incinerators and analytical results screened for the applicable waste criteria in 2021, are provided in Appendix E.2.

Baffinland will continue to conduct routine sampling of residual bottom ash generated by Project incinerators as described above to ensure ash disposed in the Landfill Facility is compliant with the established applicable environmental guidelines. Ash identified by TCLP analysis to exceed the established threshold values will be segregated, packaged and shipped offsite to Southern Canada for proper disposal at a licensed waste facility.

#### 9.5 SUMMARY OF GEOCHEMICAL ANALYSIS FOR OPERATED QUARRIES

In 2021 there were no additional geochemical analyses completed for quarry sites at the Project, as there were no blasting activities conducted.

All materials utilized from the Project quarries for construction in 2021 were blasted in 2019, therefore there was no borehole drilling and analysis of borehole samples. All results for materials used in 2021 were previously reported in both the 2019 and 2020 Annual Report for Operations.

As no additional sampling was completed in 2021 at Project quarries, further evaluation of the potential for Acid Rock Drainage and Metal Leaching (ARD/ML) was not completed. In 2022, Baffinland will continue to monitor and evaluate any new geochemical data collected at Project quarries should blasting activities resume, in an effort to refine and expand the available dataset and assess the potential for ARD/ML from Project quarries. Water quality monitoring downstream of Project quarries in 2021 continued to demonstrate neutral pH conditions.

## 9.6 WASTE ROCK STUDIES AND OPERATIONAL TESTING RESULTS

Throughout 2021, Baffinland continued to characterize Deposit No. 1 waste rock generated by mining operations and optimize waste rock deposition and management strategies to address outstanding concerns identified at the WRF during 2017 and 2018. Waste rock monitoring and management activities completed in 2021 included:

- Continued annual QA/QC sampling on the WRF;
- Continuous operational geochemical and paste pH testing of waste rock generated by mining operations at Deposit No. 1;
- Monitoring of water quality and seepage from the WRF;
- Continual monitoring of the eight (8) installed thermistor series at varying depths and locations throughout the WRF to characterize the thermal conditions of the Facility; and,
- Continued optimization of the Project's near-term waste rock deposition and management strategies, and of the Phase 1 Waste Rock Management Plan – BAF-PH1-830-P16-0029, which is introducing the application of new methods of analysing for waste materials.

Details on the various programs are outlined in the following sections.

### 9.6.1 WRF QA/QC Program

QA/QC sampling was conducted at the WRF in 2021 in accordance with the Phase 1 Waste Rock Management Plan (BAF-PH1-830-P16-0029). This sampling program was implemented to verify that Non-Potentially Acid Generating (Non-AG) and PAG material placement within the dump limits was being adhered to during mining operations. The results and distribution of sampling are presented in Table 9.2 and Figure 10, respectively. Eight of the 12 samples collected targeted areas where NAG had been deposited during 2021 mining operations, specifically, samples WRD21-2234, WRD21-2342, WRD21-2396, WRD21-2288, WRD21-2378, WRD21-2270, WRD21-2252, and WRD21-2306. Test results confirmed these 8 samples to be NAG, with all samples yielding < 0.2% sulphur and paste pH values > 6. Four samples were collected from areas where PAG was deposited during 2021 mining operations, specifically samples WRD21-2324, WRD21-2360, WRD21-11, WRD21-12. Test results for these 4 samples yielded similar results to the former with < 0.2% sulphur and paste pH values > 6. The absence of a distinct PAG signature in these areas is likely to be the result of the sampling intersecting a deposited NAG encapsulation layer that is atop of the PAG layer. The sampling program was carried out in Winter 2021 which aligns with the timing of PAG encapsulation during the winter months outlined in the disposition strategy guidelines. The results of the QAQC sampling program support adherence to the Plan with respect to material placement at the WRF.

### 9.6.2 Geochemistry Monitoring Program

Operational testing of waste rock generated by mining operations at Deposit No. 1 continued to be conducted throughout 2021 to inform the management and deposition of PAG and Non-AG waste rock at the Project. The testing methods employed are outlined in the Project's Life-of-Mine Waste Rock

Management Plan (BAF-PH1-830-P16-0031) and Phase 1 Waste Rock Management Plan (BAF-PH1-830-P16-0029) and involve the on-site sampling and analysis of blast hole cuttings for total sulphur content and paste pH on all samples. Additional supporting Acid Base Accounting (ABA) parameters, such as the Neutralization Potential Ratio (NPR), were also analyzed on select samples. The operational testing results provide the basis for determining the appropriate waste rock classification between PAG and Non-AG. Waste rock analyzed to have a paste pH value great than 6 and a sulphur concentration less than 0.20% was classified as Non-AG material while waste rock analyzed to have either a paste pH value less than 6 or a sulphur concentration greater than 0.20% was classified as PAG material. All PAG waste rock generated in 2021 was deposited at the WRF in accordance with the Phase 1 Waste Rock Management Plan, the Interim Waste Rock Management Plan, and the WRF QA/QC program. The 2021 operational testing results for waste rock material generated in 2021 are provided in Appendix Table E.6.1 through E.6.3. In addition to operational testing, select blasthole samples of both PAG and NAG material were submitted for ABA (Acid Base Accounting) and SFE (Shake Flask Extraction) testing off-site, with purpose to develop a comprehensive geochemical database for the WRF.

### 9.6.3 Water Quality Monitoring Program

As part of the ongoing monitoring at the WRF to expand the data set for future updates to water quality models required for the Phase 1 Waste Rock Management Plan, water quality monitoring was conducted at the east and west ditches where they inflow to the WRF Pond, as well as sampling of drainage/seepage at the perimeter toe of the WRF pile (Figure 10). Samples were collected throughout the summer of 2021, and were dependent on the presence of sufficient flow of water to be collected.

Samples of ditch inflows to the WRF pond are presented in Appendix Table E.6.4 and E.6.5 A total of twenty-one (21) samples were collected between June 21, 2021 and September 5, 2021 from the ditch inflows. Water quality of runoff from the WRF reporting to the WRF Pond demonstrated neutral pH conditions through the entire 2021 season with the exception of three (3) inflow samples from the east ditch which had a pH below 6.

Samples of the drainage/seepage along the toe of the WRF are presented in Appendix Table E.6.6 A total of sixty-nine (69) samples were collected between July 5, 2021 and August 16, 2021. Generally, water quality demonstrated neutral pH conditions, with the exception of twelve (12) samples below a pH of 6 at seven (7) locations.

Overall, results of the water quality monitoring continue to show that runoff from the WRF generally demonstrate neutral pH. This suggests that revisions to the Phase 1 Waste Rock Management Plan and associated waste rock management practices may be having a positive effect in mitigating the occurrence of ARD/ML observed in 2017 at the WRF. While results indicate localized, low pH conditions at a limited number of sampling locations, this is consistent with the management strategy and the potential for the reaction of the seasonal active layer prior to freeze back. A detailed assessment of this water quality dataset and any future water quality data collected under this program will be completed prior to the next update to the Phase 1 Waste Rock Management Plan and any supporting water quality modelling.

#### 9.6.4 Thermal Monitoring Program

As part of the ongoing waste rock geochemical evaluation program, eight (8) thermistor series at varying depths and locations throughout the WRF were installed from 2018 to 2019 to characterize the thermal conditions of the WRF. Real-time thermal data has continued to be acquired from these instruments in 2021. Data collected from the thermistors indicates that the WRF is still frozen at depth, with a seasonal active layer, and is demonstrating that the placement of waste rock is promoting the aggradation of permafrost, consistent with the long term management and closure objectives of the WRF.

#### 9.7 RECLAMATION RESEARCH

Reclamation research work completed in 2021 includes the continuation and expansion of the re-vegetation program initiated in 2019. Environmental Dynamics Inc. was on site in summer 2021 and continued studies related to reclamation along the tote road. The findings of their visit are summarized in the report provided in Appendix E.10.

## 10 REGULATORY INSPECTIONS AND COMPLIANCE

### 10.1 REGULATORY INSPECTIONS

Throughout 2021, Baffinland hosted numerous inspections and audits from CIRNAC, QIA, and Nunavut Impact Review Board (NIRB), as well as the Workers' Safety & Compensation Commission (WSCC) Mines Inspector. Due to the on-going COVID-19 Pandemic, site visits were completed physically on site, and virtually for NIRB. A visit from ECCC was scheduled but was postponed due to unforeseen reasons. Table 12.2 summarizes the 2021 site visits to the Project by the various agencies in 2021. Appendix E.8.1 and E.8.215 includes inspection findings and recommendations by the agencies, Baffinland's response, and resolution actions for convenient tracking of inspection comments.

#### 10.1.1 CIRNAC Inspections

CIRNAC Water Resources Officers conducted one (1) inspection of the Project in 2021. The date of the inspections is as follows:

- September 16-17

Inspection results were conveyed during close-out meetings at the Project and documented in a Water Licence Inspection Report distributed to Baffinland following the inspection. The 2021 CIRNAC Water Licence Inspection Report and Baffinland's responses are provided in Appendix E.8.1.

#### 10.1.2 QIA Inspections

The QIA conducted two (2) inspections of the Project in 2021 under the Commercial Lease. The date of the inspections are as follows:

- July 17 to 19
- October 17 to 20

In addition to the inspection, the QIA conducted one (1) environmental audit from September 28 to October 2, 2021.

The findings from the inspection and audit were conveyed during the close-out meetings and documented in subsequent reports and correspondence. The QIA inspection reports along with Baffinland's responses are provided in Appendix E.8.2.

#### 10.1.3 ECCC Inspections

ECCC Enforcement Officers did not conduct any inspections in 2021.

#### 10.1.4 Workers' Safety and Compensation Commission (WSCC) Mine Inspections and Visits

The Workers' Safety & Compensation Commission (WSCC) conducted (1) inspection of the Project through an in-person visit from October 6<sup>th</sup> through 7<sup>th</sup>, 2021. Prior planned visits had been postponed due to COVID-19 protocols. The main focus of the inspection was the annual geotechnical review of the site mine and quarries.

No unidentified or unmanaged geotechnical worker safety hazards were noted during the review and inspection of the Mary River Waste Rock Facility and QMR2.

Deficiencies identified at the Open Pit, Milne Port Quarry Q1 and Mary River Waste Rock Facility were captured in the WSCC Consultant's report and distributed to Baffinland management and the Baffinland Occupational Health & Safety (OHS) Committee. The 2021 directives that resulted from the visit were reviewed by the management team and responses were sent to the Mines Inspector within a timely manner.

## 10.2 REGULATORY ENFORCEMENT ACTIONS

During 2021, there were no enforcement actions issued to the Project by federal or territorial regulators.

## **11 AMENDMENTS – PENDING AND COMPLETED**

### **11.1 TYPE ‘A’ WATER LICENCE**

The Nunavut Water Board (NWB) review process for the amendment to Baffinland’s Type ‘A’ Water License required for the Phase 2 Proposal was paused through 2020 following its submission to amend the Type ‘A’ Water Licence on August 16, 2018, in parallel with the NIRB review process. Since this time, Baffinland submitted on May 5, 2019 updated documentation to the NWB for the Phase 2 Proposal, including updated monitoring and management plans, as well as issued for construction drawings. Further updated documentation was submitted to the NWB for the Phase 2 Proposal on September 17, 2021, and an in-person Technical Meeting was held in Iqaluit on November 12, 2021.

Baffinland looks forward to completion of the regulatory review process for Phase 2 and the Type ‘A’ Water Licence amendment through 2022 with the aim of continuing to stabilize the Mary River Project and to deliver associated benefits.

### **11.2 COMMERCIAL LEASE**

#### **11.2.1 Options Exercise Notices**

Under Section 3 of the Commercial Lease, the Options Exercise Notice (OEN) process allows Baffinland to propose amendments to the limits and classifications of Inuit-Owned Lands captured under the Commercial Lease. In 2021, Baffinland did not submit any Options Exercise Notices to the QIA for review and approval.

#### **11.2.2 Tote Road Adjustment Notices**

The Tote Road Reconciliation Agreement between Baffinland and the QIA requires that Baffinland submit for QIA’s review and approval a “Tote Road Adjustment Notice” (TRAN) for significant upgrades and realignments of the Tote Road. As the approval of the Roads Management Plan from QIA is still pending, no TRANs were approved by the QIA during 2021.

## 12 PUBLIC CONSULTATIONS

Baffinland continued to make changes to its engagement approach in 2021 due to the COVID-19 Pandemic. Travel restrictions and increased focus on community and employee health and safety moved many engagements from in person to online (teleconference/videoconference) formats. While these types of engagements are not ideal from an Inuit cultural or relationship building perspective they have proven successful in ensuring that stakeholders and community representatives have been able to continue dialogue with Baffinland throughout the Pandemic. In response, Baffinland increased use of social media and local radio as a means to ensure that information about the Company and its activities have been shared with wider audiences.

As travel restrictions and public health orders are continually evolving, Baffinland continually evaluates what methods of engagement will inform an effective approach while ensuring that individual and community health and safety remains the foremost priority. This continual evaluation and adaptive approach to engagement is predicted to continue until the COVID-19 Pandemic and related public health orders and advice allow for in person engagements to once again be the most used engagement technique. The list of meetings held, including teleconferences, and visits to Project sites for 2021 are presented in Tables 12.1 and 12.2.

### **13 SUMMARY OF PROJECT PLANS FOR 2022**

The 2022 Work Plan was prepared and provided by Baffinland to relevant parties on November 1, 2021 as required under Section 6.1 of the Commercial Lease and under Part J, Item 3 of the Type 'A' Water Licence, for the purposes of an Annual Security Review for activities undertaken on an annual basis.

The 2022 Work Plan described the planned development and operation of the mine, ore crushing and land transportation, stockpiling and marine shipment of ore, and the continued development and construction of infrastructure required at Milne Port, the Tote Road, and the Mine Site.

The continued operation and development of the Project as described in the 2022 Work Plan will require a 2022 sealift. It is expected that sealifts carrying fuel, equipment and supplies for use at the Mine Site and Milne Port will occur during the open-water season (July to October) in 2022. Material, fuel and supplies required for operations and construction activities will be transported to the Mine Site year round via the Tote Road.

The Project's Phase 2 Proposal continues to proceed through the review and approvals process facilitated by the NIRB and NWB.

Project environmental monitoring programs prescribed by the Project Certificate, water licences, authorizations, management plans and environmental effects monitoring plans will continue through 2022.

Operation of Steensby Port and the Mid-Rail camp to support operational activities are not anticipated to be required during 2021. The Bruce Head camp is expected to be operation in 2022 to support wildlife monitoring programs during the shipping season.

## 14 REFERENCES

- Baffinland Iron Mines Corporation (Baffinland), 2012. Mary River Project – Final Environmental Impact Statement. February 2012.
- Baffinland Iron Mines Corporation (Baffinland), 2022. Mary River Project – 2021 Annual Report to the Nunavut Impact Review Board. March 31, 2022.
- Canadian Council of Ministers of the Environment (CCME), 2015. Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products. March 31.
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), 1996. Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class A Licensees in Meeting SNP Requirements and for Submission of a QA/QC Plan. July 1996.
- Environmental Dynamics Inc. (EDI), 2022. Draft 2021 Mary River Project Terrestrial Environment Annual Monitoring Report - Prepared for Baffinland Iron Mines Corporation. February 2022.
- Golder Associates Ltd. (Golder), 2016a. Mary River Project – Sedimentation Mitigation Action Plan, Rev. 1. Ref. No. 1661774 (5000), September 29.
- Golder Associates Ltd. (Golder), 2016b. Mary River Project – Dust Mitigation Action Plan, Rev 1. Ref. No. 1661774 (5000), September 29.
- Golder Associates Ltd. (Golder), 2017. Mary River Project – Tote Road Earthworks Execution Plan and Design Report. Ref. No.1667708 (Rev. 0), April 2017.
- Government of Nunavut. (Government of Nunavut), 2011. Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities.
- Hatch Ltd. (Hatch). 2013. Mary River Project, Project Wide Civil Standard Drawing, Typical Culvert Details Dwg. No. H349000-1000-10-041-0003. Prepared for Baffinland Iron Mines. Oakville, ON. June 7, 2013. 1 p.
- Knight Piésold Ltd., 2021. Technical Memorandum: Review of 2020 Dust Suppression Water Withdrawals, Mary River Project. Prepared by Knight Piésold Ltd. for Baffinland Iron Mines Corporation. Reference No. NB102-00181/65-A.01. April 23, 2021.