Green Bay Ming Mine Project
Environmental Registration

Appendices Part 1

April 2025

FireFly METALS

Legal Statements

FireFly Metals Ltd (**Company**), the ultimate parent company of FireFly, is a publicly listed company, listed on the ASX and TSX and makes the following statements as a matter of legal compliance.

1. Conceptual Design

The statements that appear throughout this document regarding future production, life of mine, capital expenditure, revenues, and similar matters are at this time early stage. Such statements are based on a conceptual design and are not production targets or forecast financial information for the purposes of applicable law and stock exchange regulation, including the ASX Listing Rules and applicable Australian law and the rules of the TSX and applicable Canadian law. Further work and studies are required before the Company will be in a position to issue such production targets or forecast financial information.

The information presented in this document represents the current conceptual design. As the detailed design of the Green Bay Ming Mine Project progresses, refinements will likely occur to address the results of further studies and input received from regulators, the public and stakeholders through the environmental assessment and permitting processes.

The Company cautions investors who may access this document against making investment decisions based on any aspirational statements included in this document.

No Competent Person, for the purposes of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, or Qualified Person, for the purposes of Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects, has approved the information included in this document.

2. Forward-Looking Information

This document contains certain forward-looking statements and projections, including statements regarding the Company's plans, forecasts and projections with respect to FireFly's mineral properties and programs. Forward-looking statements may be identified by the use of words such as "may", "might", "could", "would", "will", "expect", "intend", "believe", "forecast", "milestone", "objective", "predict", "plan", "scheduled", "estimate", "anticipate", "continue", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives.

Although the forward-looking statements contained in this document reflect management's current beliefs based upon information currently available to management and based upon what management believes to be reasonable assumptions (subject to the "Aspirational Statements" disclosure above), such forward-looking statements and projections are estimates for initial consideration only and should not be relied upon. They are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of the Company and FireFly, which may include changes in commodity prices, foreign exchange fluctuations, economic, social and political conditions, and changes to applicable regulations.

The performance of the Company may be influenced by factors which are uncertain or outside the control of the Company, and their respective directors, officers, employees and contractors. The Company and FireFly do not make any representations and provide no warranties concerning the accuracy of any forward-looking statements or projections and disclaim any obligation to update or revise any forward-looking statements or projections based on new information, future events or otherwise, except to the extent required by applicable laws.

List of Appendices

GREEN BAY MING MINE PROJECT and CURRENT OPERATIONS

Environmental Protection Plan *(Proposed Revisions to Address the Green Bay Ming Mine Project)*

FireFly Metals Canada Ltd.
Route 418, Ming's Bight Road
P.O Box 610 Baie Verte, NL A0K 1B0

April 14, 2025

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1.0 INTRODUCTION

[TO BE REMOVED AFTER GOVERNMENT REVIEW AND APPROVAL] FireFly Metals Canada Limited (FireFly) has an existing and government-approved Environmental Protection Plan (EPP) in place for its current operations (originally created in 2011 and updated in 2019). The following document represents the proposed changes to the EPP to address the proposed Green Bay Ming Mine Project and has been developed as a draft to be submitted to the provincial government as part of the environmental assessment (EA) process for the Project. Until the Project is released from the EA process by the provincial government and this revised version of the plan is approved by regulators, the EPP finalized in 2019 is the active plan to be followed.

FireFly Metals Canada Limited (FireFly), acquired the Rambler Metals and Mining (Rambler) assets in October 2023. FireFly owns and operates the Green Bay Copper Gold Project, which includes Ming Mine, Nugget Pond Mill and Tailings Management Facility, Goodyear's Cove port facility, Tilt Cove, Whalesback, Little Deer, and surrounding claims and leases forming the Gold Hunter land package located on the Baie Verte peninsula in Newfoundland and Labrador (NL).

In addition, FireFly is constructing and operating the Green Bay Ming Mine Project, which aims to increase the production rate at the Ming Mine and includes the construction of a new processing plant and a tailings management facility (TMF) on-site. The current estimated lifespan of the expanded mine is approximately 15 years, during which mining will occur at deeper levels within the existing site, with an increased rate of both mining and milling. Additionally, FireFly will build and operate a port access road to a third-party port, as well as a new accommodation complex to house the workforce.

Currently, the Nugget Pond Mill and TMF, and Goodyear's Cove facilities are in care and maintenance; however, further studies may incorporate them into future operations.

This Environmental Protection Plan (created in 2011, updated in 2019) addresses the Green Bay Ming Mine Project and other FireFly assets (i.e., Nugget Pond Mill and TMF and Goodyear's Cove). As such, it references combined facilities and project sites, such as the process plants (including Nugget Mill and the new Process Plant at Ming Mine), the TMFs (at Nugget and the new TMF at Ming Mine) and the port (Goodyear's Cove). The locations of the current operation are illustrated in Figure 1-1, and the Green Bay Ming Mine Project site layout is shown in Figure 1-2. The EPP has been updated in 2025 to reflect the environmental protection procedure commitments made by FireFly through the EA process for the Green Bay Ming Mine Project.

Figure No.
1-1
Title
Green Bay Copper-Gold Project Location

Client/Project
FireFly Metals Ltd
Green Bay Ming Mine Project

121418199_1_003

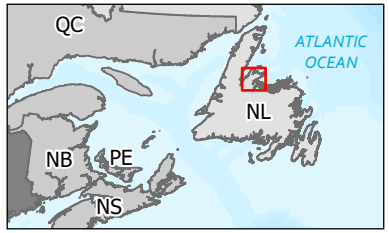
Project Location
Baie Verte, NL

Prepared by MB on 2025-02-03
Revised 2025-03-19

N

0 6 12 Kilometres
(At original document size of 8.5x11)
1:500,000

- Goodyear's Cove
- Ming Mine
- Nugget Pond
- Trans Canada Highway
- Highway
- Arterial / Collector
- Local
- Powerline



Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: FireFly Metals Ltd, Stantec
3. Background: NRCan CanVec, GovNL, OpenStreetMap

Stantec

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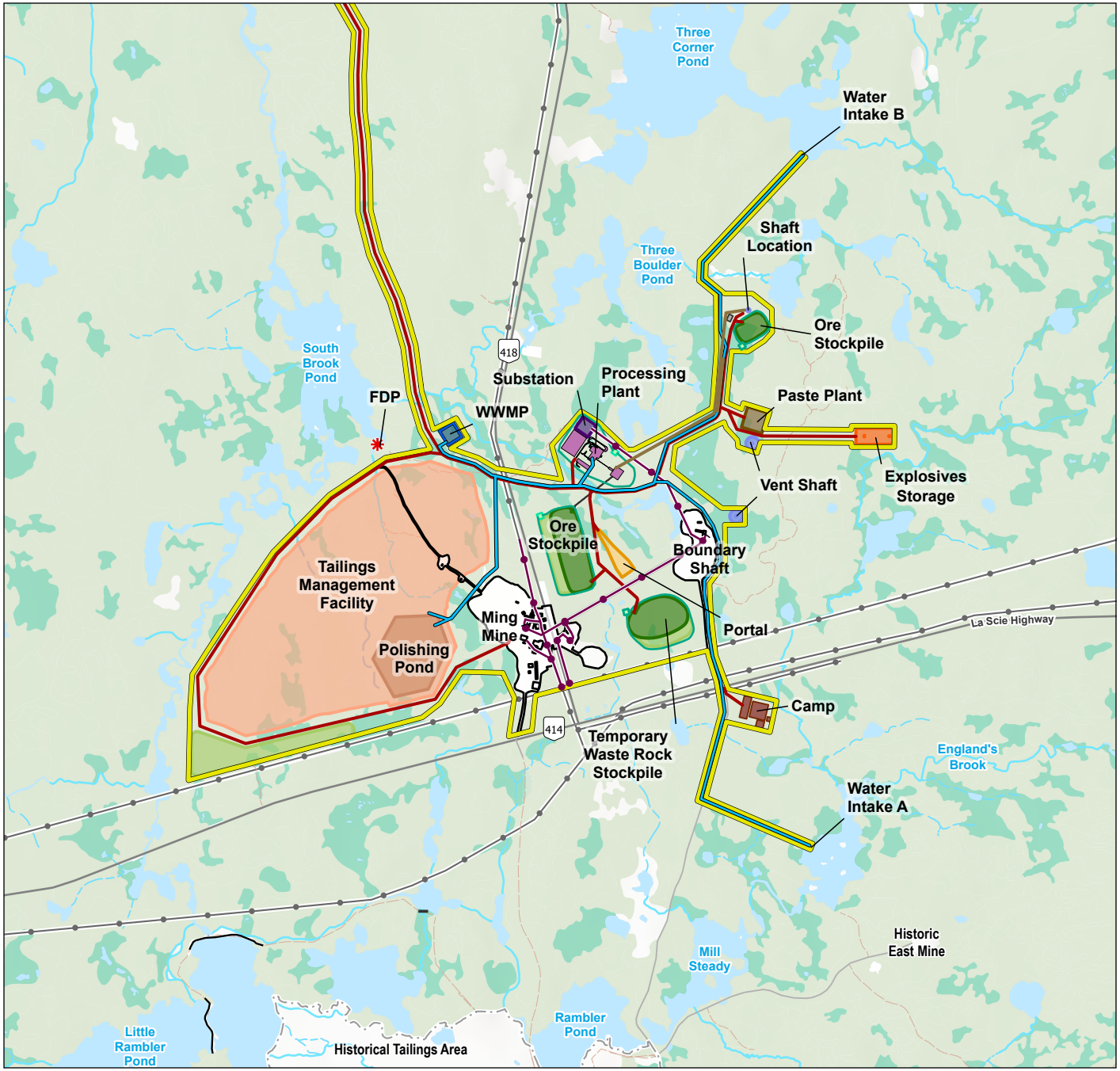


Figure No.
1-2
Title
General Project Site Layout

Client/Project
FireFly Metals Ltd
Green Bay Ming Mine Project

121418199_1_001b

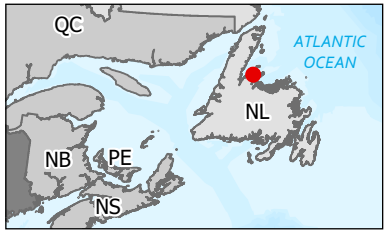
Project Location
Baie Verte, NL

Prepared by MB on 2025-02-04
Revised 2025-03-19

N

0 400 800 Metres
(At original document size of 8.5x11)
1:28,000

- Conveyor
- Drainage Channel
- Pipeline
- Powerline
- Road
- Project Area
- Camp
- Catch Basin
- Explosives Storage
- Ming Mine Operation
- Processing Plant Infrastructure
- Substation
- Stockpile
- Organic Laydown
- Paste Plant
- Portal Location
- Shaft Location
- Polishing Pond
- Tailings Management Facility (TMF)
- Wastewater Management Plant (WWMP)
- Other Features
- Final Discharge Point (FDP)
- Dam
- Highway
- Arterial / Collector
- Resource Road / Trail
- Powerline
- Indeterminate Stream
- Intermittent Watercourse
- Definite Watercourse
- Waterbody
- Wetland
- Forested Area



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Stantec

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1.1 Purpose of the Environmental Protection Plan

This EPP outlines practical procedures required for all personnel (i.e., FireFly employees, contractors and suppliers) to reduce or eliminate potential adverse environmental effects associated with the construction and operations work across Project sites. To ensure all activities are carried out in an environmentally responsible manner, this EPP has the following objectives:

- Confirm commitments to reduce environmental effects
- Document environmental concerns and appropriate protection measures
- Provide a reference document for personnel when planning and/or conducting specific activities
- Provide direction for accidental events
- Communicate changes in the program through the EPP revision process
- Provide a reference to and instructions for personnel to understand applicable legal and other requirements
- Include a quick reference for both personnel and regulators to monitor compliance and recommend improvements
- Provide direction at the corporate level to ensure commitments made in policy statements are implemented and monitored

Deviation from the procedures and commitments outlined in the EPP must be discussed with, and approved by, FireFly and/or the Newfoundland and Labrador Department of Environment and Climate Change (NLDECC).

1.2 Environmental Protection Plan Organization

This EPP has been developed for specific activities to be conducted in support of work carried out on Project sites. It provides instructions for addressing both planned and unplanned activities and events. This EPP contains the following sections:

- **Section 1.0** introduces the EPP. It outlines the EPP purpose and organization, roles and responsibilities and environmental orientation
- **Section 2.0** provides a description of potential site activities
- **Section 3.0** lists the permits, approvals and authorizations that may be required for the undertaking, and provides an overview of compliance monitoring
- **Section 4.0** describes environmental concerns and environmental protection procedures associated with work activities
- **Section 5.0** outlines the contingency plans for potential unplanned and accidental events
- **Section 6.0** describes procedures for revising the EPP
- **Section 7.0** contains a list of key Project and regulatory contacts

- **Section 8.0** lists references cited in the EPP, as well as a number of sources of further information
- **Section 9.0** contains a signature page for employee and contractor sign-off

Supporting information and documents are provided in the Appendices:

- **Appendix A** is a list of abbreviations and acronyms
- **Appendix B** is a Controlled Copy Distribution List
- **Appendix C** is a Revision Request Form
- **Appendix D** is a Revision History Log
- **Appendix E** is a sample Site Check List Form
- **Appendix F** is a sample Spill Report Form
- **Appendix G** is a sample Avifauna Survey Sheet

1.3 Roles and Responsibilities

This section outlines the roles and responsibilities of parties involved with on-going and new activities on the Properties.

FireFly will:

- Provide final approval for the EPP and any subsequent revisions
- Monitor and inspect the work being carried out
- Liaise with relevant government agencies and community interest groups as required

The designated Health, Safety, and Environment (HSE) Department will:

- Distribute the EPP
- Review revision requests
- Conduct a review of the EPP on an as-needed basis
- Distribute revisions to controlled distribution representatives, identified in Appendix B (Controlled distribution representatives are FireFly employees who will maintain copies of the EPP document)
- Maintain document control

The designated site Superintendent/Manager will:

- Act as FireFlys' representative on-site, responsible for environmental protection and will report issues or developments related to the environment to the HSE Department
- Hold an environmental orientation session for contractors and their personnel, and other personnel to be involved in the Project activities on an as-needed basis

- Confirm FireFly workers and contractors/sub-contractors and their staff onsite are familiar with the EPP and its procedures and maintain a master file of all EPP orientation efforts and signature sheets
- Implement the EPP on site and confirm that workers are aware of the EPP and their responsibilities under the plan
- Confirm FireFly workers and contractors/sub-contractors in the field review revisions
- Communicate with the HSE Department about proposed work activities so that applicable approvals, authorizations and permits can be obtained
- Monitor or designate a representative to monitor construction and operation activities for compliance with the EPP, and regulatory requirements and commitments
- Report incidents of environmental non-compliance to the HSE Department
- In the event of an emergency, contact the appropriate reporting agency as indicated in the EPP immediately, as well as the HSE Department

The contractors, subcontractors, FireFly representatives, and site personnel will:

- Familiarize themselves with the EPP and any revisions
- Sign that they have read, understood, and accept the conditions of the EPP prior to being approved to conduct work (see Signature Page in Section 9.0)
- Implement the EPP commitments
- Confirm personnel and subcontractors comply with the EPP, requirements of the contract and with applicable laws and regulations
- Maintain a training record (record of names and dates when training was administered including the signature page in Section 9.0 of the EPP) and provide updated files on a monthly basis to the HSE Department
- Maintain regular contact with the HSE Department, including, but not limited to:
    - Immediately reporting concerns to the Site Manager and/or Environment Coordinator (FireFly's Environment Team) of any aspect of the EPP
    - Immediately reporting any spills or other event that may have an effect on the environment to FireFly's Environment Team (Site Manager, HSE Department) and the appropriate regulatory contacts (i.e., Environment and Climate Change Canada [ECCC])
- Obtain the applicable approvals, authorizations and permits required to conduct the work and provide copies to the Environment Team

- Implement the conditions outlined in approvals, authorizations and permits
- Carry out clean-up, reclamation or restorative measures as directed by the Environment Team and/or appropriate government agency
- Contribute feedback to the Environment Team any changes/comments they feel would improve the quality of the EPP

1.4 Environmental Orientation

Through ongoing orientation and awareness training, FireFly will confirm that personnel are competent to do their jobs properly. FireFly will confirm that all personnel understand their roles and responsibilities, their specific work activities, as well as the potential environmental effects of proposed site activities. Workers will receive an orientation from an immediate superior prior to the start of new activities and thereafter on an as-needed basis. New personnel arriving at the site during the construction and operations phases will also receive an orientation, to be given by the HSE department, or designate. The orientation will include a presentation on environmental protection procedures to be applied at work sites.

2.0 CONSTRUCTION AND OPERATIONS OVERVIEW

This EPP covers the activities associated with the mine construction and operations on the properties owned by FireFly, including the extraction of ore from the underground workings at the Ming Mine Site, milling the process plants, TMFs and transportation of the copper concentrate to a port facility. This also includes the Nugget Pond and Goodyear's Cove facilities which are currently in care and maintenance.

The Project operates under current provincial and federal regulations, environmental protection standards, and industry best practices.

2.1 Ming Mine Site

The Ming Mine property is located on the Baie Verte Peninsula, approximately 17 km (kilometre) by road east of the Town of Baie Verte, geographic co-ordinates: 49^0 54' N latitude and 56^0 05' W longitude (Figure 1-2). A mineral land assembly consisting of four map-staked mineral licenses (023175M, 023968M, 023971M, and 022885M) and two surface mining leases (141L and 188L) totalling 2380.4 ha (hectare) are registered by FireFly Metals Canada Limited, a wholly owned subsidiary of FireFly Metals Ltd. FireFly holds the surface rights for the Ming Mine area through Crown Lands Leases (121 and 122). Ming Mine leases and licenses are shown in Figure 2-1.

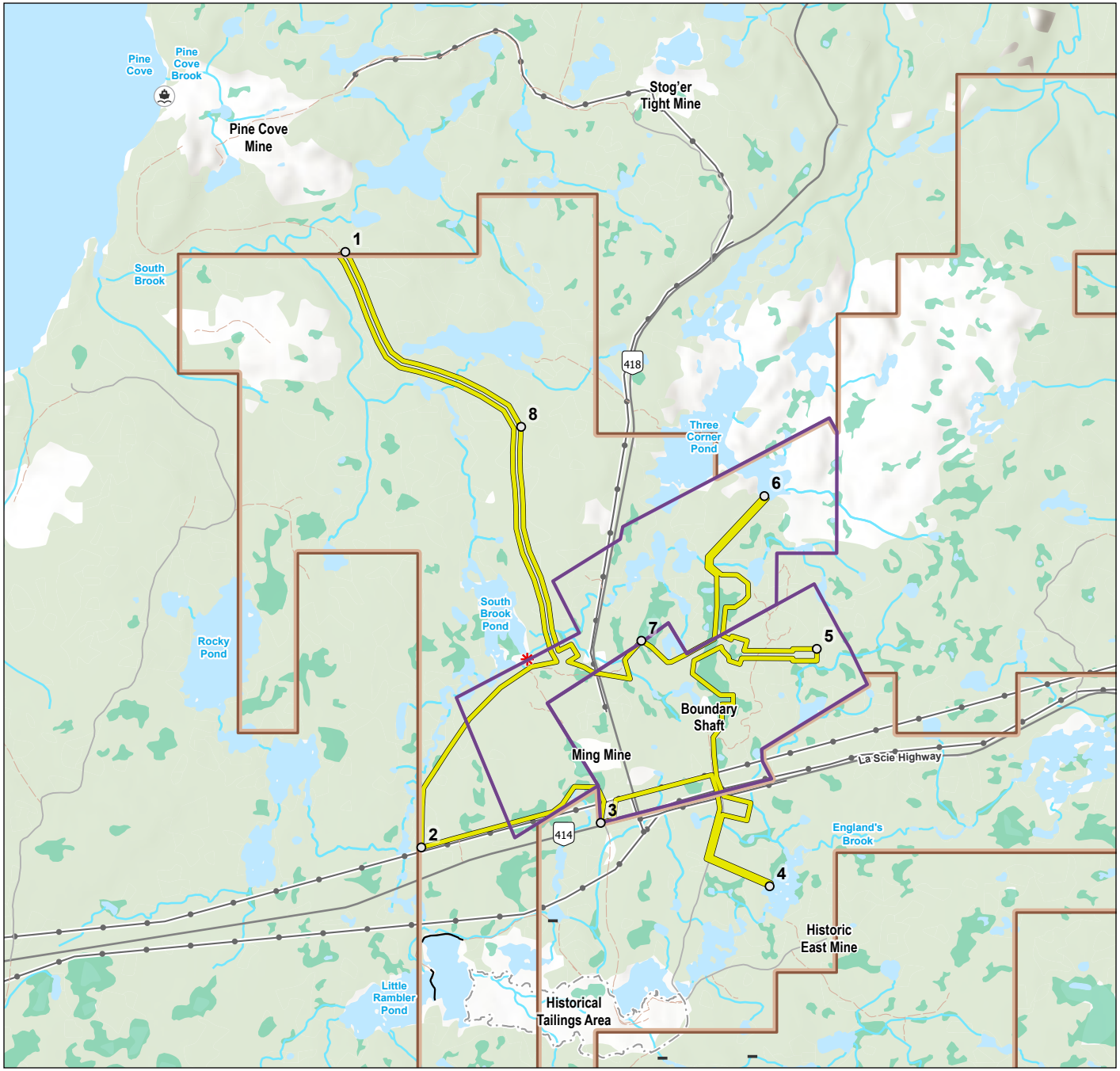

Figure No.
2-1

Title
Project Location and Leases

Client/Project
FireFly Metals Ltd
Green Bay Ming Mine Project

121418199_1_001

Project Location
Baie Verte, NL

Prepared by MB on 2025-02-04
Revised 2025-03-19

N

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(At original document size of 8.5x11)
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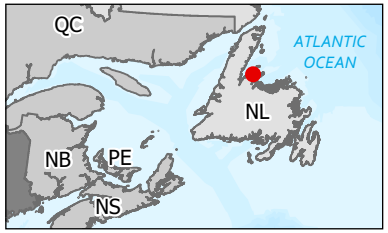
- Project Area Vertex
- Final Discharge Point (FDP)
- Project Area
- Mining Lease
- Exploration License
- Port
- Dam
- Resource Road / Trail
- Highway
- Arterial / Collector
- Powerline
- Watercourse
- Waterbody
- Wetland
- Forested Area



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3. Background: NRCan CanVec, GovNL, OpenStreetMap

Stantec

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2.1.1 Expansion of the Ming Mine Site

Existing site infrastructure is shown on Figure 2-2, and includes:

- Mine Portal
- Waste Rock Storage
- Ore Storage
- Roads
- Laydown Areas
- Wastewater Management Plant (WWMP)
- Ventilation Raises
- Maintenance Shop
- Mine Dry/Rescue
- Office Building
- Various Mining Support/Storage Buildings

As shown in Figure 2-3, improvements associated with the Green Bay Ming Mine Project include:

- Expanding underground mine workings
- Upgrading underground mine ventilation and adding new ventilation raises
- Additional storage on the surface for ore and temporary waste rock storage
- New processing plant and TMF
- Expanding site roads, including a new port access road
- New portal and new shaft
- Upgrades to transmission lines and construction of a new substation
- Emergency power supply
- Additional water intakes
- Additional accommodations complex

Figure 2-2 Existing Infrastructure at the Ming Mine Site

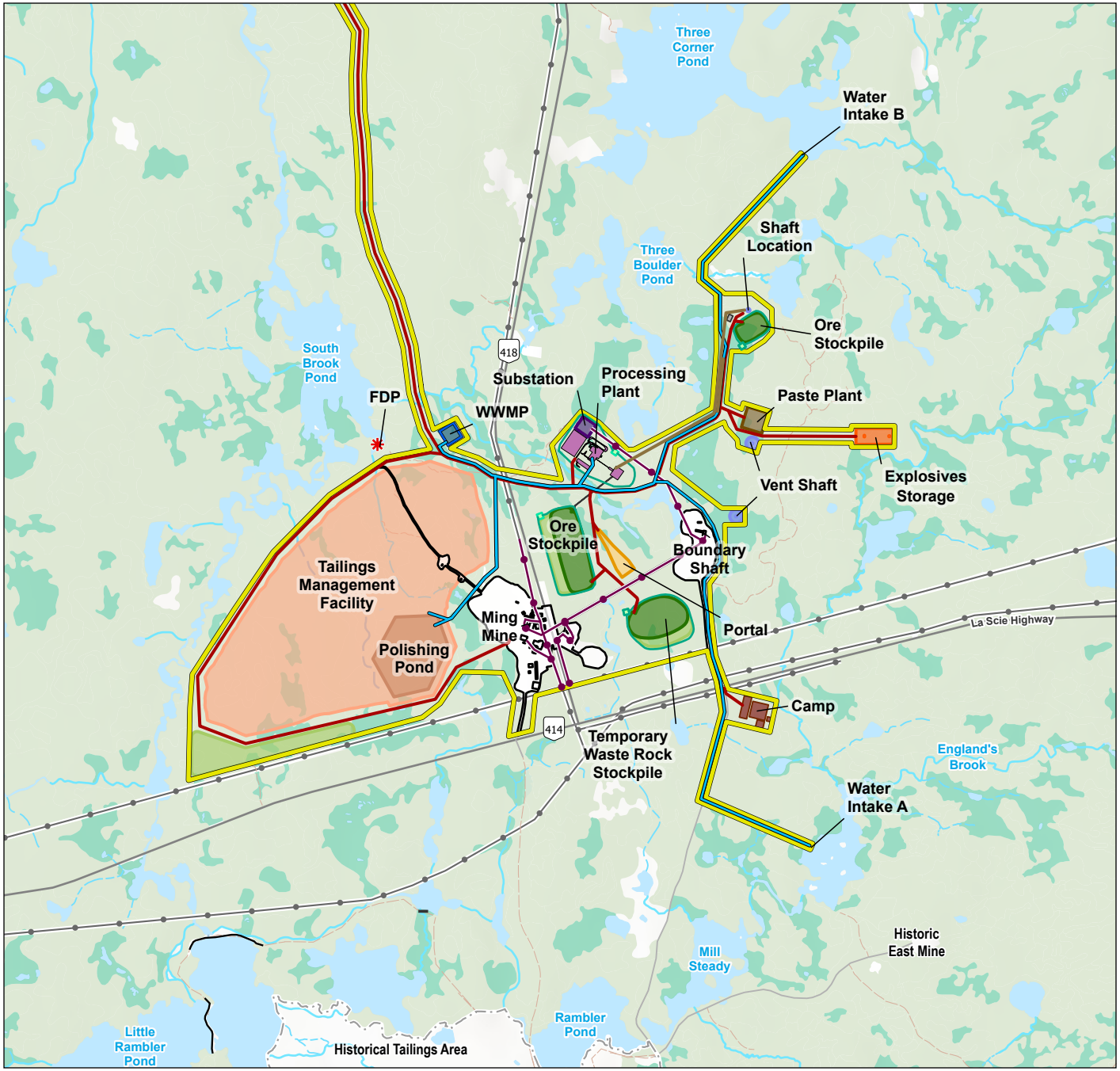

Figure No.
2-3
Title
General Project Site Layout

Client/Project
FireFly Metals Ltd
Green Bay Ming Mine Project

121418199_1_001b

Project Location
Baie Verte, NL

Prepared by MB on 2025-02-04
Revised 2025-03-19

N

0 400 800 Metres
(At original document size of 8.5x11)
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- Conveyor
- Drainage Channel
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- Wastewater Management Plant (WWMP)
- Other Features
- Final Discharge Point (FDP)
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- Definite Watercourse
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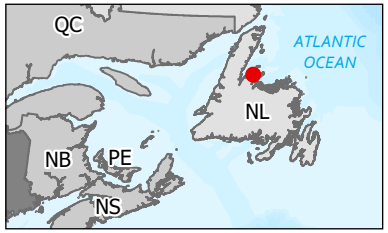
- Wetland
- Forested Area



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Stantec

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Most construction activities associated with the construction of the new mill, TMF and other infrastructure at the Ming Mine site have been planned to reduce the need for additional site clearing (i.e., use of existing disturbed areas has been prioritized where possible). Clearing activities will be required to construct the TMF and new port access road. Conventional commercial mechanical equipment will be used for construction and installation activities, i.e., small excavators, dump trucks, and cranes.

2.1.2 Operation of the Ming Mine Site

Ming Mine operations from 2011-2017 occurred at a nominal rate of 850 tonnes per day of ore and increased production rates to 1250 tonnes per day beginning in 2017. An additional mine life of 21 years was estimate in 2017 by transitioning into low grade ore zones. Major features of the operation phase included:

- Ore was mined underground using longhole mining and room and pillar mining methods.
- Mined ore was hauled to surface using mine haulage trucks and stored in a temporary transfer Ore Stockpile.
- Ore was loaded from the Ore Stockpile directly to highway haul trucks and transported to the Nugget Pond Mill for processing.
- Waste rock was hauled to the surface and stored in the Waste Rock Stockpile. Whenever possible, the waste rock was progressively moved back underground into open stopes as backfill.
- The underground workings are dewatered through a series of sumps throughout the mine.
- Mine dewatering effluent, storm water, and run-off from surface infrastructure areas was directed to the Ming West decline via the portal and then to the WWMP. The WWMP treats and neutralizes the effluents prior to discharge to the environment at the South Brook discharge point.
- The sludge collected from the WWMP is piped through a 100 millimetre (mm) line from the plant back underground to the existing open stopes on 140 metre (m) Level. The solids in the slimes will be allowed to settle out in the stopes and the excess water were captured in the existing sumps and pumped back to surface into the WWMP.

2.2 Process Plants

The Nugget Pond Mill is situated on the Baie Verte Peninsula, approximately 6 km west of the community of Snook's Arm, geographic co-ordinates: $49^0$50' N Latitude and $55^0$45' W longitude (Figure 1-1; Figure 2-4). The Nugget Pond property covers approximately 10 ha and is located approximately 40 km from the Ming Mine Site, and approximately 150 km from the Goodyear's Cove Site.

The new process plant at Ming Mine will be constructed east of the current mine site (Figure 1-2). Ore from Ming Mine will be brought to the surface and processed in the new process plant, resulting in copper-gold concentrate. Tailings will be managed in a TMF to be constructed onsite. The new process plant and TMF are shown in Figure 1-2.

Figure 2-4 Existing Infrastructure at the Nugget Pond Site

NOTES:
1. Base mapping, aerial photo, and contours provided by Rambler Metals and Mining.
2. Coordinate system is NAD83(CSRS) UTM zone 21.
3. NTS map sheet 02/E13.
4. Contours are shown in metres (1m interval).

Drawn By	Checked By
MAL	LS
Calculations By	Checked By

Date: AUGUST, 2017

Project: RAMBLER METALS AND MINING DEVELOPMENT PLAN

Drawing: NUGGET POND w/ TAILINGS EXISTING CONDITIONS

Scale: 1:5000

0 100 200 300m

File No.	Drawing	Revision No.
800020206	FIGURE 3.4	0

GEMTEC
Consulting Engineers and Scientists

2.2.1 Expansion at the Ming Mine Site: New Process Plant and TMF

The new process plant and TMF for the Green Bay Ming Mine Project includes:

- Road and yard area
- Assay lab
- Wastewater management plant
- Cold storage buildings
- Process plant buildings, including Crusher, Ore Bin, Conveyor, thickener/leach tanks, gold refining infrastructure, and copper flotation circuit
- Concentrate storage
- Paste plant installation near the Boundary Shaft location to provide paste backfill to underground mine areas requiring stabilization after mining is complete
- TMF (tailings area, polishing pond, and associated infrastructure)
- Other support infrastructure

Where possible, infrastructure such as roads, pipeline corridors, pads, dams, and laydown areas are planned to be located in previously disturbed areas adjacent to the Ming Mine site. The footprint of the process plant and the TMF will largely be situated in areas that will require clearing and grading. Construction of the new process plant and TMF will use standard techniques and equipment. Due to the potentially acid generating (PAG) properties of the tailing's material, the TMF will be lined with a HDPE geomembrane. Drainage foundations at the toe of the dam will be lined and directed to collection points and pumped to the polish pond for treatment. It is anticipated that most of the water will be recirculated back to the process plant for use in the plant. The dam will use rockfill and a high-density polyethylene (HDPE) liner. Rockfill will be sourced from an existing quarry nearby, construction grade rock from nearby mining operations, or new borrow pits located within the footprint of the TMF. The process plant and the TMF will be constructed using conventional earthworks equipment including excavators, dump trucks, dozers, and compaction equipment. Rockfill will be sourced from an existing quarry nearby, construction grade rock from nearby mining operations, or new borrow pits located within the footprint of the TMF. The process plant and the TMF will be constructed using conventional earthworks equipment including excavators, dump trucks, dozers, and compaction equipment.

2.2.2 Operation of the Process Plants

Operation of the flotation circuit is based on a 24 hour-7 day a week operation. The on-stream availability for annual operating hours, which includes downtime for maintenance, is expected to be about 90%, which is equivalent to 7,884 operating hours annually.

Reagents used for flotation are delivered to the site in bulk bags or drum containers and/or tote tanks which are stored in the existing chemical storage facilities. The reagents are moved from storage to the concentrator on an as-required basis. Reagents are mixed within the concentrator building and contained in mix tanks installed within a containment berm area.

The concentrate is dewatered and housed within a storage area. The storage containment has front-end loader access to enable bulk loading of the concentrate transfer containers on trucks for shipping.

Tailings from flotation are routed to the TMF.

2.3 Port Facilities

FireFly currently owns a port facility at Goodyear's Cove situated in at the head of Halls Bay, NL, approximately 140 km from the Mill Site (Figure 1-1). This existing deepwater port is accessible through most of the year and is only 200 m from the Trans-Canada Highway. The Goodyear's Cove facility is on care and maintenance and has been included in the EPP.

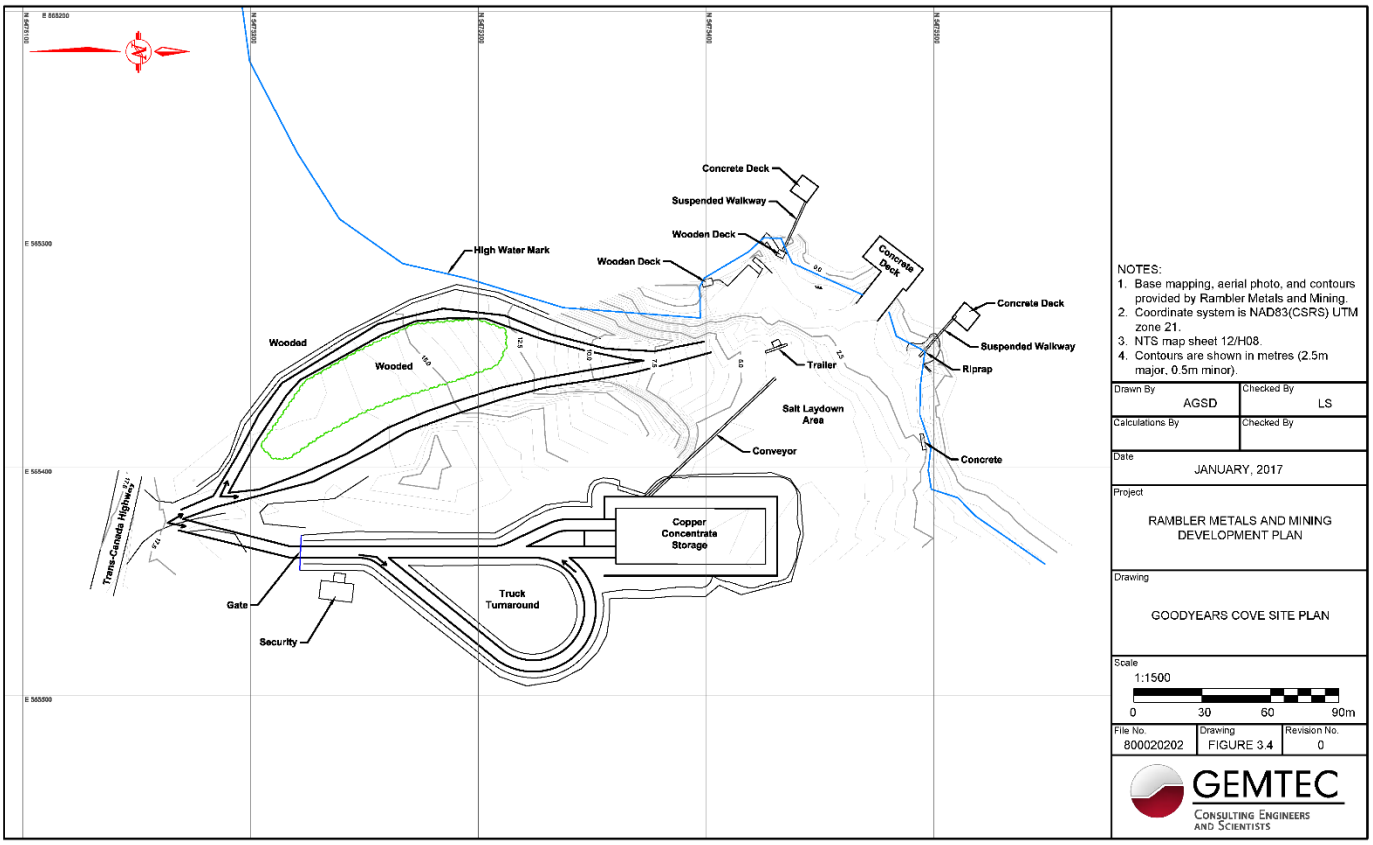
For the Green Bay Ming Mine Project, FireFly has a port access agreement with a nearby operator at Pine Cove. A port access road will be developed by FireFly to connect to the third-party property. FireFly will haul concentrate to the third-party port, at which point the third-party will load the concentrate onto ships for transport to refineries. FireFly would not have care and control of the third-party port facility but can conduct audits of the facility to ensure proper handling of the concentrate. The concentrate would be loaded onto ships and transported for refining.

2.3.2 Operation of the Port Facilities

The Goodyear's Cove facility is on care and maintenance; however, the facility was designed for copper concentrate storage and bulk shipment of approximately 5,000 tonnes of concentrate (dry weight basis) per shipment. The total live storage capacity of concentrate at the storage building as received from the concentrator is 6,500 tonnes. Ocean-going vessels are loaded using a portable conveyor system. The conveyor system is mobile and rolls out onto the dock to accommodate vessel loading operations. On completion of the vessel loading, the conveyor system is stored adjacent to the storage building to enable public access to the dock facilities.

For the Green Bay Ming Mine Project, the concentrate will be stored in a building at the process plant and when ready for transport to the port, will either be loaded to trucks or containerized (e.g. bags, solid containers). The building will be designed to reduce dust generated and facilitate the clean-up of material. The load-out area will be located on the ground floor of the process plant and will be a truck drive-through facility. Depending on the final transport option, after filling, the trucks will be covered for transport for hauling on the port access road to a third-party port facility. It is estimated that up to twelve truckloads of copper concentrate will be transported off site daily. At this time, FireFly is considering container storage for concentrate to limit product loss. The third -party management will oversee the loading of concentrate on the ships for transport to a smelter refinery.

Figure 2-5 Existing Infrastructure at Goodyear's Cove Site



3.0 REGULATORY REQUIREMENTS AND COMMITMENTS

3.1 Permits, Approvals and Authorizations

Table 3-1 provides a list of the major permits, approvals and authorizations that have been obtained for FireFly's existing operation and have been or will be obtained for the Green Bay Ming Mine Project as it advances through construction and operation.

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
Municipal	
Development Permit for Activities within Town Boundary	Town of Baie Verte
Provincial	
Release from EA Process	NLDECC – Minister
Approval of Environmental Protection Plan	
Certificate of Approval for Construction and Operation (Industrial Processing Works)	NLDECC – Pollution Prevention Division (PPD)
Certificate of Approval for Generators	
Approval of Environmental Contingency Plan / Emergency Spill Response	
Environmental Effects Monitoring (EEM) Plan - Effluent Discharge – Mine and Mill	
Approval of Best Available Control Technology	NLDECC – Climate Change Division
Permit to Construct a Non-Domestic Well	NLDECC – Water Resources Management Division
Permit to Alter a Body of Water	
Water Use Licence	
Permit to Construct a Potable Water System	
Dam Permit – Tailings Dams at Mill	
Environmental Approval of Culverts	
Environmental Approval of Pipe Crossing – Water Intake	
Environmental Approval of Small Bridges	
Certificate of Approval – Water and Sewer Distribution System	
Certificate of Approval – Temporary Acid Rock Drainage Storage	
Permit to Control Nuisance Animals	Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture (NLDFFA) – Wildlife Division
Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land	NLDFFA – Forestry and Agrifoods Agency
Commercial Cutting Permit	
Permit to Burn	

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
License to Occupy Crown land	NLDFFA – Crown Lands
Lease for Gatehouse (103388)	
Easement for access road (103359)	
Easement for power line (108189)	
Surface and Mining Leases	Newfoundland and Labrador Department of Industry, Energy and Technology (NLDIET) – Mineral Development and Mineral Lands Divisions
Development Plan	
Rehabilitation and Closure Plan	
Financial Assurance	
Mill Licence	
Quarry Development Permit	
Underground Magazine License	
Explosive Transportation Permit	
Blasters Safety Certificate	Department of Digital Government and Service NL – Government Service Centre
Explosive Magazine Permit	
Approval for Storage and Handling of Gasoline and Associated Products	
Fuel Storage Tank Registration	
Propane Use	
Approval for Used Oil Storage Tank System (Oil/Water Separator)	
Waste Management Plan	
Certificate of Approval for a Sewage/Septic System	
Application to Develop Land for Septic	
National Building Code – Fire, Life Safety and Building Safety	
Buildings Accessibility Registration and Permit	
Food Establishment Licence	
Certificate of Approval - Water Supply > 4,500 L/day	
Certificate of Plant Registration for Power, Heat, Refrigeration, Compressed Gas or Combined Plant	
Contractor's License Pressure Piping System	
Examination and Certification of Welders and Blazers	
Permit of Flammable and Combustible Liquid Storage and Dispensing (above or below ground) and for bulk storage (above ground only) – Mine and Mill	
Statutory Declaration for Registration of Boiler and Pressure Vessel Fitting Fabricated in Newfoundland and Labrador – Mine and Mill	
Contractor's License – Pressure Piping System	
Examination and Certification of Welders and Blazers	
Examination and Certification of Propane System Installers	

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
Mine Rescue Certification	Workplace NL
Compliance Standard – *Historic Resources Act*	Newfoundland and Labrador Department of Tourism, Culture, Arts and Recreation
Archaeological Investigation Permit	
Compliance Standard – Storing Handling and Transportation Dangerous Goods	Newfoundland and Labrador Department of Transportation and Infrastructure
Policy for Highway Access Management	
Work within La Scie Highway or Ming's Bight rights-of-way	
Federal	
Fisheries Act Authorization	Fisheries and Oceans Canada (DFO)
Initiate *Metal and Diamond Mining Effluent Regulations* (MDMER) authorization and reporting processes with ECCC including notification, identification of final discharge point(s), and required components of effluent monitoring, and EEM	ECCC
Approval of MDMER Emergency Response Plan	
Compliance Standard - *Migratory Birds Convention Act and Regulations*	
Approval to Interfere with Navigation	Transport Canada
Licence to Store, Manufacture, or Handle Explosives (Magazine Licence)	Natural Resources Canada

3.2 Environmental Compliance Monitoring

Inspections and monitoring confirm that the environmental protection measures that are specified in this document and that will be specified in the applicable contracts and other relevant permits, approvals and authorizations have been implemented properly.

1.1.1 Site Inspections

Site inspections will be completed before, during, and within 7 days after site disturbances related to work activities performed by FireFly, or contractors on behalf of FireFly. Site inspections will be conducted by trained personnel and details recorded on the Site Check List Form located in Appendix E. For site inspections conducted prior to construction or operations activity, details including vegetation, general terrain/topography, and drainage patterns will be recorded. Photographs should be taken during each site inspection. The required frequency of site inspections performed during work activities will be determined by the HSE Department (or designate) and will depend on the duration and type of activity being performed.

These regular site inspections will aid in the implementation of the environmental protection measures that are specified in this document and that will be specified in the applicable contracts and other relevant permits, approvals and authorizations.

Environmental issues or concerns should be reported to the Site Manager and the Environmental Coordinator.

1.1.2 Monitoring

Monitoring will also confirm that construction and operations activities comply with applicable regulatory requirements and that mitigation measures are being employed effectively.

The HSE Department will:

- Be responsible for environmental compliance monitoring on-site; and
- Instruct the contractor on the environment-related general, special, and technical clauses to be implemented as part of the contract(s).

Compliance monitoring will be required for various activities during construction and operations. Monitoring of site run-off at the construction and operation sites will be conducted as per provincial requirements. Other federal and provincial government compliance standards that apply to the construction and operations activities include, but are not limited to, those listed in Table 3-2. Personnel will comply with relevant approvals, authorizations, permits and legislation.

Table 3-2 Environmental Compliance Standards

Legislation/ Guidelines	Activity Requiring Compliance	Responsible Agency	Comment
Federal Regulations			
Fisheries Act, S34(1), Deleterious Substances	Discharge from the site to receiving waters	ECCC and DFO	The deposit of any material into waters frequented by fish or to an area that may enter waters frequented by fish must be non-deleterious to fish (i.e. must be non-acutely lethal). All materials that may enter waters frequented by fish must comply with the Act. MDMER sets criteria that must not be exceeded for listed deleterious substances as well as a requirement for Acute Lethality Testing. In addition to establishing criteria, the Regulation also requires the implementation of an EEM program. See Note 1.
Transportation of Dangerous Goods Act and Regulations	Handling and transporting of dangerous goods	Transport Canada	If the materials are transported and handled fully in compliance with the regulations, a permit is not required. A Permit for Equivalent Level of Safety, also known as an Equivalency Certificate, is required if a variance from the regulations is necessary.
Canadian Environmental Protection Act (CEPA)	Activities that have the potential to interact with the environment and human health	ECCC	CEPA provides framework for setting environmental quality objectives, guidelines and codes of practice, pollution prevention plans, regulation of toxic substances, controlling pollution of other wastes and environmental emergency plans
Species at Risk Act	Mortality of endangered species or other species under federal authority	ECCC	Measures must be taken to avoid or lessen adverse effects on species at risk and that effects are monitored. Mitigation measures must be consistent with recovery strategies and action plans for species.

Table 3-2 Environmental Compliance Standards

Legislation/ Guidelines	Activity Requiring Compliance	Responsible Agency	Comment
Migratory Birds Convention Act	Mortality of migratory birds, and any species under federal authority	ECCC, Canadian Wildlife Service (CWS)	CWS should be notified about the mortality of any endangered migratory bird in the Project area, including passerine (songbirds), seabird and waterfowl species. Harmful substances (e.g., oil, wastes, etc.) that are harmful to migratory birds must not be deposited into waters that are frequented by them. Nests, eggs, nest shelters of migratory birds must not be disturbed or destroyed. Notice should also be given to ECCC-CWS regarding the mortality of any endangered species (under federal regulation).
Provincial Regulations			
Environmental Protection Act	Green Bay Copper Gold Project	NLDECC – PPD	Waste material will be reviewed, prior to disposal, for reuse, resale or recycling. Waste materials will be disposed at an approved waste disposal site.
	Green Bay Copper Gold Project	NLDECC – PPD	All activities are subject to the *Air Pollution Control Regulations.* Materials as stipulated in the Regulations cannot be burned in the open.
	Storage, handling and disposal of gasoline and other fuels	NLDECC – PPD	Petroleum storage and handling is subject to the Storage and Handling of Gasoline and Associated Products Regulations. Refer to Section 5.1 of the EPP for the Fuel and Hazardous Material Spills Contingency Plan.
	Disposal of used oil	NLDECC – PPD	The storage and disposal of used oil is subject to the *Used Oil and Used Glycol Control Regulations*.
	Handling and storage of hazardous materials	Digital Government and Service NL – Occupational Health and Safety Division	Activities involving the use of designated hazardous materials are subject to Workplace Hazardous Materials Information System (WHMIS). WHMIS outlines procedures for handling hazardous materials and provides details on various hazardous materials.
Water Resources Act	Mine Project Site drainage discharge	NLDECC – Water Resources Management Division	All waters discharged must comply with the Environmental Control Water and Sewage Regulations. See Note 2.
Dangerous Goods Transportation Act and Regulations	Transporting fuel to the site	NL Department of Transportation and Infrastructure	Transporting goods considered dangerous to public safety must comply with regulations.
H*istoric Resources Act*	Construction and operation activities	NL Department of Tourism, Culture, Arts and Recreation – Provincial Archaeology Office (PAO)	All archaeology sites and artifacts are considered the property of the Crown and must not be disturbed. Any archaeology materials encountered must be reported to the PAO.

Note 1. MDMER also requires periodic characterization of effluent and monitoring of receiving water quality. Periodic biological monitoring is also required with regard to potential effluent related environment effects.

Note 2. EEM requirements set out under the Certificate of Approval are usually harmonized with those required by MDMER.

3.3 Rehabilitation and Closure

FireFly is committed to full rehabilitation and closure of the Project sites at the end of the mine life. The requirements and planning of rehabilitation and closure activities are different for each of the three sites, and the general goals and activities for each are described separately below. In 2018, a Rehabilitation and Closure Plan (RCP) was filed as required by the NL *Mining Act* and Section 7 of the pursuant *Mining Regulations* and accepted by the NL government. Financial assurance of $4.8 M has been bonded for the Ming Mine and Nugget Pond Mill. In 2023, FireFly committed to updating the RCP and financial assurance. At the time of writing this document, the RCP is under review by Newfoundland and Labrador Department of Industry, Energy and Technology (NLDIET). In general, the RCP is updated as needed or, at a minimum, every 5 years. With the addition of the Green Bay Ming Mine Project, the RCP will be further updated, however, the following sections summarize the 2018 Rehabilitation and Closure plans, for current disturbance at Ming Mine Site, Nugget Pond Mill and Goodyear's Cove.

3.3.1 Ming Mine Site

Once mining is completed and reserves depleted, the surface and underground infrastructure will be removed, PAG mine wastes will be returned underground, stockpiles that are left on surface for the long term will be regraded and stabilized, underground openings will be properly sealed, and the ground surface will be reclaimed and re-vegetated. The rehabilitation and closure work at this site will address historical liabilities, where applicable, including mine waste at surface, unprotected mine openings, and deteriorated surface infrastructure. At this time, FireFly has assumed that the tailings are PAG and intends to store the material below water within the TMF for perpetuality.

3.3.2 Nugget Pond Mill

In general, buildings and infrastructure will be removed along with associated chemicals and equipment, and disturbed areas will be reclaimed and re-vegetated, where necessary. The tailings pond dams at the Nugget Pond will be left in place and the decant and pumping systems removed and replaced with permanent spillways to provide a permanent water cover over the impounded tailings. The polishing pond dam will be removed and the area regraded. FireFly will obtain a permit under Section S48 of the *Water Resources Act* prior to conducting any work on the dams.

3.3.3 Goodyear's Cove

This site is currently owned by the Town of South Brook, and once the facility is no longer needed by FireFly, the lease agreement will be terminated. As part of the termination of the lease, infrastructure installed or moved to the site will be offered for sale to the owner. Infrastructure not purchased by the new owner will be removed from the site and the site will be returned to the condition at the time of commencement of the lease.

3.4 Reporting

3.4.1 Internal Communication

Environmental performance and issues associated with all work activities will be communicated internally as required. The Site Manager is responsible for communicating FireFly policies and procedures and legal and other requirements to workers. Workers will communicate all environmental incidents to the Site Manager as per the Emergency Call- out & Reporting Procedures. EPP orientation and sign-off for new staff and contractor's onsite will also be conducted by the Site Manager, or designate, prior to start of work.

3.4.2 External Communication

When required, FireFly, through the HSE Department, will report on environmental issues relating to construction and operations activities for the Green Bay Copper Gold Project to the NLDECC. Issues, which may be communicated include, but are not limited to, the following:

- Dust
- Erosion
- Historic resources
- Results of avifauna monitoring on the TMF
- Wildlife encounters of note
- Permits and authorizations

Spills of petroleum products or other hazardous materials will be reported immediately to the:

Environmental Emergencies 24 Hour Report Line, Coast Guard Traffic Centre, St. John's
(St. John's: **709-772-2083** or Other Areas: **1-800-563-9089**).

The *Fisheries Act* requires all spills to be reported, regardless of size. Any spills in ditches or on roadways or in any other place that may enter waterways frequented by fish must also be reported.

Additionally, if construction or operation activities require removal of any merchantable timber, FireFly will contact the Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture (NLDFFA), Forest Services Branch.

Instruction in Health and Safety issues is provided under separate cover as part of FireFly's existing Health and Safety program.

4.0 ENVIRONMENTAL PROTECTION PROCEDURES

This section provides a description of environmental protection procedures for the following construction and operations-related activities that are anticipated at one, or more of the Project properties:

4.1 Surveying
4.2 Buffer Zones
4.3 Laydown and Storage Areas
4.4 Clearing Vegetation
4.5 Grubbing and Disposal of Related Debris
4.6 Overburden
4.7 Excavation, Embankment and Grading Environmental Concerns (including cutting and filling)
4.8 Erosion Prevention and Sediment Control
4.9 Water Supply
4.10 Watercourse Crossings
4.11 Exploration Drilling
4.12 Pumps and Generators
4.13 Dewatering Work Areas and Site Drainage
4.14 Equipment Installation, Use and Maintenance
4.15 Storage, Handling and Transfer of Fuel and Other Hazardous Material
4.16 Propane
4.17 Waste Disposal
4.18 Sewage Disposal
4.19 Hazardous Waste Disposal
4.20 Vehicle Traffic
4.21 Dust Control
4.22 Noise Control
4.23 Road Maintenance
4.24 Building Construction
4.25 Drilling and Blasting
4.26 Waste Rock and Ore/Concentrate
4.27 Milling Activities

When required, this EPP will be revised to include new or amended environmental protection procedures so that work activities conducted at the Project sites are completed properly and that environmental aspects of the sites are well managed.

4.1 Surveying

Environmental Concerns

Surveying activities could potentially disturb wildlife species, vegetation, and historic resources.

Environmental Protection Procedures

- Width of survey lines will be limited to that which is necessary for line of sight and unobstructed passage.
- Whenever possible, cutting lines to the boundary between treed and open areas will be avoided.
- Trees and shrubs will be cut flush with the ground wherever possible.
- Cutting of survey lines will be kept to a minimum. Where possible, alternate areas not requiring cut lines will be used.
- Timing of vegetation clearing will avoid, where possible, the nesting and breeding season of avifauna.
- Trees not exactly on transit lines will be left standing.
- When surveying the site limit, areas that will be cleared require a modified adherence to the above, except trees, shrubs and areas to be saved or left natural as noted on the plans or marked in the field.
- No attempt to harass or disturb wildlife will be made by any worker (refer to Section 5.2).
- Vehicles will yield the right-of-way to wildlife and no attempt to harass or disturb wildlife will be made by any worker.
- There will be no cutting in areas designated as sensitive without notification and approval of Site Manager.
- Historic resource discoveries will be reported to the PAO (see Section 5.5).
- Sites where surface disturbances are planned or may occur will be inspected and monitored prior to, during, and after the work as described in Section 3.2.
- Benchmarks, under normal ground conditions comprise a 15 mm x 400 mm long rebar driven approximately 350 mm into the surface with an 8-lb sledgehammer. When bedrock or a large boulder is encountered less than 300 mm below the ground surface, a 15 mm x 150 mm long rebar is cemented in a hole drilled in the rock. The rebar will be set into the rock a minimum distance of 80 mm.
- The limits for approved disturbance activities including clearing, grubbing and topsoil overburden removal will be clearly identified (flagging / survey stakes) in the field prior to the commencement of work.

4.2 Buffer Zones

Environmental Concerns

Buffer zones are boundaries of undisturbed vegetation maintained along water bodies. Without adequate buffer zone vegetation, streams, ponds and lakes can potentially become laden with silt from surface run-off. Vegetation also provides cover for fish.

Environmental Protection Procedures

As much as possible, a minimum buffer zone of 15 m of undisturbed natural vegetation will be maintained between work areas and water bodies.

Where possible, additional buffer widths will be maintained according to the guidelines shown in Table 4-1. Buffers will be established and maintained around identified sensitive areas (e.g., wetlands, rare plant occurrences, hibernacula, roosts), where feasible.

Table 4-1 Recommended Minimum Buffer Zone Requirements for Activities near Watercourses

Activity	Recommended Buffer Width
Development around watercourses in urban or other developed area	15 m depending upon site specific considerations
Resource roads or highways running adjacent to water bodies	20 m + 1.5 X slope (%)
Piling of wood and Slash Grubbing	30 m
Placement of Site Trailers Fuel storage	100 m
Source: Gosse et al. 1998.	

4.3 Laydown and Storage Areas

Environmental Concerns

Areas will be required for storing and maintaining equipment and supplies during construction and operations activities. Clearing and use of these areas could result in erosion and run-off of sediment into nearby waterbodies.

Environmental Protection Procedures

- Existing laydown and storage areas will be used, where feasible.
- New ore/waste rock laydown, maintenance or storage areas required for construction and operations activities will only be established within the site boundaries and to applicable specifications.
- Establishing any new laydown or storage areas will follow the procedures for vegetation clearing (Section 4.4), grubbing and debris disposal (Section 4.5), and erosion prevention (Section 4.8).
- External storage areas will be placed on level terrain and kept free of ponding or run-off.
- Drainage from areas of exposed soil will be controlled by grade or ditching and directing run-off away from waterbodies.
- Laydown and storage areas no longer required for construction and operations activities will be rehabilitated.
- Fuel will be stored, handled, and transported according to Section 4.15.

4.4 Clearing Vegetation

Environmental Concerns

Vegetation clearing (e.g., trees, shrubs) will be required prior to earthworks, site development, and infrastructure construction. Potential concerns include stockpiling vegetation in or near watercourses, roadways or open pits/shafts, uncontrolled burning, or potential scheduling of clearing in bird-nesting areas during nesting periods.

Environmental Protection Procedures

- Clearing activities will comply with the requirements of all applicable permits, including the Permit to Burn.
- Clearing or removal of trees will be kept to a minimum.
- Follow guidance relative to reducing adverse effects to avifauna. See Section 5.3, Avifauna Management Plan.
- Notice will also be given about the mortality of endangered species under federal or provincial regulations.
- If vegetation clearing occurs during the active bat season (approximately May 1 to October 31), targeted pre-clearing surveys for bat maternal colonies/roost sites will be conducted in trees with a diameter at breast height of greater than 25 cm in those areas proposed to be cleared and where suitable habitat exists.
- Clearing will consist of cutting to within 15 centimetres (cm) of the ground and disposing of standing trees, as well as removing shrubs, debris and other vegetation from the area. These materials will be stacked clear of on- going activities for future rehabilitation. The Environmental Protection Guidelines for Ecologically Based Forest Resource Management (DFRA 1998) will be observed.
- If possible, large diameter trees will be maintained, especially those that are dead or dying. These types of trees typically have peeling bark, crevices and cavities that provide important roosting habitats for bats.
- In the event that usable or merchantable timber is removed during vegetation clearing, FireFly will notify the NLDFFA.
- Disposing of cleared un-merchantable timber, slash and cuttings by burning will comply with the *Forest Fire Regulations* under the *Forestry Act*, Environmental Code of Practice for Open Burning and the Permit to Burn (from NLDFFA). At no time will a fire be left unattended.
- Slash and any other material or debris related to construction or operations activities will not be permitted to enter any watercourse, and will be piled above spring flood levels and retained for final rehabilitation efforts.
- Chain saws or other hand-held equipment will be used in clearing vegetation except where alternative methods or equipment is approved by FireFly, such as mechanical harvesters. The use of mechanical clearing methods, such as bulldozers, will not be permitted except where it can be demonstrated that there is no merchantable timber, and where the resulting terrain disturbance and erosion will not result in the loss of topsoil or the sedimentation of nearby waterbodies.
- As much as possible, a minimum 15 m buffer zone of undisturbed vegetation will be maintained between the development area and other waterbodies (Section 4.2).

- Timber will be felled inward toward the work area to avoid damaging standing trees within the immediate work area.
- Workers will not destroy or disturb any features indicative of a cultural or archaeological site. Such features should be avoided until a report has been made to the PAO and clearance to proceed has been received. See Section 5.5.
- Sites where surface disturbances are planned or may occur will be inspected and monitored prior to, during, and after the work as described in Section 3.2.

4.5 Grubbing and Disposal of Related Debris

Potential Environmental Concerns

Concerns associated with grubbing and disposal of related debris are the potential adverse effects on freshwater ecosystems and water quality through the release of sediment into watercourses, as well as the potential for disturbing historic resources.

Environmental Protection Procedures

- Grubbing of the organic vegetation mat and/or the upper soil horizons will be restricted to the least area required.
- Nests, eggs, nest shelters of migratory birds or other wildlife must not be disturbed or destroyed. As well, efforts will be taken to complete clearing in these areas outside of the bird breeding season.
- Should additional clearing be required, and it is not possible to undertake clearing outside of the breeding season and a nest is found, the following mitigative actions will be taken:
    - the nest site and neighboring vegetation should be left undisturbed until nesting is completed; and
    - construction activities should be minimized in the immediate area until nesting is completed.
- The organic vegetation mat and upper soil horizon material that has been grubbed will be spread, in a manner to cover inactive exposed areas or retained for use in rehabilitation efforts.
- Notice should also be given about the mortality of any endangered species under federal and provincial regulations.
- Surplus of such material will be stored or stockpiled for site rehabilitation and revegetation purposes.
- Topsoil and organics should be stored in low (1 m to 2 m high) stable piles (Gosse et al. 1998). The location of the stockpiles will be recorded and accessible for future rehabilitation purposes.
- Measures will be implemented to reduce and control runoff of sediment-laden water during grubbing, and the re-spreading and stockpiling of grubbed materials. Where grubbed materials are re-spread or stockpiled, as many stumps and roots as possible will be left on the ground surface to maintain soil cohesion, dissipate the energy of runoff and promote natural revegetation. Erosion control measures will be implemented in areas prone to soil loss (Section 4.8).
- The length of time that inactive grubbed areas will be left exposed to the natural elements will be minimized to prevent unnecessary erosion. Mitigations such as the placement and maintenance of silt curtains will be used to prevent erosion from exposed areas.
- Grubbing activities will adhere to the buffer zone requirements outlined in Section 4.2.
- During grubbing, grubbed material will not be pushed into areas that are to be left undisturbed. Grubbing material will be buried with 60 cm of soil cover.
- Discovery of historic resources will be handled according to the procedures outlined in Section 5.5.

4.6 Overburden

Environmental Concerns

Concerns associated with the placement of overburden includes potential siltation of the aquatic environment, pertaining to water quality and substrate, as well as loss of habitat and displacement of wildlife.

Environmental Protection Procedures

- Overburden storage areas will be located at least 50 m from any waterbody on well-drained soil (Gosse et al. 1998).
- If required, collection ditches and settling ponds will be used to manage surface runoff from overburden stockpiles.
- Overburden will be stored in stable piles and sloped to prevent pooling of surface water pending use in site rehabilitation efforts.

4.7 Excavation, Embankment and Grading Environmental Concerns

Environmental concerns associated with excavation, embankment and grading are the potential impacts on aquatic ecosystems and water quality due to runoff of sediment-laden water.

Environmental Protection Procedures

Work will be conducted with the minimum amount of disturbance necessary. Works within 15 m of waterbodies or watercourses will strictly follow the requirements outlined in the acquired watercourse alteration approvals from the NLDECC and Fisheries and Oceans Canada (DFO). Work will be conducted in a manner that controls potential sedimentation of watercourses and waterbodies in or adjacent to the work areas as outlined in the following procedures. No work below the high water mark of any surface water feature will be conducted without the prior notification and assessment by the HSE Department.

- During excavation, embankment and grading activities, excavated materials will be sorted into separate stockpiles (i.e. topsoil, overburden, waste rock) for later rehabilitation purposes and to prevent mixing.
- Excavation, embankment and grading within 15 m of a stream crossing will be done in such a manner that erosion and sedimentation of watercourses and waterbodies is managed and strictly follows the requirements outlined in the acquired watercourse alteration approvals from the NLDECC and DFO.
- A buffer zone of undisturbed vegetation will be maintained between Project activities and watercourses, as per Section 4.2.
- Grading, if required, will be directed away from wetlands, where possible, and grading will be reduced within wetland boundaries unless required for site-specific purposes.

4.8 Erosion Prevention and Sediment Control

Environmental Concerns

Eroded material could potentially cause siltation in water bodies and potentially decrease suitable habitat for aquatic and terrestrial animals.

Environmental Protection Procedures

- Work relating to the construction and operations activities for the Project will be conducted according to the conditions set out in the permits and/or approvals and authorizations from the NLDECC.
- Primary means for controlling erosion is avoiding activity that contributes to erosion. The disturbance of new areas will be reduced to the extent practicable.
- Drainage ditches will be stabilized if required (e.g., lining with vegetation or rock, terracing, interceptor swales, installation of rock check dams) to reduce soil erosion. Any such measures will be properly maintained following installation.
- Areas of exposed erodible soil will be stabilized by back-blading, grading and/or compacting to meet engineered slope requirements.
- If an environmental inspection reveals that silt is entering any waterbody, further mitigative measures will be implemented, such as temporary drainage ditches, siltation control (settling) ponds, ditch blocks/check dams or sediment dam traps, to intercept run-off. The necessary or appropriate measures will be determined in the field.
- Work and laydown and storage areas will be monitored for erosion and appropriate repair action taken as necessary.
- Existing or new siltation control structures used in this work will be monitored by the contractor for excessive accumulation of sediment. The contractor will remove accumulated sediment from control structures to gain full effectiveness of the systems. Effluent from control structures will be released to flow overland for appropriate filtration prior to entering any waterbody.
- The contractor will be required to remove excess water from siltation control systems prior to excavation of sediment. Trucks will be equipped with liners to prevent loss of wet sediment during transport.

4.9 Water Supply

Environmental Concerns

Environmental concerns related to surface water supply include potential detrimental effects to the fish habitat (and populations) in and around the potentially affected waterbody. Use of groundwater wells has potential to affect the surrounding groundwater quantity and flow.

Environmental Protection Procedures

- The water intakes must have an appropriate screen to prevent damage to fish. Guidelines for the screening of water intakes are provided by DFO (1995).
- Surface water withdrawals will be limited to less than 10% mean monthly flow or 30% (winter) /50% (summer) mean annual flow, whichever is higher in value, to limit adverse impact to fish and fish habitat.
- FireFly will ensure that potable drinking water complies with the Guidelines for Canadian Drinking Water. If groundwater wells are used for potable water at the Ming Mine, they will be routinely tested for compliance with the Canadian Drinking Water Guidelines.

4.10 Watercourse Crossings

Potential Environmental Concerns

Potential environmental concerns associated with stream crossings and culvert installations include potential direct disturbances to or mortality of fish, and potential loss of fish habitat resulting from sedimentation and removal of habitat and stream bank vegetation. An evaluation of soil erosion potential will be conducted at each of the stream crossings. This assessment of potential erosion risk will assist in the development of specific erosion stabilization methods and effective sedimentation control practices on a site-specific basis.

Environmental Protection Procedures

No work below the high-water mark of any surface water feature will be conducted without the prior notification and assessment by the HSE Department. Stream crossings will be constructed in compliance with the required Permit for Culvert Installation from NLDECC, Water Resources Management Division (WRMD) and any approvals required from NLDECC and/or DFO.

The following measures will be implemented to reduce the potential impacts of stream crossings, if stream crossings are required:

- During sensitive fish life stages, stream crossing activities will be undertaken under the direct supervision of the Site Manager.
- Avoid the entry of deleterious substances including, but not limited to, materials such as sediment and fuel to watercourses and waterbodies during watercourse crossing work.
- A minimum buffer of undisturbed natural vegetation will be left between access roads and the bank of any watercourse that it parallels. The buffer width will be determined through the formula:

  Buffer width (m) = 20 m + 1.5 x slope (%) (Gosse et al. 1998)

- In waterbodies that are known to be frequented by fish, where culverts are required, application will be made to NLDECC and DFO. The culverts used will be sized to handle the 1-in-25-year return period flood and will be constructed in accordance with the Environmental Guidelines for Culverts from the WRMD.
- The following measures will also be implemented:
  - Culvert(s) will be installed in accordance with good engineering and environmental practices
  - Unless otherwise indicated, work will take place in dry conditions, either by the use of cofferdams or by diverting the stream
  - Installation of cylindrical culverts shall be counter sunk only where necessary to protect fish habitat such that the culvert bottom is one-third the diameter below the streambed in the case of culverts less than 750 mm outside the diameter; for culverts greater than 750 mm outside diameter, the culvert bottom shall be installed a minimum of 300 mm below the streambed
  - In multiple (gang) culvert installations, one culvert will be installed at an elevation lower than the others
  - The natural low flow regime of the watercourse will not be altered

- A culvert will not be installed before site specific information, such as localized stream gradient, fish habitat type and species present, have been evaluated. Culverts are to be installed using the guidelines provided in Gosse et al. (1998)
- Riprap outlets and inlets will be used to prevent erosion of fill slopes
- Culverts of sufficient length will be used to extend a short distance beyond the toe of the fill material
- Backfilling material used will be of a texture that shall support the culvert and limit seepage and subsequent washing out
- Culverts will be aligned such that the original direction of stream flow is not significantly altered
- Fill and debris will be removed from the culvert area to a location above the peak flow level to prevent its entry into the stream
- Fill material shall not be removed from streambeds or banks, except when installing a culvert when removal of material is necessary for a flat foundation
- The use of heavy equipment will be reduced and restricted in and near watercourses; where possible, an excavator will be used from shore rather than a bulldozer in the watercourse. No work will be conducted within the waterbody unless approved by the appropriate regulators
- As required, cofferdams of non-erodible material shall be used to separate work areas from the watercourse when excavating for culverts and footings
- Cofferdams shall be removed upon completion of the construction phase and the streambed returned as closely as possible to its original condition

- When fording any watercourse, the Environmental Guidelines for Fording from the WRMD (1992) will be applied in conjunction with the following:
  - Areas of spawning habitat will be avoided
  - Crossings shall be restricted to a single location and crossings made at right angles to the watercourse
  - Equipment activity within the watercourse shall be reduced by limiting the number of crossings
  - Equipment will be mechanically sound to avoid leaks of oil, gasoline and hydraulic fluids
  - No servicing or washing of heavy equipment will occur adjacent to watercourses; temporary fueling, servicing or washing of equipment in areas other than the main fuel storage site will not be allowed within 100 m of a watercourse except within a refueling site approved by FireFly, where conditions allow for containment of accidentally spilled fuels; remove from the work area and properly dispose of waste oil, filters, containers or other such debris in an approved waste disposal site
  - Stabilize the entire fording area using vegetation mats, corduroy roads or coarse material (125 mm diameter or greater), and the ford area is not natural bedrock, or is easily disturbed by fording; when the substrate of the ford area is not subject to easy disturbance by fording, or coarse material is not easily available within the lease boundaries, fording under existing substrate conditions may occur under the direction of the Site Manager

- Fording activities will not decrease the depth of the watercourses to less than 20 cm; where the existing depth is less than 20 cm, that depth shall be maintained
- Fording activities will be halted during high flow periods
- Stabilize bank sections which contain loose or erodible materials; if banks must be sloped for stabilization, no material shall be deposited within the watercourse; sloping shall be accomplished by back-blading and the material removed shall be deposited above the high-water mark of the watercourse
- Fording activities will comply with specific requirements and conditions detailed in the acquired approvals from the NLDECC and DFO
- To enable work in the dry, the flow of water must be diverted around the work area during the installation of a culvert (Gosse et al. 1998)
- Culverts should be marked to indicate their position under the snow

4.11 Exploration Drilling

Environmental Concerns

The environmental concerns with exploration drilling include potential surface disturbances, disposal of drilling fluids and cuttings potential siltation, generation of dust, noise and the potential impacts on terrestrial habitats, air quality, aquatic ecosystems and historic resources.

Environmental Protection Procedures

- Potential drilling sites in sensitive areas should be inspected prior to any drill site preparation by the Site Manager, whenever possible.
- Vegetation will be cleared following the procedures detailed in Section 4.4.
- Waste oil will be removed from the drill site and properly disposed of.
- Water applications will be used to control dust where necessary. The use of water for dust control or lubrication during drilling will be undertaken in such a manner that runoff will not enter watercourses.
- Water used throughout the drilling process will remain on the drill site. A Water Use License will be issued as part of the Application for Exploration Approval from the WRMD. Every effort will be made to prevent turbid water from entering any watercourse.
- Cuttings from drill activities will not be removed from the site; they will remain in the immediate location of drilling activities.
- Fuel will be stored, handled and transported according to Section 4.15.
- Garbage and solid waste will be removed from the drill site and deposited in an approved waste disposal area. Waste generated will be disposed of at an approved NL facility.
- Due to the nature of drilling activities (i.e., quicksnaps and couplings) oil drops and leaks may occur and every attempt possible will be made to clean up the area. All rigs will be equipped with oil absorbent material in case of a leak or spill.
- During the winter season, snow machines are to be used to transport drill materials, core and personnel to and from the drill sites.
- Abandoned exploration drill holes will be temporarily capped or indefinitely sealed with appropriate material depending on the timing to allow for any necessary downhole testing. When all test work on the hole has been completed, it is permanently sealed.
- Abandoned drill roads will be re-contoured to the natural grade of the land and, in some areas, hay and seedlings may be planted to encourage re-growth.

4.12 Pumps and Generators

Environmental Concerns

Environmental concerns relative to the use of pumps and diesel-powered emergency power backup generators include, but are not limited to, potential accidental spills or chronic leaks that may contaminate soil and/or waterbodies, including groundwater.

Environmental Protection Procedure

- To reduce fire hazards, fuel will not be stored immediately adjacent to generators, and the fuel storage area should be well ventilated. Fuel will not be stored within 100 m of waterbodies (Gosse et al. 1998).
- Fuel storage containers are to have spill trays beneath with a potential capacity of 110% of volume. They should also be in a covered and secured area.
- Drip pans will be placed underneath pumps, nozzles and generators located near waterbodies.
- Hoses and connections on equipment located near waterbodies will be inspected routinely for leaks and drips.
- Leaks will be reported immediately to the Site Manager, and in turn to the HSE Department.
- In addition to spill kits located at fuel storage tanks, additional spill kits will be located at designated central storage location(s). Personnel who deal with fueling, fuel transfer and pumps and generators will be trained in the use of the kits.

4.13 Dewatering Work Areas and Site Drainage

Potential Environmental Concerns

The major concern associated with site dewatering and drainage is potential siltation and fish mortality and/or habitat destruction. Additional concern exists relative to the management of contact water, which is the interaction precipitation and drainage with PAG waste rock and/or ore.

Environmental Protection Procedures

- Diversion of runoff from undisturbed areas around proposed disturbance areas to minimize the amount of contact water required to be managed through the site water management systems.
- Avoidance of areas impacted by historic mining activities to maintain existing water courses.
- During construction, contact water from disturbances associated with the mine development (runoff from cleared and stripped areas, overburden, roads and pads constructed of clean aggregate and revegetated areas) will be collected and conveyed to Total Suspended Solid (TSS) treatment areas and eventually discharged to the environment. TSS treatment areas will consist of settling ponds and/or geotubes. Sediment control measures such as silt fence and haybales will also be installed around the perimeter of disturbance areas for local sediment control.
- During operations, contact water from disturbance area will be routed to the polishing pond and used to supplement process water or treated (as required) and discharged to the environment.
- Potentially impacted runoff water from the Process Plant area, Ore Stockpile Pad, Waste Rock Stockpile Pad, Mine Shaft Area Stockpile, Portal area, and other areas will be collected and transferred to the Polishing Pond. The Polishing Pond will be primarily used as to supply process water to the Process Plant. Excess water from the Polishing Pond will be treated (as required) and discharged to the environment.
- Water inventory will be reduced through perimeter berms and promotion of overland flow of non-contact runoff.
- Supernatant water (process water plus meteoric water) from the TMF will be transferred to the Polishing Pond or pumped directly to the Process Plant for use as process water.
- Water management infrastructure, such as ponds and catch basins, will be constructed to manage via water transfer i.e., pumping the design storm volumes (1:100 year and 1:25 year design storms, respectively).
- Surface water runoff and dewatering will be managed to meet mill reclaim process demand.
- Flow to fish bearing streams and wetlands will be maintained by maintaining pre-development catchments and/or flows to the extent practicable.
- Water management pumping and energy requirements during operation will be reduced through grading and gravitational drainage.
- Mine water management infrastructure will be developed to control mine contact water.

- Placement of mine waste has been purposely designed to use previously disturbed areas and to avoid overprinting waterbodies to avoid impacts to fish and fish habitat and triggering Schedule 2 of the *Fisheries Act.*
- Runoff will be directed away from active work areas before construction commences, reducing the volume of sediment-laden water to be managed.
- Use of the existing FDP and directing site contact water through grading of ditches and construction of diversion channels so it can be managed and discharged through the existing FDP.
- Accepted industry best practice geochemistry methods will be used to predict mine contact runoff and seepage quality.
- The amount and timing of exposed soil left open at any one time will be limited to reduce the potential for erosion.
- Mine contact water will be treated via a polishing pond and wastewater management plant to ensure effluent meets regulatory effluent limits.
- Mine effluent will discharge via an existing FDP to create a mine effluent point source.
- Seasonal / residential receptors will be protected from sediment-laden runoff by directing untreated runoff away from these areas.
- Currently, it is planned to cap the historic waste rock in the area of Boundary Shaft, which will reduce potential for disturbance or dust lift-off from this potentially acid generating (PAG) waste rock. Based on current configuration of infrastructure, there are no plans to disturb soils that are impacted by historic mining activities, however if inadvertently disturbed, the impacted material would be removed from site and disposed of in accordance with applicable regulations or managed on site in accordance with best practices for metal leaching / acid rock draining materials.
- Mean monthly and daily effluent water quality at FDP will be managed to be below MDMER schedule 4 Table 2 limits.
- Monitoring of site run-off will be conducted as per provincial requirements following effluent quality standards.
- If monitoring indicates regulated water quality standards are exceeded, FireFly will develop additional protocols in consultation with the NLDECC.

4.14 Equipment Installation, Use and Maintenance

Environmental Concerns

A variety of vehicles and heavy equipment will be used at various locations at the different Project sites. Environmental concerns associated with operating and using such equipment includes potential air emissions, accidental spills and chronic leaks that may contaminate on-site water bodies, groundwater, and soil.

Environmental Protection Procedure

- Equipment maintenance and fueling activities will be performed at sites designated by the Site Manager and in compliance with applicable regulations.
- Drip pans will be placed underneath pumps, fuel storage, and generators.
- Hoses and connections on equipment will be inspected routinely for leaks and drips.
- Leaks will be repaired and reported immediately to the Site Manager.
- Fuel and other hazardous materials will be handled according to the procedures in Section 4.15.
- In addition to spill kits located at fuel storage tanks, additional spill kits will be located at designated central storage location(s). Personnel who deal with fueling, fuel transfer and pumps and generators will be trained in the use of the kits.
- Equipment will arrive at the construction site clean and free of soil and vegetative debris, to reduce the risk of introducing or spreading non-native and/or invasive vascular plant species. Equipment will be inspected and either approved for use or cleaned, re-inspected and approved for use. If invasive vascular plant species are noted within or near the Project Area during construction or operation, the extent of the species will be assessed and a plan for removal and/or control will be developed.

4.15 Storage, Handling and Transfer of Fuel and Other Hazardous Material

Typical hazardous substances that may be used at the various site locations include, but are not limited to:

- Petroleum, oil, and lubricants
- Chlorinated and non-chlorinated solvents (e.g., cleaner-degreasers)
- Flammable gases (e.g., acetylene)
- Waste petroleum products (e.g., used engine oil)
- Process chemicals
- Corrosives (e.g., battery acid)
- Glycol (e.g., antifreeze)

Environmental Concerns

The primary concern with using hazardous substances is a potential uncontrolled release to the environment through spillage, and the subsequent adverse effects on terrestrial and aquatic habitat and species, soil, groundwater quality, and human health and safety.

Environmental Protection Procedures

- The Globally Harmonized System for the Classification and Labelling of Chemicals (WHMIS 2015) and *Workplace Hazardous Materials Information System* (WHMIS) *Regulations* under the *Occupational Health and Safety Act* will apply to handling and storage of hazardous materials. Relevant current Material Safety Data Sheets will be readily available for the site.
- Precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials. In the event of a spill, the clean-up procedures as outlined in the Fuel and Hazardous Material Spills Contingency Plan (Section 5.1) will be implemented. In the event of a reportable spill on-land or a spill of any size in the freshwater environment, the Environmental Emergencies 24-Hour Report Line will be contacted.

St. John's: **709-772-2083** or Other Areas**: 1-800-563-9089**

- A spill is defined as reportable, depending on the class and quantity of dangerous goods involved, which varies between applicable Regulations:
    - Reportable spill quantities for hazardous materials are listed in the *Transportation of Dangerous Goods Regulations* – Part 8, under the *Transportation of Dangerous Goods Act*.
    - A reportable hydrocarbon spill is defined as loss of gasoline or associated products in excess of 70 litres (L) in the *Storage and Handling of Gasoline and Associated Products Regulations* under the provincial *Environmental Protection Act.*
    - The *Fisheries Act* requires all spills to be reported, regardless of size. Any spills in ditches or on roadways or in any other place that may enter waterways frequented by fish must also be reported.

- A copy of FireFly's Contingency Plan (located in Section 5.1) for fuel and hazardous material spills will be readily available.
- Fuel storage systems will be registered and will comply with the Storage and Handling of Gasoline and Associated Products Regulations. Verification of the storage tank approval will be retained by FireFly.
- Only workers who are qualified and trained in handling these materials as stated in the manufacturer's instructions and government laws and regulations will handle fuel and other hazardous materials.
- Operators will attend the entire refueling operations.
- Fuel and other hazardous materials will be stored at least 100 m from any surface water (Gosse et al. 1998).
- Emergency spill kits will be readily available when working within 15 m of watercourses and waterbodies.
- Handling and fueling procedures will comply with the Storage and Handling of Gasoline and Associated Products Regulations and any additional requirements put forth by the NLDECC in order to limit potential contamination of soil or water.
- Fuel storage areas and non-portable transfer lines will be clearly marked or barricaded so that they are not damaged by moving vehicles. The markers will be visible under all weather conditions. Barriers will be constructed in compliance with the Storage and Handling of Gasoline and Associated Products Regulations.
- Waste oils, lubricants, and other used oil will be retained in a tank or closed container, and disposed of in accordance with the Used Oil and Used Glycol Control Regulations under the provincial Environmental Protection Act. Spill trays will be used and substances will be stored in a secured area/shed.
- Fire and spill response materials will be kept onsite.
- Despite measures taken to reduce the potential for spills or leaks, should any soils be contaminated by petroleum hydrocarbons, they will be assessed and managed in accordance with the provincial Environmental Protection Act. All storage tank systems will be inspected on a regular basis by the operator as per Section 18 of the Storage and Handling of Gasoline and Associated Products Regulations. This involves, but is not limited to, gauging or dipping, reconciliation of records and the proper maintenance of reconciliation records for a period of two years.
- Contracted fuel suppliers will, before transporting or positioning fuel or oil, have on file at FireFly a copy of their fuel and hazardous material spills contingency plan which is required under Storage and Handling of Gasoline and Associated Products Regulations and which is acceptable to FireFly. The fuel and hazardous material spills contingency plan for FireFly is provided in Section 5.1.
- Transportation of hazardous and dangerous materials shall be conducted in accordance with provincial, territorial and federal transportation regulations. Transportation documents shall be retained in a retrievable filing system and stored for the duration of the undertaking.
- Smoking will be prohibited within 10 m of a fuel storage area.
- Fueling or servicing of mobile equipment will be conducted in designated areas and will not occur within 100 m of any body of water (Gosse et al. 1998).

- Drum storage areas will not be located within 100 m of a water body (Gosse et al. 1998). Drums containing hydrocarbon or other hazardous materials will be transported, stored, handled and disposed of such that spillage or leakage does not occur. Drums will be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry building with an impermeable floor or outside with appropriate spill containment (110%) and covers. FireFly must approve the location of drum storage areas.
- Small quantities of hazardous material, e.g., drums, cans and other containers holding less than 20 L, will be stored in a secure location protected from weather and freezing, as well as from vehicle traffic.
- Where hazardous materials are to be stored outdoors, a designated area will be established, graded and fitted with an impermeable membrane covered with local soil and surrounded by an earth berm.
- Within thirty (30) days of decommissioning of a storage tank system, the system will be emptied of all products, the tank and associated piping will be removed, as well as any contaminated soil, and the area will be cleaned and the site restored.
- Decommissioning of any temporary storage tank system will be conducted according to the Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products (CCME 1994).
- Hazardous waste will be moved to an appropriate hazardous waste storage area (refer to Section 4.19 for disposal). These areas are constructed in compliance with all applicable federal and provincial legislation.

4.16 Propane

Environmental Concerns

There are potential risks associated with propane storage and use. Propane is a flammable substance and poses potential threat as an asphyxiate to humans and animals. In liquid form, propane could potentially cause frostbite once in contact with skin. Propane containers could potentially explode if exposed to heat or fire.

Environmental Protection Procedures

- Propane storage tanks will be installed as per manufacturer's specifications.
- Tank maintenance schedules will be set and followed.
- Areas surrounding propane storage tanks will be well ventilated and free of any possible ignition sources and combustible materials.
- Tanks will be grounded to avoid static accumulation.
- Notification of use, volumes, etc. and a maintenance and Emergency Response Plan will be submitted in accordance with *Canadian Environmental Protection Act* (CEPA) 1999.

4.17 Waste Disposal

Environmental Concerns

Waste (e.g., domestic, industrial, grey water, paper, cardboard, and wood), if not properly controlled and disposed of, can be unsightly and could potentially cause human safety and health concerns. It could also attract wildlife, leading to the potential for human-wildlife conflicts. A comprehensive Waste Management Plan has been developed under separate cover.

Environmental Protection Procedures

- Solid waste will be handled according to the provincial *Environmental Protection Act*.
- Waste will not be transported across the provincial boundary.
- Domestic waste disposal will be managed by the Mine Contractor and will be transported offsite for disposal.
- All solid waste materials shall be considered, prior to disposal, for reuse, resale, or recycling.
- Solid waste produced by site personnel and operations will be collected and disposed of at an approved facility.
- Waste accumulated on site prior to disposal will be confined, so that it does not pose an environmental or health hazard.
- Work areas will be kept clear of waste and litter to reduce the potential for attracting wildlife and reducing potential interactions with wildlife (see procedures in Section 5.2 for handling wildlife encounters).
- Waste that may attract animals, e.g., food, will be stored in covered, wildlife-proof containers.
- Burning of waste is not permitted without appropriate permits.
- All hazardous wastes generated will be handled according to the procedures for handling fuel and hazardous materials (Section 4.15).

4.18 Sewage Disposal

Environmental Concerns

The release of untreated sewage is a potential concern to human health, drinking water quality, and freshwater and marine ecosystems. Domestic sewage will be generated at all the Project sites.

Environmental Protection Procedures

- At the Goodyear's Cove Site, is on care and maintenance, personnel conduct routine inspections but are no longer present at site and lavatories are closed.
- Sewage from the Nugget Pond Mill Site will be processed using the pre-existing Cromaglass sewage treatment facility before discharging to the Polishing Pond.
- At the Ming Mine Site, the proposed domestic sewage system for the accommodation complex considers the treatment of sewage with on-site membrane bioreactor and leach field and/or will be collected for off-site disposal at an existing, approved sewage disposal facility. The sewage treatment and leach fields will be designed to comply with provincial standards and monitored to ensure they comply with regulatory requirements.
- If used, portable toilets will be located a distance of at least 25 m from any work site in a direction away from bodies of water and must be removed upon completion of construction activities.

4.19 Hazardous Waste Disposal

Environmental Concerns

The primary concern with the use or disposal of a hazardous substance is the potential for an uncontrolled release to the environment through leakage or accidental spillage, and subsequent adverse effects on terrestrial and aquatic habitat and species, soil, groundwater quality, and human health and safety.

Environmental Protection Procedures

- All hazardous waste will be handled according to the provincial *Environmental Protection Act*. Waste classified as “hazardous” or “special” that cannot be disposed of in regular landfill sites will be sent for disposal to a licensed hazardous waste management company. If there are no approved hazardous waste facilities in Newfoundland, any such waste will have to be moved outside the Province and the federal Transportation of Dangerous Goods Regulations will apply to the movement of such waste.
- All necessary precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials. In the event of a spill on-land or in the freshwater environment, refer to the Fuel and Hazardous Material Spills Contingency Plan (Section 5.1).
- A copy of the Fuel and Hazardous Material Spills Contingency Plan will be present at hazardous material storage sites and fuel transfer locations.
- Hazardous waste materials will only be handled by workers who are qualified and trained in handling these materials as stipulated in government laws and regulations.
- Waste accumulated on site prior to disposal will be confined, so that it does not pose an environmental or health hazard.
- Waste material will not be disposed of on-site or in a body of water.
- Burning of waste is not permitted.
- Where hazardous waste materials are to be stored outdoors, a designated area will be established, graded and fitted with an impermeable membrane covered with local soil and surrounded by an earth berm.
- Waste oils, lubricants, and other used oil will be retained in an approved tank or closed container, and disposed of in accordance with the Used Oil and Used Glycol Control Regulations.
- Any soil contaminated by small leaks of oil or grease from equipment will be disposed of according to the CEPA.
- Hazardous wastes generated, by alternative treatments will be handled according to the procedures for handling fuel and hazardous materials (Section 4.15).

4.20 Vehicle Traffic

Environmental Concerns

Project-related vehicular traffic can result in fugitive dust, emissions and noise. FireFly is committed to the proper operation and maintenance of their own and contractor and subcontractor vehicles to reduce adverse environmental effects. In order to minimize the adverse effects of vehicular traffic on the general public, FireFly will post notices indicating that heavy duty vehicles will be in the area and will instruct vehicle operators to yield the right-of-way to the public, pursuant to vehicular traffic regulations. In addition, FireFly will provide training to mine workers on safe driving awareness, and will monitor vehicle use.

Environmental Protection Procedures

- All Project-related vehicle and equipment use, including use of ATVs, will be restricted to designated routes within and between work, laydown, maintenance and storage areas. Vehicles and equipment will be operated on previously disturbed areas, wherever feasible.
- All site vehicles and equipment will be properly maintained to meet emission standards.
- Travel in areas outside designated work areas will not be permitted.
- All Project-related vehicles and equipment will yield to wildlife (see procedures in Section 5.2 for handling wildlife encounters).
- All Project-related vehicles and equipment will yield to people, if present, and reduced speeds will be maintained on all roadways.
- Chasing and/or harassing wildlife with Project-related vehicles and equipment will not be permitted.
- Maintaining and refueling Project-related vehicles will be restricted to designated areas (See Section 4.15).
- Heavy equipment (e.g., dump trucks and front-end loaders) will only be used in work areas.
- Access roads will be monitored for signs of erosion and appropriate action will be taken to repair roads, when necessary.
- As required, dust suppression measures, such as watering the roads, will be implemented.
- All-terrain vehicles (ATVs) and snowmobiles will not be allowed off the right-of-way except as approved by the Site Manager.
- The use of ATVs will be restricted to designated trails, thus limiting ground disturbance.
- ATV and snowmobile use will comply with the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* under the *Motorized Snow Vehicles and All-Terrain Vehicles Act* and the Environmental Guidelines for Stream Crossings by All- Terrain Vehicles issued by the NLDECC.
- No motorized vehicles will enter the areas designated as sensitive without notification and approval of the Site Manager.

4.21 Dust and Air Contaminant Control

Environmental Concerns

The environmental concerns associated with dust include potential human health effects and potential effects on aquatic ecosystems and vegetation. Potential sources of dust will be fugitives from wind erosion of stockpile surfaces, material transfer (loading and unloading) at stockpiles, and fugitives from travel on unpaved haul roads.

Environmental Protection Procedures

- Dust from operating activities will be controlled using water. In the event of excessive dust, water will be applied to travel and work surfaces.
- Waste oil will not be used for dust control, but other agents such as calcium chloride may be used with the approval of the appropriate regulatory agencies.
- Ore and concentrate transport trucks will be covered.
- Goodyears' Cove site is on care and maintenance and no longer in use. Dust suppression on conveyor systems will include covering conveyors, adding sprays and/or similar technologies at the Ming Mine site.
- Disturbed areas will be revegetated as soon as possible to limit dust emissions and already disturbed areas will be used for Project infrastructure where feasible to limit the extent of construction activities.
- Grid electricity, which is primarily generated from hydroelectric power in NL, will be used as the primary source of energy for the facility, reducing greenhouse gas (GHG) and air contaminant emissions.
- A best available control technology (BACT) study will be conducted for direct GHG sources of the Project to identify and select the lowest GHG-emitting technologies currently deemed technically and economically feasible for the Project.
- Tier 4 engines are considered BACT for air contaminant emissions from diesel engines and will be used for mobile equipment and where available used for standby emergency generators.
- Specific stockpiles of topsoil, overburden, and other potentially dust-generating materials will be kept covered, where practical, and used as soon as practical, or will be appropriately temporarily vegetated.

4.22 Noise and Light Control

Environmental Concerns

A variety of noises and light associated with Project activities can potentially cause negative effects on wildlife resources in terms of their distribution and abundance.

Environmental Protection Procedures

Measures will be implemented wherever possible to reduce potential impacts arising from a variety of noise and light sources.

- Adherence to all permits, and approvals.
- Vehicles and generators will have exhaust systems regularly inspected and mufflers will be operating properly.
- Project lighting will be limited to that which is necessary for safe and efficient Project activities. Lighting design guidelines will be followed, such as the Commission Internationale de L'Éclairage, International Dark Sky Association, Illuminating Engineering Society.
- Light fixtures will be located so that they are not directed toward oncoming traffic on nearby roads on or off site.
- Lighting will be designed to avoid excessive use of mobile flood lighting units and will be turned off when they are not needed.
- To the extent practicable, mobile and permanent lighting will be located such that unavoidable light spill off the working area is not directed toward receptors outside of the Project Area.
- Full cut-off luminaires will be used where practicable to reduce glare, light trespass and sky glow from the Project.
- Where practicable in accessible areas (e.g., along cleared rights-of-way), trees and other vegetation will be left in place or encouraged to grow to obstruct the view of Project facilities and act as a wind break to reduce the transportation of fugitive dust, reducing the change in viewshed and muffling nuisance noise as well as reducing GHGs released from land-use changes and maintaining carbon sequestration.
- Idling of equipment will be reduced, where practicable to reduce noise, air contaminant and GHG emissions.
- Enclosures, berms, or other barriers may be considered for activities involving excessive noise emissions.

4.23 Road Maintenance

Environmental Concerns

Erosion of roadbeds and siltation of watercourses may result from improperly constructed or upgraded roads. Road maintenance (e.g., snow clearing) activities may result in discharges to waterbodies.

Environmental Protection Procedures

- See environmental protection procedures for Buffer Zones (Section 4.2), Clearing Vegetation (Section 4.4), Grubbing and Disposal of Related Debris (Section 4.5), Overburden (Section 4.6), Excavation, Embankment and Grading (Section 4.7), Erosion Prevention and Sediment Control (Section 4.8), Equipment Installation, Use and Maintenance (Section 4.14), Vehicle Traffic (Section 4.20), Dust Control (Section 4.21), and Noise Control (Section 4.22).
- Snow clearing equipment will be inspected and maintained per Section 4.14.
- Gravel is used to reduce icy conditions of roadways, which is the preferred alternative to salt.
- Roadbeds will be inspected on an annual basis for slumping and potholes.
- Waste rock used to upgrade or construct site roads will be non-PAG material (Section 4.26).
- Contact water will be collected and managed through the wastewater management plant prior to release to the environment (Section 4.13).

4.24 Building Construction

Environmental Concerns

The environmental concerns associated with the installation and operation of buildings (including pre-fabricated buildings) include potential disturbance of wildlife due to installation noise and human presence, and potential impacts on water quality due to domestic waste and hazardous waste. Additional environmental concerns surround concrete production and placement associated with building construction. Effluents may contain hazardous materials such as cement, concrete additives and form oil.

Environmental Protection Procedures

- Noise related to the construction of buildings will be temporary and will be reduced per Section 4.22.
- Regular inspections of construction equipment will be performed (Section 4.14).
- Form work and concrete placement procedures will be implemented to prevent the spillage of concrete to any waterbody.
- Concrete additives, if required, will be stored in approved sealed containers.
- Concrete production related wash-down water, from the cleaning of concrete trucks, miscellaneous concrete equipment, etc., will be collected and properly handled prior to discharge (Section 4.13).
- Run off from aggregate stockpiles will be collected and properly handled prior to discharge (Section 4.13).
- Any PAG waste rock that is excavated to make way for building foundations at the Ming Mine Site will be transported to the waste stockpile area and eventually will be placed underground (Section 4.26).
- No PAG rock will be used for aggregate (Section 4.26).
- Domestic sewage from buildings at the Project will be processed and discharged according to Section 4.18 (Sewage Disposal).
- Domestic waste will be controlled per environmental protection procedures in Section 4.17 (Waste Disposal).

4.25 Drilling and Blasting

Environmental Concerns

Potential environmental concerns associated with underground blasting include vibration and noise, dust generation, and the potential introduction of silt and ammonia into groundwater and into water bodies through mine dewatering effluent. Environmental concerns related to drilling are disposal of drilling fluids and cuttings, potential siltation, generation of dust, noise, air quality, and aquatic ecosystems.

As the drilling and blasting will be conducted underground, impacts at surface are expected to be minimal.

Environmental Protection Procedures

General Blasting Environmental Protection Procedures:

- The contractor will conduct blasting work in compliance with the appropriate permits and/or approvals and authorizations. All blasters will have a Blasters Safety Certificate, and blasting will be conducted in adherence to FireFly's safe work procedures and the Occupational Health and Safety legislation.
- The contractor will obtain the appropriate approvals for all magazines for explosive.
- The contractor will handle, transport, store, and use explosives and all other hazardous materials in compliance with all applicable laws, regulations, orders of the Department of Digital Government and Service NL and NLDIET.
- The contractor will use blasting patterns and procedures which reduce shock or instantaneous peak noise levels.
- The contractor will not blast in the vicinity of fuel storage facilities.
- The contractor will restrict use of explosives to authorized personnel who have been trained in their use.
- The contractor will ensure that there are separate magazines on site for explosives and for dynamite blasting caps. It is planned that there will be separate magazine for caps and explosives. The cap magazine is in place from previous mine operations and will only need to be refurbished. The existing explosive magazine will need significant refurbishment or a new magazine will need to be constructed.
- Where necessary, effluent from blasted areas will be monitored and sampled as per current operating Certificate of Approvals. Effluent will be treated, if required, prior to discharge.
- All personnel must be trained to comply with safe blasting procedures established by FireFly.
- The contractor will coordinate and schedule blasting activities to limit the number of blasts required.
- In order to reduce the seismic effect, blasting patterns and procedures will be optimized to reduce the shock wave and noise.
- The contractor will store explosives and auxiliary materials as stipulated in relevant legislation and in compliance with their operations permit and this EPP.

4.26 Waste Rock and Ore/Concentrate

Environmental Concerns

Given that the ore and waste rock mined from the Ming Mine site have the potential to be acid generating and metal leaching, it is important to design and operate the Project sites in a manner that reduces the impact on the surrounding environment. As surface water drainage comes in contact with the stockpiled mine ore and PAG waste rock, there is some concern this drainage may become more acidic and may lead to higher suspended solids and metal concentrations.

Environmental Protection Procedures

FireFly plans to implement environmental controls to ensure operations are conducted in a manner reducing the impact to the environment as much as possible. In general, the environmental controls are as follows:

- Since some of the waste rock generated from underground development will be PAG, as much of this material as possible will be kept underground to reduce the environmental impact. Geochemical studies will be conducted to identify rock types that are PAG and non-PAG, in conjunction with grade control during operations, there will be a good understand of rock types to ensure proper management. Waste rock that is PAG and brought t to surface will be stored in a temporary waste rock pile. To avoid long-term environmental liability, PAG material brought to surface will eventually be stored back underground to inhibit acid generation
- Rock used to upgrade or construct site roads will be non-PAG material (Section 4.23).
- PAG waste rock that is excavated to make way for building foundations will be transported to the waste stockpile area and eventually will be placed underground (Section 4.7). During the construction phase, PAG waste rock, may also be stored in perpetuity in the basin of the TMF, submerged below water and tailings.
- Due to the acid-generating potential of select waste rock types and ore rock from the mine, the temporary waste rock and ore stockpile base will be profiled to collect runoff water into cut out drains and channel to collection sumps. The precipitation that comes into contact with the waste rock and ore (contact water), will then be pumped to the TMF. Excess water will be directed to the wastewater management plant (WWMP) for treatment as needed prior to discharge or maybe used as reclaim water in the Process Plant.
- Regular environmental monitoring and sampling of the effluent discharge water as well as surface water locations on and around the site.
- Currently, it is planned to cap the historic waste rock in the area of Boundary Shaft, which will reduce potential for disturbance or dust lift-off from this PAG waste rock. Based on current configuration of infrastructure, there are no plans to disturb soils that are impacted by historic mining activities; however, if inadvertently disturbed, the impacted material would be removed from site and disposed of in accordance with applicable regulations or managed on site in accordance with best practices for metal leaching / acid rock draining (ML/ARD) materials.
- Waste rock used to upgrade or construct site roads, pads or any other infrastructure area will be non-PAG material. This may come from an existing, permitted off-site quarry or could be quarried onsite within the footprint of the TMF, depending on the results of geochemical testing. Non-PAG waste rock may also come from the Project mine development and from other nearby operations depending on the results of geochemical testing.

4.27 Processing Activities

Environmental Concerns

The primary environmental concerns related to the processing activities at the Nugget Pond Mill and at the process plant at the Ming Mine site deal with the production and storage of PAG tailings. Other concerns include runoff, and particularly the runoff from the ore stockpiles. There are also environmental concerns related to the noises associated with ore processing activities and its potential impacts on wildlife distribution and abundance, as well as dust generation and its potential human health effects and potential effects on aquatic ecosystems and vegetation. There is also a potential for avifauna to use the TMFs. If the water quality of the TMF have been demonstrated to be adverse or deleterious to avifauna, hazing efforts will be undertaken to discourage the presence of avifauna in these areas.

Environmental Protection Procedures

Measures to control dust and reduce noise will be implemented whenever possible to reduce potential impacts arising from processing activities.

- Machinery used in ore processing will have exhaust systems regularly inspected, and mufflers will be operating properly to reduce exhaust output and noise.
- Dust from ore processing activities will be managed per standard environmental protection procedures for dust control (see Section 4.21).
- Noise from ore processing activities will be reduced per standard environmental protection procedures for noise control (See Section 4.22).
- Waste oil will not be used for dust control. Water or other agents such as calcium chloride may be used with the approval of the appropriate regulatory agencies.
- All tailings will be stored in the TMF. Long-term storage of tailings involves sub-aqueous deposition in an engineered TMF. Due to the PAG properties of the tailings, the TMF will be lined with a HDPE geomembrane. Drainage at the toe of the dam will be directed to collection points and pumped to the polishing pond or back into the TMF for management in the WWMP or reclaimed for process water in the plant. It is anticipated that most of the water will be recirculated back to the process plant for use in the plant.
- Issues surrounding ore stored on site will be reduced as per the environmental protection procedures in Section 4.26.
- Site contact water will be directed to the TMF and discharged and or pumped back to the process plant for re-use as mentioned in Section 4.13. Therefore, contact water will be held and managed through the WWMP prior to release.
- At this time cyanide is not planned for use in the process plant, however, if cyanide is used, hazing procedures, e.g., Breco buoys, Phoenix Wailers etc., will be implemented to deter waterfowl from using the TMF.

5.0 CONTINGENCY AND MANAGEMENT PLANS

Contingency plans to address incidents and unplanned situations have been developed, and will be modified as required throughout activities associated with the Project.

Contingency plans have been developed to address potential incidents and unplanned situations:

- Fuel and Hazardous Material Spills (Section 5.1)
- Wildlife Encounters (Section 5.2)
- Avifauna Management during all work activities (Section 5.3)
- Forest Fires (Section 5.4)
- Discovery of Historic Resources (Section 5.5)
- Tailings Dam Failure (Section 5.6)
- Mine Rescue and First Aid (Section 5.7)

Notwithstanding the existence of these contingency plans, a policy to implement preventative measures as the first line of defense against the possibility of accidents will be adopted.

5.1 Fuel and Hazardous Material Spills

Environmental Concerns

Fuel and hazardous materials can potentially be damaging to vegetation, soil, surface water, ground water, wildlife, aquatic organisms, historic resources and human health and safety.

Environmental Protection Procedures

In case of a fuel or hazardous material spill, the following procedures will apply.

- The individual who discovers the leak or spill will make a reasonable attempt to immediately stop the leakage and contain the flow. Spill kits are located at fuel storage tanks and at designated central storage location(s).
- Spill location, type of fuel or hazardous material, volume and terrain condition at the spill site will be determined and reported immediately to the Site Manager, who will report it immediately to ECCC.
- The spill occurrence shall be documented on the Spill Report Form provided in Appendix F.
- In the event of a reportable spill on-land or any spill regardless of size that may enter a waterbody frequented by fish or known to be used as a public source for water, must be reported immediately to the

Environmental Emergencies 24 Hour Report Line
709-772-2083 or **800-563-9089**

- A spill is defined as reportable, depending on the class and quantity of dangerous goods involved, which varies between applicable Regulations:
    - Reportable spill quantities for hazardous materials are listed in the *Transportation of Dangerous Goods Regulations* – Part 8, under the *Transportation of Dangerous Goods Act*.
    - A reportable hydrocarbon spill is defined as loss of gasoline or associated products in excess of 70 L in the *Storage and Handling of Gasoline and Associated Products Regulations* under the provincial *Environmental Protection Act.*
    - The *Fisheries Act* requires all spills that may enter waterways frequented by fish to be reported, regardless of size.
- Pertinent information that must be included when reporting a spill includes:
    - Name of reporter and phone number
    - Time of spill or leak
    - Time of detection of spill or leak
    - Type of product spilled or leaked
    - Amount of product spilled or leaked
    - Location of spill or leak
    - Source of spill or leak

- Type of accident - collision, rupture, overflow, other
- Owner of product and phone number
- If the spill or leak is still occurring
- If the spill or leaked product is contained, and if not, where it is flowing
- Wind velocity and direction
- Temperature
- Proximity to waterbodies, water intakes, and facilities
- Snow cover and depth, terrain, and soil conditions

The Site Manager will act as the "On-Scene-Commander" for the purposes of cleaning up a fuel or hazardous materials spill. The Site Manager will be familiar with spill clean-up procedures and mobilization procedures of the clean-up equipment. The Site Manager will have full authority to take necessary and appropriate action without unnecessary delay.

The overall responsibility of coordinating a clean-up and maintaining this contingency plan current and up-to- date will be the HSE Department.

Staff will be trained on the procedures to follow in case of hydrocarbon spills, as well as information related to general communication line. FireFly will provide personnel a responsibilities list before the start of construction and operation activities.

A complete list of spill response equipment will be generated and distributed on-site before the start of construction activities.

- In reaching decisions on containment and clean-up procedures, the following criteria will be applied:
  - Minimize danger to workers and public
  - Protect water supplies
  - Minimize pollution of watercourses
  - Minimize area affected by spill
  - Minimize the degree of disturbance to the area and watercourses during clean-up
- The Site Manager will act in consultation with the regulating authorities to:
  - Assess site conditions and environmental impacts of various cleanup procedures
  - Assess potential for fuel recovery versus burning
  - Deploy on-site staff to mobilize pumps and empty 215-L drums or other appropriate storage containers to the spill site
  - Deploy on-site staff to build containment dykes and commence pumping contaminant into drums

- Apply absorbent as necessary
- Dispose of all contaminated debris, cleaning materials and absorbent by burning, if appropriate, or by placing it in an approved land-fill site
- Take all necessary precautions to avoid the incident in the future

- The Site Manager will be responsible for the preparation of a written report which will be sent (as soon as possible, and no later than 30 days after the spill) to the HSE Department; and, from there to:

Director, Pollution Prevention Division
Department of Environment and Climate Change
P.O. Box 8700
St. John's, NL
A1B 4J6
Telephone: (709) 729-5782
Facsimile: (709) 729-6969

and

Environmental Emergencies
Environment and Climate Change Canada
6 Bruce Street
Mount Pearl, NL A1N 4T3
709-693-7179
709-772-5097

5.2 Wildlife Management

Environmental Concerns

Wildlife encounters pose a potential risk for stress or injury to both wildlife and site personnel. Control measures and environmental protection procedures have been put in place to reduce this potential risk to wildlife and humans.

Environmental Protection Procedures

Prevention

The operator is responsible to see that the following procedures are implemented:

- Site and working areas will be kept clean of food scraps and garbage.
- Waste will be collected for disposal in appropriate containers and routinely transferred to the local landfill.
- There will be no feeding of wildlife by any Project personnel.
- Hunting, trapping or fishing by construction and operations personnel within the surface lease area of the sites is not permitted.

Response Actions

All construction/operations personnel will abide by the following rules in the case of wildlife encounters:

- No attempt will be made by any worker at the Project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot.
- Equipment and vehicles will yield the right-of-way to wildlife.
- No hunting, fishing, and trapping staff policy will be implemented within the surface lease area of the sites.
- No personal pets will be allowed on the site.
- All personnel should be aware of the potential for encounters with bears, caribou, moose, etc. and they will be instructed to immediately report any sightings to the Site Manager. The Site Manager will notify the HSE Department to report any wildlife sightings and to assess actions for follow-up.
- The Site Manager will be responsible for all actions in response to nuisance animals (e.g., bears) in the Project area and will advise the HSE Department of recommended further action.
- Under provincial wildlife regulations, the displacement and release of any animal is the sole jurisdiction of the Wildlife Division of NLDFFA and is to be undertaken only under appropriate supervision.
- Avifauna management is described in Section 5.3.
- Caves, sinkholes, fissures, or other underground cavities that are identified as a result of Project activities will be inspected for signs of previously overwintering bats.

- Observations of bat colonies, potential hibernacula sites, or sick or dead bats will be reported to the provincial Wildlife Division at 709-637-2025 or through the toll-free bat hotline: 1-877-434-2287 (BATS).
- Prior to demolishing / deconstructing existing buildings and infrastructure, surveys for breeding birds and roosting bats will be conducted.
- The discovery of bat roosts or hibernacula, or active dens (e.g., marten dens), will be reported immediately to the Health, Safety and Environmental Superintendent or designate and work will cease until appropriate action or follow-up is determined, guided by consultation with a qualified biologist and/or federal or provincial regulators.
- Additional mitigation may involve offering alternate habitat (e.g., artificial structures such as bat boxes) to off-set the loss of roosting habitat as a result of development.
- Water management infrastructure will be designed to allow wildlife crossing opportunities.

5.3 Avifauna Management during all Site Activities and Phases

Environmental Concerns

The Avifauna Management Plan has been designed to reduce the possibility of incidental take of active nests during construction activities associated with the Project. FireFly will avoid adverse impacts on avifauna whenever possible. The construction footprint will be limited to the greatest extent possible and whenever possible, FireFly will endeavor to complete required clearing outside the regional bird breeding season clearing (May 1-August 15).

Environmental Protection Procedures

Prevention

If clearing is required during the regional bird breeding season, FireFly will ensure the following mitigations specific to avifauna are carried out:

- Monitoring for bird nests will be conducted in advance of site clearing during the breeding season (May 1st to August 15th) and efforts will be made to avoid trees with nests during that time. Non-intrusive surveys for nests will be conducted, in accordance with the Specific Considerations Related to Determining the Presence of Nests (ECCC 2019).
- The Migratory Birds Convention Act (MBCA) protects most bird species and their nests, with the exception of the following groups: certain game birds, (e.g., grouse, quail, pheasants, and ptarmigan), raptors (e.g., hawks, owls, eagles, and falcons), cormorants, pelicans, crows, jays, and kingfishers, and some species of blackbirds (e.g., starlings, mynas).

Response Actions

- Should a nest of a migratory bird be found, the following steps will be taken (in accordance with guidelines outlined in the MBCA):
    - All activities in the nesting area will be halted until nesting is completed, i.e., the young have left the vicinity of the nest
    - Nests found will be protected with a buffer zone appropriate for the species and the surrounding habitat until the young have left their nest. ECCC would be consulted to determine if a permit can be obtained if there is a need to destroy or relocate a nest
    - Nests will not be marked using flagging tape or other similar material as these increase the risk of nest predation
- Raptors, although not protected under the MBCA, are protected under NL's *Wild Life Act*. In accordance with provincial guidelines, should a nest of a raptor be found, the following steps will be taken:
    - A buffer zone of 800 m will be maintained while the nest is active
    - After the young have left their nest, a buffer zone of 250 m will be maintained
    - If work within the appropriate buffer zone cannot be avoided, NLDFFA will be contacted for advice on how to reduce disturbance of the nest

These mitigation measures in place during the construction phase of this Project will help avoid and/or reduce incidental take of avifauna during vegetation clearing.

In addition, dust from construction activities will be controlled using water if required, and noise generated from blasting or heavy equipment use will be addressed by following the requirements of permits and approvals.

Fuels and hazardous materials required during construction will be stored according to applicable regulations. Hazardous materials will be stored in appropriate locations with proper containment as required for each product. Noise associated with blasting and heavy equipment will be addressed by adherence to permits and approvals.

Environmental water quality monitoring will be carried out regularly at the TMFs. Cyanide is not planned to be used in the Process Plant at Ming Mine. However, if cyanide is used, FireFly will carry out hazing, procedures i.e., scare tactics, as recommended by ECCC, to deter waterfowl from using the TMFs. As per ECCC's advice, FireFly will use devices that do not require a permit and will alternate the scare techniques to prevent birds from acclimatizing to the same disturbance. In general FireFly will monitor the use of the TMFs for use by migratory birds and implement measures to prevent contact of migratory birds with harmful substances, as needed. Additionally, FireFly will monitor waterfowl presence in the TMFs during the bird breeding season (May 1-August 15) through daily planned observations and sightings will be logged and reported to ECCC via an Avifauna Survey sheet (Appendix G).

Focused hazing will be attempted to move birds away from waterbodies containing deleterious substances.

5.3.1 Reporting Procedures

FireFly will produce an annual report that logs all monitoring activities and reports on all monitoring commitments identified in its Avifauna Management Plan.

During the bird breeding season (May 1-August 15) a log of all nests observed will be maintained via an Avifauna Survey sheet (Appendix G) during construction activities. This log will record both active and inactive nests, i.e., no longer active, fledged, abandoned, monitoring discontinued, etc., species, location, type of nest, date of discovery, stage of development of young, date the nest became inactive, the type of construction activity nearby, and the outcomes of the monitoring and mitigation measures implemented. The annual report will include a summary of the nest monitoring log.

The monitoring data acquired during the bird breeding season (May 1-August 15) relative to waterfowl in the TMFs during operations activities will be compiled and presented in annual report. The annual report will also record:

- Any dead or injured birds found on site
- Documentation of all mitigation measures implemented and their effectiveness
- Documentation of all correspondence with regulators regarding migratory birds

5.4 Forest Fires

Environmental Concerns

Activities related to construction and/or operations could potentially result in a fire, which could spread to the surrounding area. Such events could potentially be damaging to vegetation and wildlife, air and water quality, human health and safety, and FireFly assets.

Environmental Protection Procedures

FireFly or the contractor will take all precautions necessary to prevent fire hazards when working at the site. These include but are not limited to:

- Flammable materials will be stored and handled properly.
- Flammable waste will be disposed of on a regular basis.
- FireFly or the contractor will make available, in proper operating condition, sufficient firefighting equipment to suit its labor force and fire hazards. Such equipment will comply with, and be maintained to the manufacturer's standards.
- FireFly or the contractor will ensure that its personnel are trained in the use of such equipment.
- In the event of a fire, FireFly or the contractor, if safe to do so, will take immediate steps to contain or extinguish the fire.
- The Site Manager will appoint a supervisory staff member as “On-Scene-Commander” for fighting any forest fires.
- Fires should be reported immediately to:
    - The FireFly General Manager/ VP of Operations
    - Springdale Forestry Office **(709) 673-3821**, and ultimately to the Forest Management Unit Office in Corner Brook **709-637-2408**
- The following information will be provided:
    - Name of the reporter and phone number
    - Time of detection of the fire
    - Size of the fire
    - Location of the fire
- The police will also be notified immediately at: **709-532-4221** (Baie Verte RCMP Detachment).

5.5 Discovery of Historic Resources

Environmental Concerns

No historic resources were discovered at any of the Project sites during previous work activities, and it is not anticipated that any will be found in the future; however, this section is included in the event there are discoveries.

Historic resource material that is disturbed, destroyed or improperly removed from a site represents a potential cultural loss of information and history that could otherwise be handled and interpreted in an efficient and appropriate manner.

Environmental Protection Procedures

- If suspected archaeological material is encountered, work in the immediate area of the discovery will be stopped until authorized personnel from FireFly, following consultation with the Provincial Archaeology Office (PAO), Newfoundland and Labrador Department of Tourism, Culture, Arts and Recreation, allow resumption of the work.
- The find will be reported immediately to the Site Manager.
- The site's visible boundaries will be marked. Personnel will not move or remove any artefacts or associated material unless the integrity of the material is threatened.
- The Site Manager will report the find with the following information to the PAO, and will comply with the instruction provided:
    - Nature of the find
    - Precise descriptive and map location and the time of the find
    - Nature of the activity resulting in the find
    - Identity of the worker(s) making the find
    - Present location of the material, if moved, and any protective measures initiated for the material and the site
    - Extenuating circumstances

5.6 Tailings Dam Failure

In the event of an effluent release, procedures have been developed and established and are detailed within the FireFly's Operations Emergency Response Plan (ERP) for the Green Bay Ming Mine Project as per the *Metal and Diamond Mining Effluent Regulations* (MDMER).

The ERP for the Green Bay Ming Mine operations is a key element in protecting the environment within and surrounding the property. The ERP helps to ensure that any effluent releases to the environment are handled efficiently and safely, and in a manner that will minimize any environmental impact and satisfy the appropriate regulatory requirements.

Copies of the ERP are located throughout the site and distributed to all necessary departments.

5.7 Mine Rescue and First Aid

In the event that an incident occurs, procedures have been established and are detailed within FireFly's Green Bay Ming Mine Health and Safety ERP.

6.0 ENVIRONMENTAL PROTECTION PLAN CONTROL REVISIONS

Holders of controlled copies (i.e., the version which contains all of the up-to-date procedures) of the EPP are listed in Appendix B.

The EPP will be revised as necessary to reflect site-specific environmental protection requirements and allow updates as work progresses. All EPP holders may initiate revisions by forwarding proposed revisions to the Site Manager and/or the HSE Department. The following information will be provided on the Revision Request Form (see Appendix C) for all revision requests:

- Section to be revised
- Nature of the revision
- Rationale for the revision (e.g., environment, worker safety)
- Name of person who submitted the revision request

Approval for revisions will be sought from FireFly. When the HSE Department receives approval for the revision request, details of the revision will be distributed to all EPP holders and will be documented in the Revision History Log (Appendix D). Each revision will be accompanied by:

- Revision instructions
- List of sections being superseded
- An updated Table of Contents indicating the status of each section in the EPP. When EPP Holders receive a revision, they will, within two working days:
    - Read the text of the revision
    - Check the control sheet to confirm that all the listed pages have been received
    - Remove and destroy the superseded pages from their copy of the EPP
    - Insert the revised pages in the proper place in their copy of the EPP
    - Page check the EPP, using the updated table of contents to confirm the EPP is complete and current
    - Enter the revision number and date entered on the Revision History Log
    - Incorporate the revision into the area of responsibility, as appropriate
    - Confirm that their personnel are familiar with the revisions

7.0 CONTACT LIST

FireFly Metals Canada Limited Corey Greenham HSE Superintendent, HSE Department B610Route #418 Ming's Bight Road Baie Verte NL A0K 1B0 Canada Phone: (709) 800 1929 Fax: (709) 800 1921 Cell (709) 532-7337 Email: cgreenham@fireflymetals.ca	**Environmental Emergencies** **24-Hour Report Line** St. John's (709) 772-2083 Other Areas 1-800-563-9089 **Environmental Emergencies Program** **Environmental Enforcement** Tel. (709) 772-2173 Alt (709) 693-7179
Environment and Climate Change Canada **Environmental Protection** Mount Pearl, NL Environmental Assessment Coordinator Glenn Troke Tel. (709) 772-4087 Fax. (709) 772-5097	**RCMP** Baie Verte Detachment Tel. (709) 532-4221
Environment and Climate Change Canada **Canadian Wildlife Service** Canadian Wildlife Service Mount Pearl, NL Kim Mawhinney, Manager Tel. (709) 772-7456 Fax. (709) 772-5097	**Fisheries and Oceans Canada** 4A Bailey Street, Suite 200 Grand Falls-Windsor, NL A2A 2T5 Tel: (709) 292-5197 Fax: (709) 292-5205
Department Of Forestry and Land Resources **Wildlife Division** Jana Fenske Ecosystem Management Ecologist Corner Brook, NL Tel. (709) 637-2062 **Springdale Forestry Office** Tel. 709-673-3821 **Forest Management Unit Office** Corner Brook, NL Tel. (709) 637-408	**Department of Municipal Affairs and Environment** Troy Duffy Environmental Engineer Pollution Prevention Division Department of Municipal Affairs and Environment 35 Alabama Drive Stephenville, NL A2N 2K9 Tel. (709) 643-6114 Cell: (709) 639-3980

8.0 REFERENCE MATERIAL

Canadian Council of Ministers of the Environment. 1994. Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.

Department of Environment and Conservation, Water Resources Management Division. Chapter 3A. Environmental Guidelines for Stream Crossings by All-Terrain Vehicles. Department of Natural Resources. Estimated 1995. Environmental Guidelines for Construction and Mineral Exploration Companies.

Department of Fisheries and Oceans. March 1995. Freshwater Intake End-of-Pipe Fish Screen Guideline.

DFRA (Department of Forest Resources and Agrifoods). 1998. Environmental Protection Guidelines for Ecologically Based Forest Resource Management (Stand Level Operations).

Gosse, M.M., A.S. Power, D.E. Hyslop, and S.L. Pierce. 1998. Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Fisheries and Oceans, St. John's, NL. X + 105 pp., 2 appendices.

9.0 SIGNATURE PAGE

FireFly Metals Canada Limited

The undersigned certify that they have reviewed, and understand their role and responsibility regarding:

MING COPPER-GOLD MINE PROJECT

CONSTRUCTION AND OPERATIONS

ACTIVITIES ENVIRONMENTAL

PROTECTION PLAN

As part of their Ming Copper-Gold Mine Project Safety Orientation.

Name (Printed)	Representing Company
Signature of Above	Date
Name of Manager or Supervisor	
Manager or Supervisor's Signature	Date

APPENDIX A

LIST OF ABBREVIATIONS AND ACRONYMS

LIST OF ABBREVIATIONS AND ACRONYMS

ATV	All-terrain vehicle
BACT	best available control technology
CCME	Canadian Council of Ministers of the Environment
CEPA	*Canadian Environmental Protection Act*
cm	centimetre
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EPP	Environmental Protection Plan
ERP	Emergency Response Plan
FireFly	FireFly Metals Canada Limited
GHG	greenhouse gas
ha	hectare
HDPE	high-density polyethylene
HSE	Health, Safety, and Environment
km	kilometre
L	litre
m	metre
MBCA	*Migratory Bird Conservation Act*
MDMER	*Metal and Diamond Mining Effluent Regulations*
mm	millimetre
NL	Newfoundland and Labrador
NLDECC	Newfoundland and Labrador Department of Environment and Climate Change
NLDFFA	Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture
NLDIET	Newfoundland and Labrador Department of Industry, Energy and Technology
PAG	potentially acid generating
PAO	Provincial Archaeology Office
PPD	Pollution Prevention Division
Rambler	Rambler Metals and Mining
the Project	Green Bay Ming Mine Project
TMF	Tailings Management Facility
WHMIS	Workplace Hazardous Materials Information System
WRMD	Water Resources Management Division
WWMP	Wastewater Management Plant

APPENDIX B

CONTROLLED COPY DISTRIBUTION LIST

CONTROLLED COPY DISTRIBUTION LIST

Department or Organization	Individual or Location

APPENDIX C

REVISION REQUEST FORM

SECTION TO BE REVISED:

NATURE OF REVISION:

RATIONALE FOR REVISION:

(i.e., environment/worker safety, etc.)

SUBMITTED BY:

Please submit request to the **FireFly's Environment Team** (Site Manager & Environmental Manager)

APPENDIX D

REVISION HISTORY LOG

REVISION HISTORY LOG

Version	Date Issued	Revision
0.0	24 June 2010	Draft issued to
0.1	2 July 2010	Revised draft issued to Rambler
1.0	30 August 2010	Issued to
1.1	9 November 2010	Revised and Issued to NLDECC
1.2	13 January 2011	Final issued to
2.0	October 16, 2018	Revised for Rambler Review
2.1	June 4, 2019	Revised for Rambler Review
2.2	Jan 14, 2019	NA

APPENDIX E

SITE CHECK LIST FORM

Site Check List Form

Date : Weather : _____

Activities: _____

Sediment and Erosion Control Structures Adequate Inadequate
Issues : _____

Resolutions : _____

Comments : _____

Environmental Inspector : _____ _____
(Please Print) (Signature)

Submit this report to the Site Manager or other designated personnel of responsibility within the employ of

_____ ***(Contractor) upon completion.***

Revision 0

APPENDIX F

SPILL REPORT FORM

Spill Report Form

1. Name: 2. Phone No.:_____
(person reporting the spill)

3. Time of spill or leak: 4. Time of detection: _____

5. Type of product (spilled or leaked): _____

6. Amount of product (spilled or leaked): _____

7. Location (of spill or leak): _____

8. Source (of spill or leak): _____

9. Type of accident - (check the correct response)

□ collision □ rupture □ overflow □ other_____

10. Is the spill or leak is still occurring? □ Yes □ No

11. Is the spill or leaked product contained? □ Yes □ No

if not, where it is flowing? _____

12. Are cleanup efforts already underway? □ Yes □ No

13. Wind velocity and direction: 14. Temperature: _____

15. Proximity to watercourses, sewers, and buildings/facilities:_____

16. Terrain: _____
Soil conditions: _____

17. Name of person spill was reported to: _____

Submit this completed form to the Site Manager or other designated personnel of responsibility within the employ of _____ (Contractor) upon completion.

Revision 0

APPENDIX G

AVIFAUNA SURVEY SHEET

Avifauna General Field Survey Sheet

Submitted by:

Date:

Time:

Submitted to:

Project Name:

Location:

Weather:

General Description of Survey Area

GPS Location

Easting	Northing	Time	Notes

Signature: _____

Appendix 1.A Letter with Respect to the Pine Cove Port

325 Highway 410 PO Box 184
Baie Verte, NL A0K-1B0
T: (709) 532-4642 F: (709) 532-4643

March 26, 2025

FireFly Metals Canada Ltd.
B610 Route #418 Ming's Bight Road
Baie Verte, NL
A0K 1B0 Canada

To Tabatha LeBlanc,

Subject: Clarification Regarding the Use of Shoreline Aggregates' Port

Shoreline Aggregates Inc. (Shoreline) wishes to clarify the scope and intent of its operations at the Point Rousse Port (also known as Pine Cove Port, the "Port"). While FireFly Metals Canada Ltd. (FireFly) may, in the future, utilize the Port as a third-party user, such use is entirely complementary to Shoreline's current and planned operations.

Shoreline is the sole owner and operator of the existing Port infrastructure at the Port with full care and control over its use and development, as shown on the enclosed Crown Lands map. Shoreline has been active and operational since 2016, maintaining compliance with applicable regulatory frameworks and adhering to best practices as outlined in both provincial and federal legislation. Shoreline exercises no authority over Firefly's project, and likewise, FireFly has no role in Shoreline's Port development. Consequently, neither party can commit on behalf of the other for environmental approvals.

We acknowledge the importance of regulatory clarity where perceived overlapping infrastructure may serve multiple projects. Shoreline is currently considering a Port expansion, which is not a direct response to FireFly's project, nor is it required to support FireFly's Project. Rather, it is a proactive investment in regional infrastructure that supports both our internal logistics requirements and the broader economic development of the Baie Verte area through shared, multi-user access. The long-established business growth strategy has been reflected in internal planning documentation and communicated through various stakeholder engagement initiatives in recent years (see enclosed records).

Shoreline is preparing an EA registration to support this long-established strategy and will provide detailed project justification and evaluate associated environmental factors, we note the following:

- The expansion is primarily intended to increase the availability of loading days at the keyways, rather than increase overall vessel traffic beyond historical levels. This reflects Shoreline's expanding product portfolio (e.g., Rip Rap, Armour Stone), which requires more laydown space, specialized loading equipment, and extended load durations.
- Current operational protocols are consistent with best practices for navigation, as outlined in Transport Canada and marine safety regulations.

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Baie Verte, NL A0K-1B0
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- Shoreline holds Crown Land tenure for both land and water lots, including navigation easements within the Port area. There are currently no identified impediments to fishing or commercial vessel activity in approach lanes. Moreover, there have been no recorded incidents of conflict between Shoreline's commercial operations and local fish harvesting activities.

We trust this letter provides the necessary clarification and reaffirms Shoreline's commitment to proceeding independently and transparently.

Should you require any additional information or documentation, please feel free to contact the undersigned.

Sincerely,

Shannon Lewis
Director, Business Development, Shoreline Aggregates Inc.
slewis@shorelineaggregates.net

325 Highway 410 PO Box 184
Baie Verte, NL A0K-1B0
T: (709) 532-4642 F: (709) 532-4643

Summary of Local Consultation and Engagement
Company and Project Updates inclusive of Port Expansion Plans
2016 – 2024

Annual Baie Verte Mining Conference:

For over 35 yeas, the Annual Baie Verte Mining Conference has been at the pinnacle of mining industry events within the province. This annal event highlights the mining industry not just within the Baie Verte Region but throughout the province. This annual event is highly attended (average 140 per annum) and provides stakeholders regionally, provincially and internationally to learn about various projects in the mining industry.

Since Shoreline's inception in 2016, they have participated as a main presenter providing annual updates and strategic insight to Shorelines growth objectives.

This image was included in our PP. presentations during 2020/22 public and corporate engagement events.

Shoreline have also presented project updates and expansion plans at the following public events;

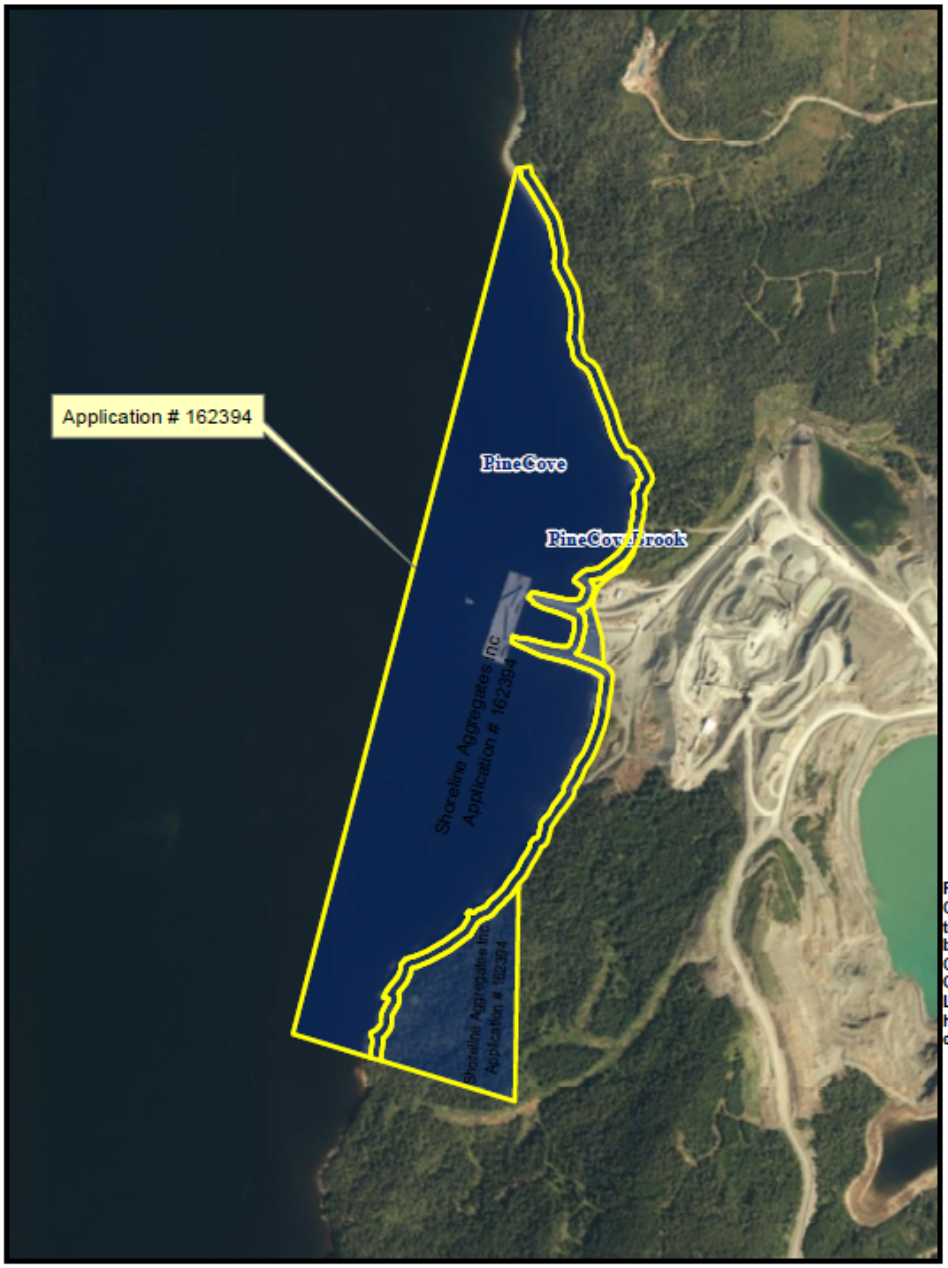
- **Baie Verte Peninsula Chamber of Commerce AGM's – 2022/23/24**
- **Small Business Week luncheons– Baie Verte Peninsula Chamber – 2023/24**
- **Localized Engagement with Visiting Government Officials During 2024 Provincial Bi-Election (3 sessions)**
- **Baie Verte Regional Economic Development Forums hosted at CNA, Baie Verte 2023/24**

Below: Crown Land Map indicating the Approved Water Lot application #162394

325 Highway 410 PO Box 184
Baie Verte, NL A0K-1B0
T: (709) 532-4642 F: (709) 532-4643

Department of Fisheries, Forestry and Agriculture
Crown Lands Division

Newfoundland Labrador



NOTE TO USERS

The information on this map was compiled from land surveys registered in the Crown Lands Registry.

Since the Registry does not contain information on all land ownership within the Province, the information depicted cannot be considered complete.

The boundary lines shown are intended to be used as an index to land titles issued by the Crown. The accuracy of the plot is not sufficient for measurement purposes and does not guarantee title.

Users finding any errors or omissions on this map sheet are asked to contact the Crown Lands Inquiries Line by telephone at 1-833-891-3249 or by email at CrownLandsInfo@gov.nl.ca.

Some titles may not be plotted due to Crown Lands volumes missing from the Crown Lands registry or not plotted due to insufficient survey information.

The User hereby indemnifies and saves harmless the Minister, his officers, employees and agents from and against all claims, demands, liabilities, actions or cause of actions alleging any loss, injury, damages and matter (including claims or demands for any violation of copyright or intellectual property) arising out of any missing or incomplete Crown Land titles, and the Minister, his or her officers, employees and agents shall not be liable for any loss of profits or contracts or any other loss of any kind as a result.

For inquiries please contact the Crown Lands Inquiries Line by telephone at 1-833-891-3249 or by email at CrownLandsInfo@gov.nl.ca. Or visit the nearest Regional Lands Office; http://www.flr.gov.nl.ca/department/contact_lands.html

0 75 150 300 450 600 Meters

N W E S

Scale 1:8,000

Compiled on May 14, 2024

Appendix 1.B Letter from IAAC

Impact Assessment Agency of Canada | Agence d'évaluation d'impact du Canada

Atlantic Region
200–1801 Hollis Street
Halifax NS B3J 3N4

Région de l'Atlantique
200–1801, rue Hollis
Halifax (Nouvelle-Écosse) B3J 3N4

March 7, 2025 **Sent by email**

Tabatha LeBlanc
VP Environment and Communities
FireFly Metals Canada Ltd.
B610 Route #418 Ming's Bight Rd.
Baie Verte, NL
Canada A0K 1B0
tleblanc@fireflymetals.ca

Tabatha LeBlanc:

Subject: Applicability of the *Impact Assessment Act* to the Green Bay Ming Mine Project

Thank you for your correspondence from February 6, 2025, and February 25, 2025, regarding the proposed Green Bay Ming Mine Project (the Project) proposed by FireFly Metals Canada Ltd.

The *Impact Assessment Act* (the IAA) sets out the federal process for assessing the impacts of certain major projects. The *Physical Activities Regulations* (the Regulations) under the IAA identify the physical activities that constitute the "designated projects" that are subject to the requirements of the IAA. It is the responsibility of proponents to determine whether their proposed project includes physical activities that are described in the Regulations and, if so, to submit an Initial Project Description to the Impact Assessment Agency of Canada (IAAC) in order to determine whether an impact assessment is required.

Based on the information provided to IAAC regarding the Project, it is IAAC's view that the Project is not a designated project as described in the Regulations. As a result, you are not required to submit an Initial Project Description to IAAC. Should details or design aspects of the Project change such that the Project may include physical activities that are described in the Regulations, such as an increase in ore input or production capacity, please contact IAAC to discuss these changes and the implications on the applicability of the IAA.

…/2

Please note that for physical activities not described in the Regulations, subsection 9(1) of the IAA provides that the Minister of Environment and Climate Change (the Minister) may designate a physical activity on request or on their initiative. A physical activity may be designated if the Minister is of the view that the carrying out of that activity may cause adverse effects within federal jurisdiction or direct or incidental adverse effects (resulting from federal decisions).

Moreover, should the Project be carried out in whole or in part on federal lands, section 82 of the IAA would apply if any federal authority is required to exercise a power, duty or function under an Act other than IAA in order for the Project to proceed, or if a federal authority is providing financial assistance for the purpose of enabling the Project to be carried out. In that case, that federal authority must ensure that any Project assessment requirements under the IAA are satisfied.

In addition, other federal regulatory permits, authorizations and/or licences may still be required.

Further information on the IAA and associated regulations can be found at https://www.canada.ca/en/impact-assessment-agency.html.

For any questions related to the above, please feel free to contact me at mike.atkinson@iaac-aeic.gc.ca.

Sincerely,

Mike Atkinson
Regional Director, Atlantic Region

c.c.: Darren Cooke, CEO, FireFly Metals
Gus Simbanegavi, GM&VP Operations, FireFly Metals
Jill Adams, Impact Assessment Agency of Canada

Appendix 2.A ARD Impact Baseline Studies Associated with the Former Rambler Consolidated Tailings

Current Research (1995) Newfoundland Department of Natural Resources, Geological Survey, Report 95-1, pages 129-137

SEASONAL AND MINING INFLUENCES ON STREAM-WATER GEOCHEMISTRY IN THE RAMBLER MINES AREA: IMPLICATIONS FOR MINERAL EXPLORATION AND ENVIRONMENTAL MONITORING

J.W. McConnell
Geochemistry, Geophysics and Terrain Sciences Section

ABSTRACT

To assess the impact of the former operations at Consolidated Rambler Mines on the Baie Verte Peninsula on water quality in the surrounding drainage system, stream-water samples were collected in June and late August 1993 for chemical analysis. The mines exploited copper, zinc, gold and silver from volcanogenic massive sulphide deposits. Samples were collected in both background areas and from sites downstream of mine workings and tailings. Results indicate that concentrations of most elements are higher in the August samples. The increase is remarkably uniform, suggesting that results obtained from different sampling periods could be compared by reference to a few calibration samples collected from the same sites during both sampling periods. Ore elements have detectable levels in waters from most streams, including those regarded as background. The implication of this for mineral exploration is that water containing a component dissolved from mineralized till or bedrock could yield a geochemical anomaly. Analyses of ore-related elements (e.g., Cu, Pb, Zn, Co, As, S) are much higher from sites downstream of mining activity indicating that the safeguards designed to protect the area's watersheds have been inadequate. Of the elements analyzed, Cu appears to be the most detrimental to water quality, exceeding environmental guidelines for maintaining aquatic life by up to 1000-fold in some streams.

INTRODUCTION

A geochemical sampling program was undertaken in 1993 in and around the former Consolidated Rambler Mines property on the Baie Verte Peninsula (Figure 1). Samples of stream-water, stream-sediment and overbank samples were collected during the first week of June and again in the last week of August; the results of the water-samples are discussed here. The objectives of the water-sampling component are a) to determine if stream-water geochemistry can be used as an exploration method, b) if water chemistry varies seasonally, and c) what affect past mining activity is having on the stream-water quality at present. Preliminary results of a stream-water survey conducted in 1992 at a lower density over a larger area on the Baie Verte Peninsula were reported previously (Hall, 1993).

The study area lies within the Notre Dame Subzone of the Dunnage Zone (Williams, 1979; Williams *et al.*, 1988). It is an area characterized by island-arc volcanism and back-arc basins. The study area itself is underlain predominately by Ordovician mafic volcanic and volcaniclastic rocks with numerous felsic volcaniclastic rocks in the immediate mine area, all of them belonging to the Paquet Harbour group (Hibbard, 1982). Some of the streams sampled in the survey also rise in areas underlain by the Burlington granodiorite. The mining operations exploited volcanogenic massive-sulphide type ore. Approximately 4 300 000 tonnes of polymetallic ore were recovered during the period 1967 to 1982 from four separate orebodies (Coates, 1990): Main Mine

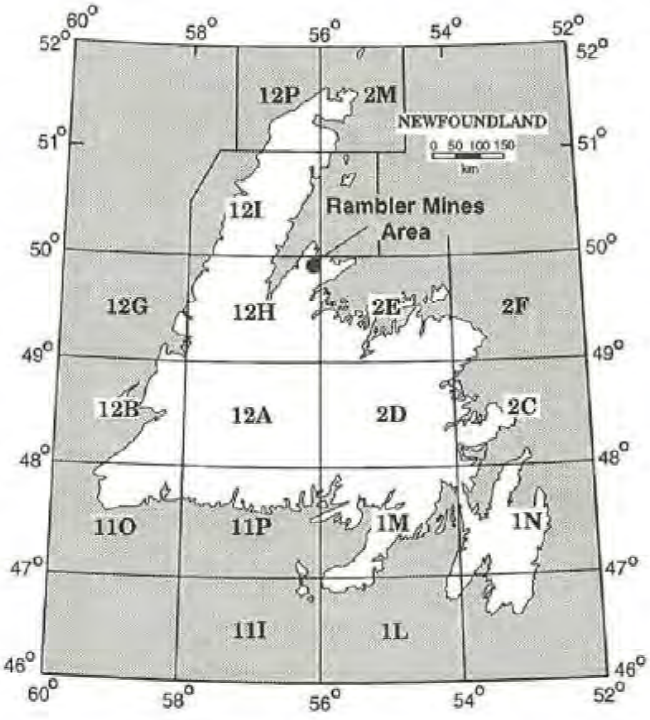


Figure 1. *Location of study area.*

(400 000 tonnes of 1.30 percent Cu, 2.16 percent Zn, 5.14 g/t Au and 29.14 g/t Ag); East Mine (1 900 000 tonnes of 1.04 Cu); Big Rambler Pond, not shown (45 000 tonnes of 1.20

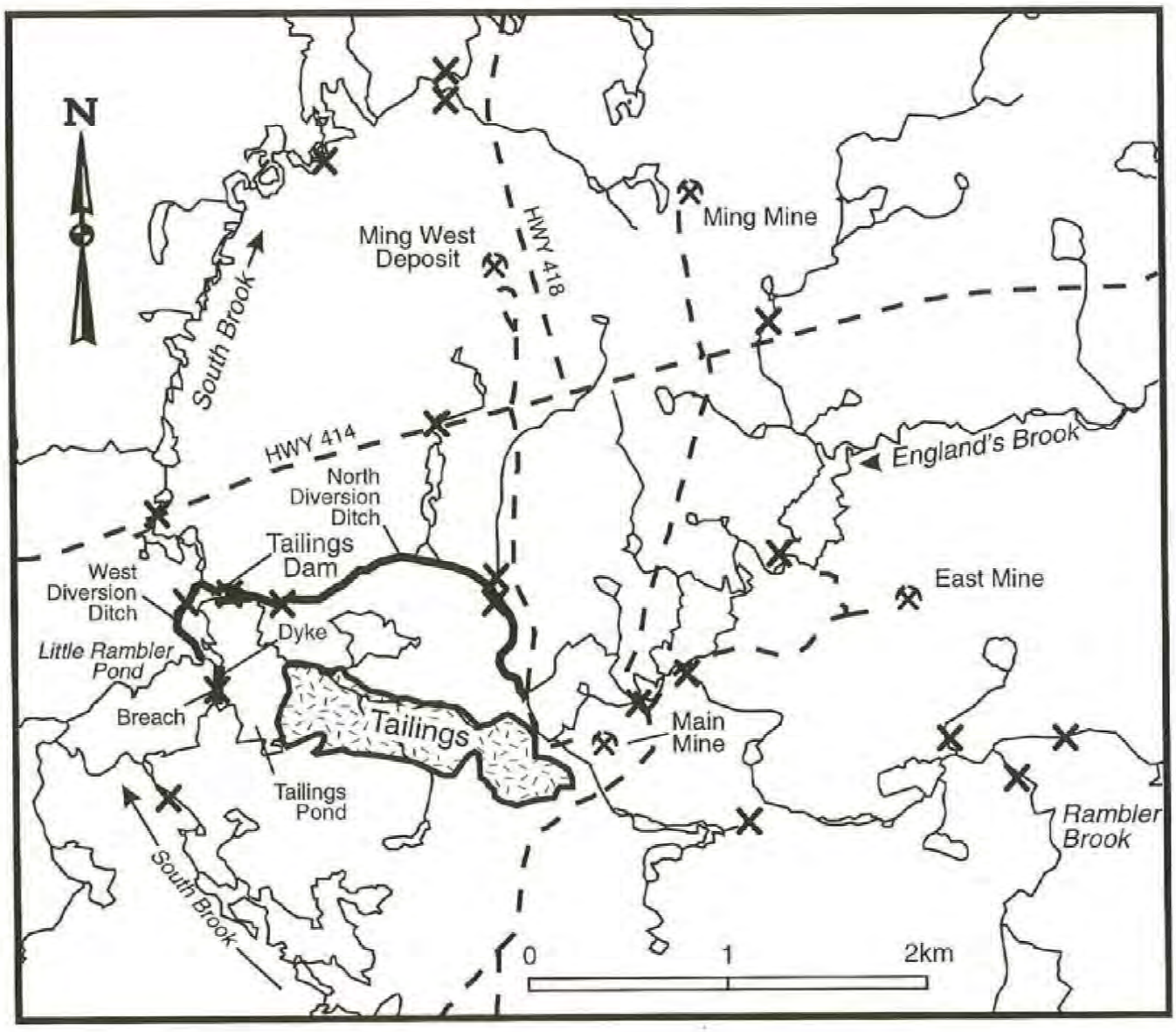


Figure 2. *Locations of mine workings, tailings, diversion ditches and dykes. X–sample location sites; ⚒ –mine workings (abandoned); –road.*

percent Cu) and Ming Mine (1 900 000 tonnes of 3.5 percent Cu, 2.40 g/t Au and 20.57 g/t Ag) (Figure 2). Additional estimated reserves include the Ming Footwall Deposit (underlying the Ming Mine) with 3 000 000 tonnes of 1.6 percent Cu and the Ming West Deposit with 110 000 tonnes of 5.6 percent Cu, 2.47 g/t Au, 18.4 g/t Ag and 0.37 percent Zn (Newfoundland Department of Mines and Energy, 1994).

The terrain has a gentle to moderate relief. Most streams flow toward the northwest and are tributaries of South Brook, which empties into the east side of Baie Verte. The area is forest covered except in areas logged recently. Surficial cover consists mainly of glacial till deposited by north-flowing ice sheets (Liverman and St. Croix, 1989).

The natural drainage system in the Rambler area was modified to accommodate the mine tailings and isolate them so as not to affect the stream-water quality. A tailings compound was made by constructing a dyke across Little Rambler Pond and excavating a diversion ditch to permit South Brook to bypass the tailings to the west (Figure 2). Additional dykes and a second diversion ditch were constructed along the north side of the tailings area to re-route the flow of Rambler Brook and England's Brook around the compound. A few years ago, however, the western diversion ditch was reportedly dammed by beavers causing the newly created western half of Little Rambler Pond to breach the dyke and re-route South Brook into the tailings pond. The breach rapidly eroded the dyke and today South Brook continues to flow into the tailings pond and then out over a dam on the north side of the tailings area.

Table 1. Analytical methods for stream waters

ANALYSIS	METHOD	PREPARATION
pH	Corning combination pH electrode	None
Conductivity	Corning conductivity sensor	None
Ca, Fe, K, Mg, Mn, Na, Si, SO_4	ICP-ES	Filtration (0.45 μm) and HNO_3 acidification in field laboratory
Al, Ba, Be, Co, Cr, Cu, Li, Mo, Ni, P, Sr, Ti, Y, Zn	ICP ultrasonic nebulizer	Filtration (0.45 μm) and HNO_3 acidification in field laboratory
Ag, Al, As, Ba, Be, Bi, Br, B, Ca, Cd, Ce, Cl, Co, Cr, Cs, Cu, C, Fe, Hg, I, La, Li, Mg, Mn, Mo, Ni, N, Pb, P, Rb, Sb, Si, Sr, S, Ti, Tl, U, Zn	ICP-MS	Filtration (0.45 μm) and HNO_3 acidification in field laboratory

Ore was brought to the surface at four locations and trucked to a mill that was located near the east end of the tailings area. Some waste rock was dumped at the surface, near the ore bodies located north of Highway 414; this may be creating an acid drainage problem separate from the tailings compound. The tailings themselves are mostly above water, and thus are exposed to oxidation. In addition, windborne tailings are dispersed about the area during dry, windy conditions. The results of this dispersion have been observed for a 2 to 3 km radius around the tailings as reflected by high concentrations of metals including Cu, Zn and Au in the bark and twigs of black spruce (Dunn, 1993).

SAMPLING AND ANALYTICAL METHODS

Eighty-six stream-water samples were collected in clean, 250 ml, nalgene bottles. Fifty-four of these are from 28 sites that were sampled in early June and again in late August (seasonal duplicates) in order to determine whether, and how, water chemistry varied seasonally. As well, pairs of samples were collected from 13 sites (site duplicates) to determine the combined effect of sampling and analytical errors for various elements. Samples were collected both from areas considered to be free of the effects of mining activity as well as from drainages downstream from mine workings and tailings.

Conductivity determinations were done in the evening following sample collection using a Corning meter with a conductivity sensor. Acidity (pH) was measured in the Department's geochemical laboratory using a Corning meter with a combination pH electrode. Water samples for geochemical analyses were filtered in the field through 0.45 μm filter paper and then acidified. The filter papers from all samples from South Brook collected downstream of the tailings dam became clogged with a thick layer of fine brown material and required fresh replacements to complete filtration. Samples were analyzed for a broad range of elements using three techniques. The Department's geochemical laboratory employed both inductively-coupled-plasma-emission-spectrometry (ICP-ES) and inductively-coupled-plasma-emission-spectrometry using an ultrasonic nebulizer (ICP-USN). The Department of Earth Sciences at Memorial University of Newfoundland analyzed samples for thirty-eight elements by inductively-coupled-plasma-mass-spectrometry (ICP-MS). The elements determined by each method are summarized in Table 1. Analytical methods were described in detail by Finch *et al.* (1992).

RESULTS

SEASONAL VARIATION

Data from seasonal duplicates obtained from streams considered to be affected by mining activity are treated separately from data obtained from seasonal duplicate sites located on background streams. Both sets of data indicate that concentration levels of most elements are higher in the late summer stream water. Figure 3 shows the mean concentrations of 10 elements for 13 background sites and 9 mine-affected sites sampled in June and again in August. For example, the mean concentration of aluminum in August from contaminated streams is more than twice the mean value for the same sites sampled in June. The figure also shows that metal levels in the mine-effected streams are much higher than in background streams. For instance, the mean copper value in background August streams is 3 ppb compared to the corresponding value of about 500 ppb in mine-effected streams. Figures 4 and 5 show the seasonal variation for copper and arsenic in background streams in which all samples, except one pair for copper, have higher values in the August samples. The correlations for the two elements are strong, with Cu having a correlation coefficient of 0.79 and As having a coefficient of 0.93.

STREAM GEOCHEMISTRY IN MINING AND SURROUNDING AREA

Samples were collected from a wide region around the Rambler Mines but results presented here focus on a 30 km^2

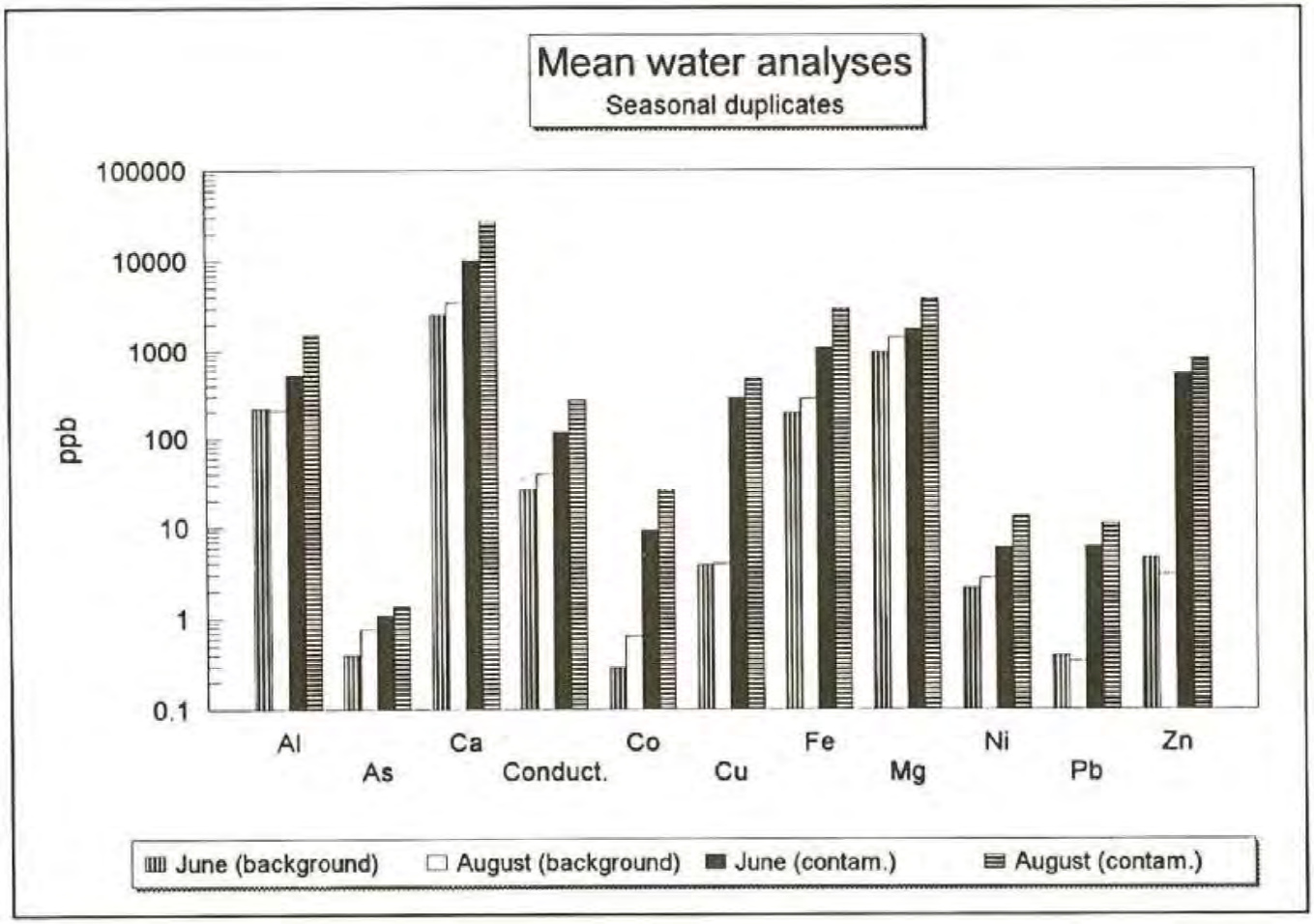


Figure 3. *Mean water analyses from sites sampled in June and August on background and mine-effected streams.*

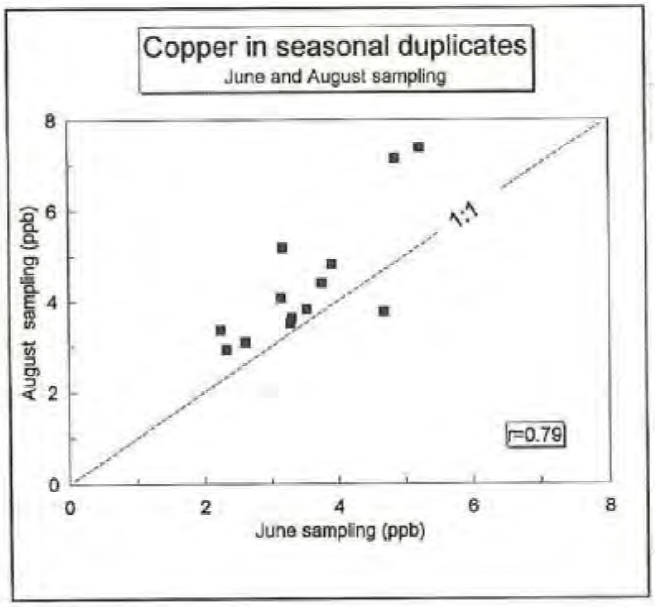


Figure 4. *Seasonal duplicates; copper in water from 13 sites on background streams sampled in both June and August.*

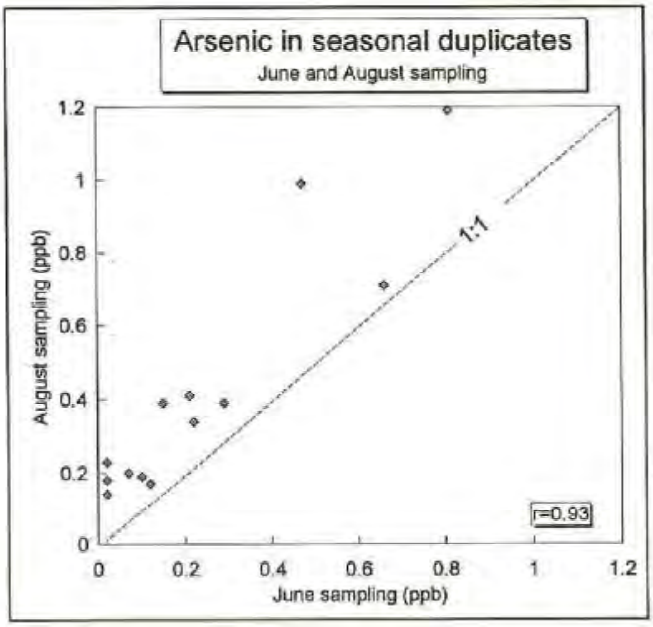


Figure 5. *Seasonal duplicates; arsenic in water from 13 sites on background streams sampled in both June and August.*

area centred on the old mining area. Not surprisingly, the base metals show high values in waters collected down-drainage from the damaged tailings reservoir. The highest values, however, are from streams draining the mines located north of Highway 414. The distribution of pH, Cu, Pb, and Zn in stream water from 20 sites sampled in August are shown in Figures 6 to 9. The histograms included in these figures are data from all sites sampled in August. Analyses of pH (acidity) and a histogram of their distribution are shown in Figure 6. The histogram shows a bimodal distribution with one mode at 4.6 and a second at 6.4. The first population corresponds mainly to the mine-effected streams and the second to the background streams. The most acidic samples (pH <4.5) are all from sites downstream of the tailings and the mine workings. The most extreme acidification is seen in samples from streams draining the area around the Ming Mine and the Ming West deposit. The lowest pH analysis (3.2) is from the south-flowing stream that joins the diversion ditch 750 m north of the tailings. A second very acidic stream (3.7) is the one that flows northwest from its source near the Ming Mine. The three samples in South Brook downstream of the tailings are also very acidic.

The two highest Cu analyses (1980 and 1330 ppb, Figure 7) are from the two most acidic streams described previously. All sites upstream of the tailings and mining locations have near background concentrations of Cu. The histogram, which is bimodal, also shows two extreme samples. The two main subpopulations consist of background samples <12 ppb and mine-effected streams >50 ppb; the two extreme samples are >1000 ppb. The highest 'background' sample is 10.3 ppb Cu (not shown) and is from a site on a small stream about 50 m upflow of a small (45 000 tonnes) mined-out, satellite orebody about 1 km south of the map boundary. A sample obtained downflow of the mineralization on the same stream has 181 ppb Cu. The high downstream value is doubtlessly due to the exposure of the mineralization to surface water by mining. The high upstream value of 10.3 ppb, however, suggests that mineralized till or bedrock is giving rise to a weak but significant anomaly.

The map of Pb distribution (Figure 8) is similar to that of Cu although differs in detail. The highest Pb analysis (34 ppb) is from the same sample with the highest Cu. The second highest Pb (19 ppb), however, is from a sample obtained at the dam draining the tailings pond and the third highest corresponds to the 1330 ppb Cu sample. The distribution of Zn (Figure 9) is similar to that of the other base metals. The two highest analyses (3090 and 1350 ppb) are from the two samples with the highest Cu analyses. The histogram is extremely bimodal with complete separation between background and mine-effected streams indicated by <15 ppb and >300 ppb respectively.

STREAM GEOCHEMISTRY ALONG SOUTH BROOK

South Brook is the major drainage system in the area. After discharging over the tailings dam, it flows through a series of small lakes and ponds for 10 km before emptying into Baie Verte. It was sampled along its length from its source to near its mouth and the results of the August sampling are presented in Figure 10 for Cu, Zn, Pb and pH. The guideline concentration levels for survival of aquatic life for Cu, Pb and Zn are shown as dashed lines. These are levels above which metal contents are increasingly toxic to many freshwater organisms for water hardness below 60 ppm (Environment Canada, 1991). Water hardness in South Brook varies from 5.3 to 6.3 ppm above the tailings pond and from 27.3 to 34.3 ppm downstream of the pond. Note that the base metals (left-hand Y-axis) are shown using a logarithmic scale; pH units are also log based. The distributions of base metals in the stream from its source (-8 km) to 9 km downstream of the tailings show very similar patterns differing only in magnitude and detail. Zn, for example, has a range of 2 to 4 ppb in the three samples upstream of the tailings and increases to about 400 ppb downstream of the tailings. Concentrations decrease only slightly over the 9 km distance that was sampled downstream of the tailings. Cu and Pb show similar patterns to Zn although the concentration of Pb in the river declines more rapidly downstream. The shape of the pH pattern is the reverse of the base metals. Values of about 6.0 upstream fall to 3.8 at the dam and then increase gradually downstream to 4.7 at the most distant sample.

SUMMARY AND CONCLUSIONS

The results of a study to measure seasonal variations in stream-water chemistry indicate that for many elements the late summer concentration levels are higher than those of the spring. This shift is noted in samples from both background and mine-effected streams. These higher concentration levels coincide with lower rainfall and water levels. The resultant slower transit time from precipitation to stream discharge gives ground water more opportunity to dissolve metals from till, bedrock and tailings. However, the results of the seasonal duplicate samples indicate that seasonal shifts are very consistent throughout the area. Thus, water samples collected at different times of the year could be levelled by reference to the results a few monitoring sites resampled during each collection period.

The histograms of pH and ore-related elements in water are strongly bimodal. The concentration levels in water downstream of mine workings and tailings are much higher (sometimes hundreds-fold as in Cu and Zn) than in background streams. The high concentrations presumably result from two main factors: first, the presence of waste rock and tailings expose a large surface area of material with high metal contents; and, second, oxidation of the abundant sulphide leads to acidification of the surface water and a marked increase in its ability to dissolve metals. This two-fold effect would also lead to higher metal contents in water contacting undisturbed, sulphide-rich bedrock or till derived from such rock. Streams that included a component of such water could be expected to have anomalous metal concentrations although not nearly as pronounced as the levels encountered downstream of mining operations.

Finally, the acidity and the concentration levels of some elements in the mine-effected streams are lethal to freshwater

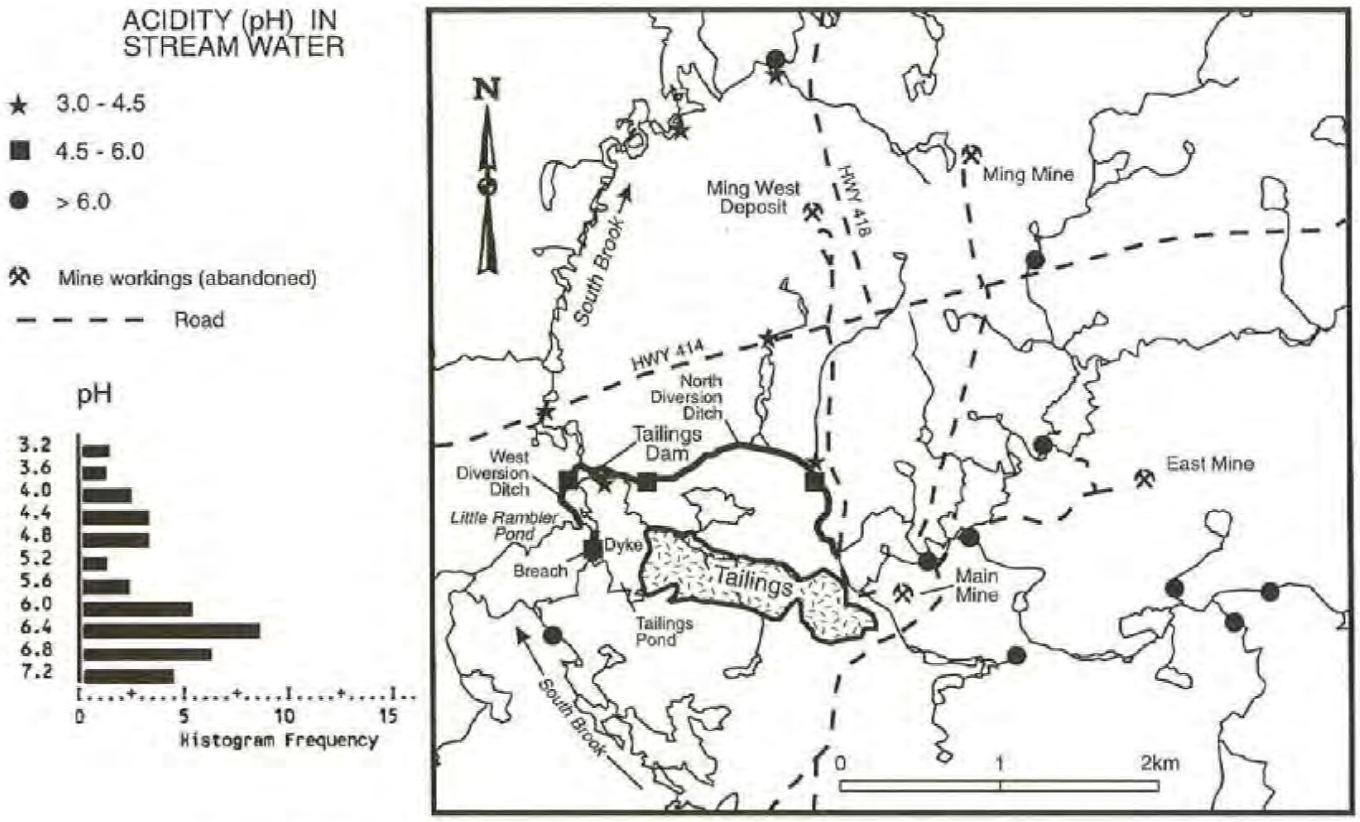


Figure 6. *Distribution of pH analyses of stream waters in the Rambler Mines area.*

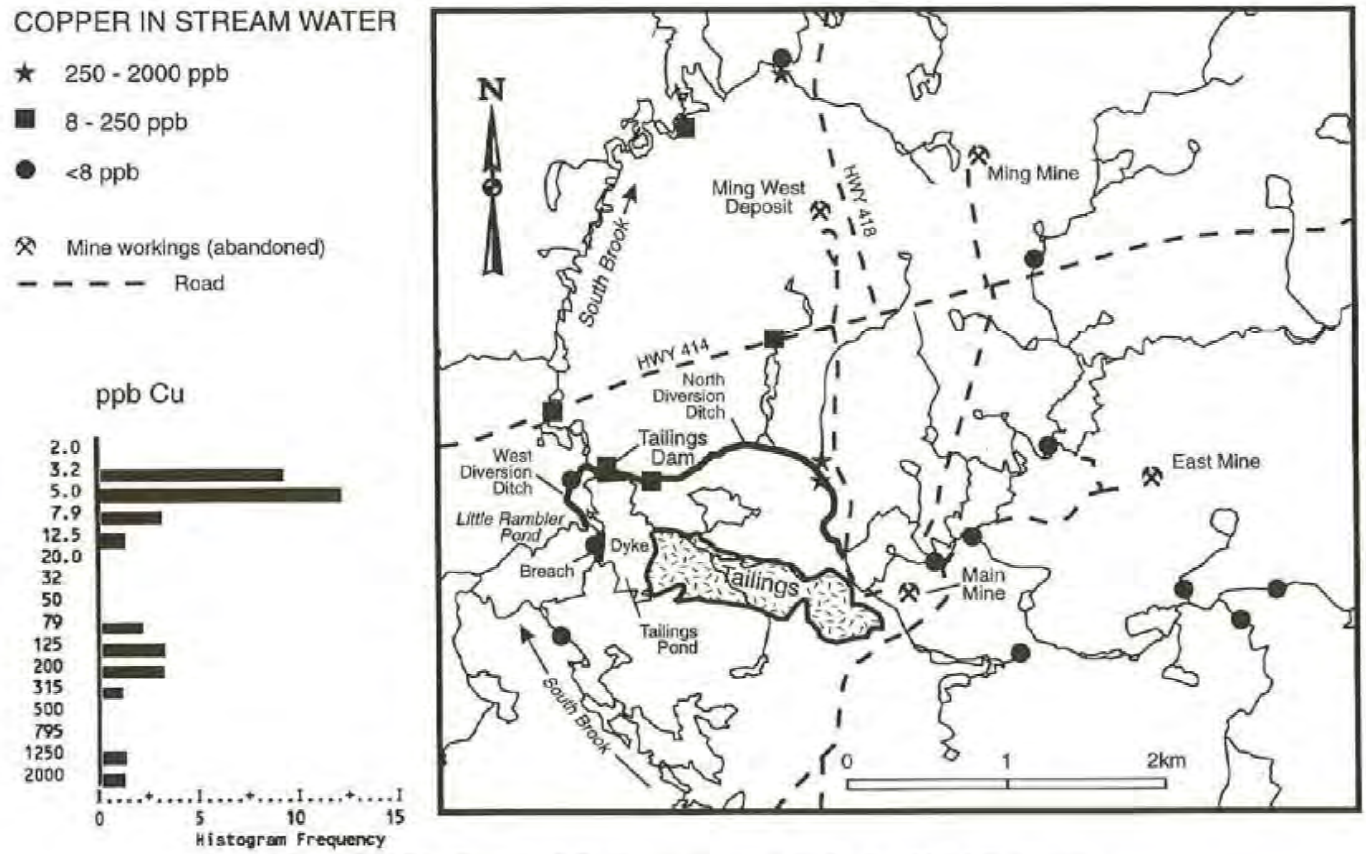


Figure 7. *Distribution of Cu in stream water in the Rambler Mines area.*

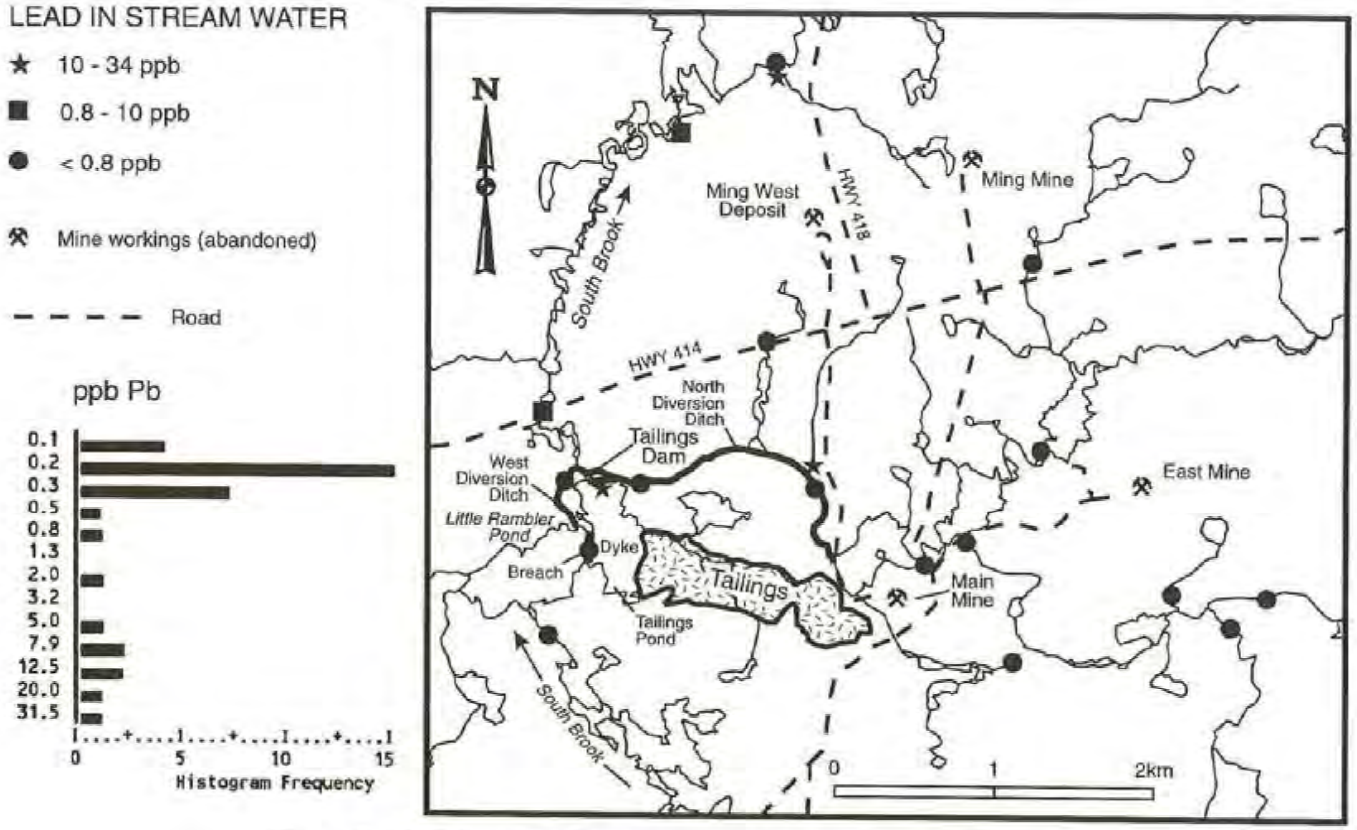


Figure 8. *Distribution of Pb in stream water in the Rambler Mines area.*

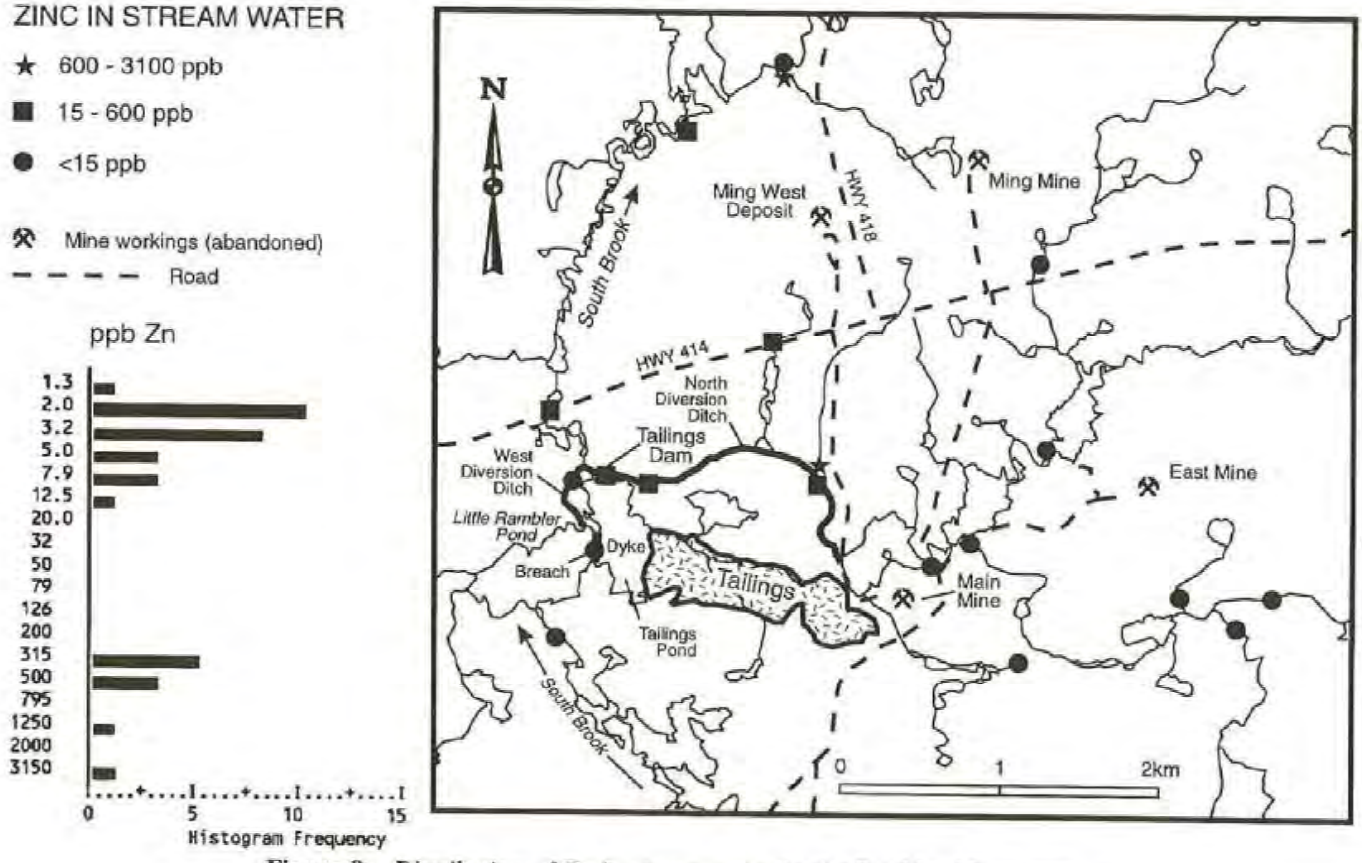


Figure 9. *Distribution of Zn in stream water in the Rambler Mines area.*

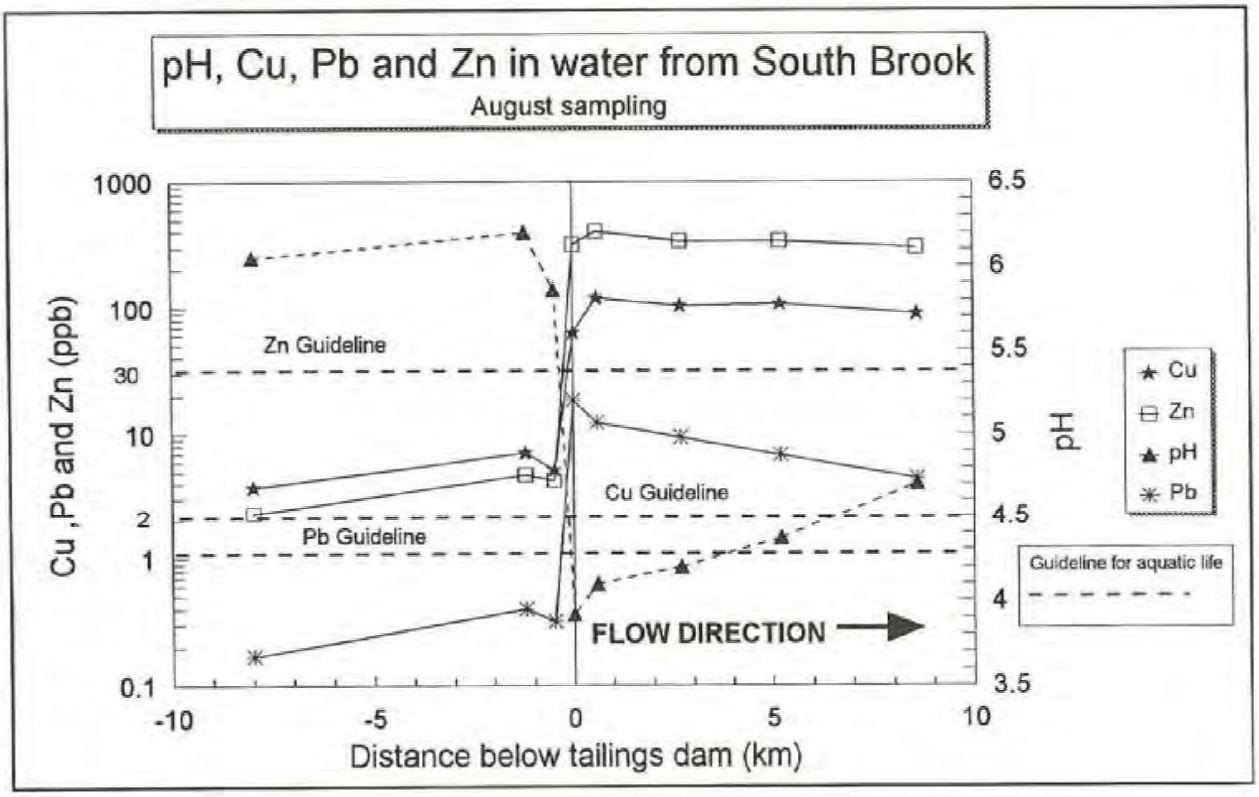


Figure 10. *Distribution of pH, Cu, Pb and Zn in water from South Brook.*

aquatic life. The most serious contaminant measured is Cu, which exceeds the guideline levels in some streams by 1000 times. Particularly effected are two small streams draining mines north of Highway 414, the northern diversion ditch and South Brook downstream of the tailings pond.

ACKNOWLEDGMENTS

I would like to thank Jody Hodder for her capable and cheerful assistance during the field work, Terry Sears for draughting assistance with several of the figures and Peter Davenport for constructive discussions during the interpretation of the data and for reviewing the manuscript.

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SEASONAL AND MINING INFLUENCES ON STREAM-WATER GEOCHEMISTRY IN THE RAMBLER MINES AREA: IMPLICATIONS FOR MINERAL EXPLORATION AND ENVIRONMENTAL MONITORING

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ABSTRACT

To assess the impact of the former operations at Consolidated Rambler Mines on the Baie Verte Peninsula on water quality in the surrounding drainage system, stream-water samples were collected in June and late August 1993 for chemical analysis. The mines exploited copper, zinc, gold and silver from volcanogenic massive sulphide deposits. Samples were collected in both background areas and from sites downstream of mine workings and tailings. Results indicate that concentrations of most elements are higher in the August samples. The increase is remarkably uniform, suggesting that results obtained from different sampling periods could be compared by reference to a few calibration samples collected from the same sites during both sampling periods. Ore elements have detectable levels in waters from most streams, including those regarded as background. The implication of this for mineral exploration is that water containing a component dissolved from mineralized till or bedrock could yield a geochemical anomaly. Analyses of ore-related elements (e.g., Cu, Pb, Zn, Co, As, S) are much higher from sites downstream of mining activity indicating that the safeguards designed to protect the area's watersheds have been inadequate. Of the elements analyzed, Cu appears to be the most detrimental to water quality, exceeding environmental guidelines for maintaining aquatic life by up to 1000-fold in some streams.

INTRODUCTION

A geochemical sampling program was undertaken in 1993 in and around the former Consolidated Rambler Mines property on the Baie Verte Peninsula (Figure 1). Samples of stream-water, stream-sediment and overbank samples were collected during the first week of June and again in the last week of August; the results of the water-samples are discussed here. The objectives of the water-sampling component are a) to determine if stream-water geochemistry can be used as an exploration method, b) if water chemistry varies seasonally, and c) what affect past mining activity is having on the stream-water quality at present. Preliminary results of a stream-water survey conducted in 1992 at a lower density over a larger area on the Baie Verte Peninsula were reported previously (Hall, 1993).

The study area lies within the Notre Dame Subzone of the Dunnage Zone (Williams, 1979; Williams *et al.*, 1988). It is an area characterized by island-arc volcanism and back-arc basins. The study area itself is underlain predominately by Ordovician mafic volcanic and volcaniclastic rocks with numerous felsic volcaniclastic rocks in the immediate mine area, all of them belonging to the Paquet Harbour group (Hibbard, 1982). Some of the streams sampled in the survey also rise in areas underlain by the Burlington granodiorite. The mining operations exploited volcanogenic massive-sulphide type ore. Approximately 4 300 000 tonnes of polymetallic ore were recovered during the period 1967 to 1982 from four separate orebodies (Coates, 1990): Main Mine

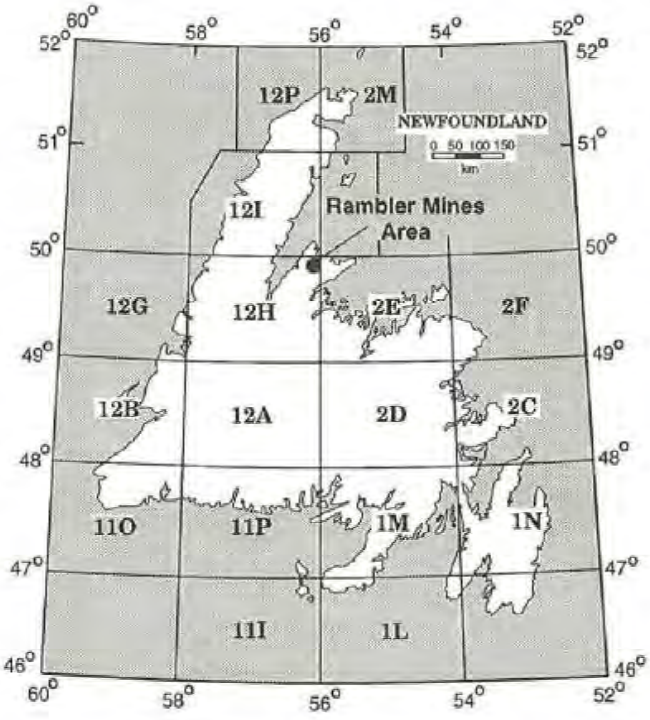

Figure 1. *Location of study area.*

(400 000 tonnes of 1.30 percent Cu, 2.16 percent Zn, 5.14 g/t Au and 29.14 g/t Ag); East Mine (1 900 000 tonnes of 1.04 Cu); Big Rambler Pond, not shown (45 000 tonnes of 1.20

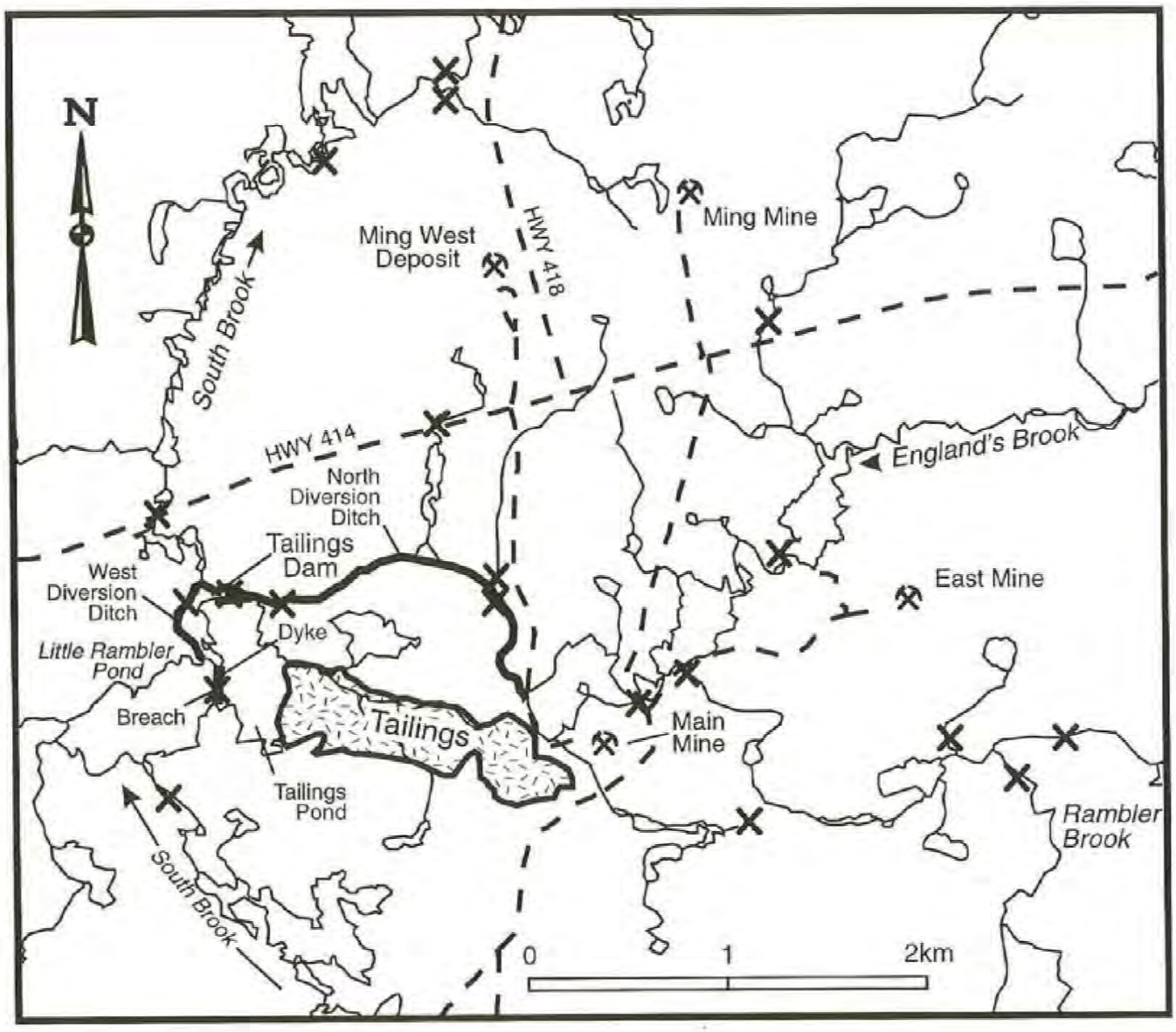

Figure 2. *Locations of mine workings, tailings, diversion ditches and dykes. X–sample location sites; ⚒ –mine workings (abandoned); –road.*

percent Cu) and Ming Mine (1 900 000 tonnes of 3.5 percent Cu, 2.40 g/t Au and 20.57 g/t Ag) (Figure 2). Additional estimated reserves include the Ming Footwall Deposit (underlying the Ming Mine) with 3 000 000 tonnes of 1.6 percent Cu and the Ming West Deposit with 110 000 tonnes of 5.6 percent Cu, 2.47 g/t Au, 18.4 g/t Ag and 0.37 percent Zn (Newfoundland Department of Mines and Energy, 1994).

The terrain has a gentle to moderate relief. Most streams flow toward the northwest and are tributaries of South Brook, which empties into the east side of Baie Verte. The area is forest covered except in areas logged recently. Surficial cover consists mainly of glacial till deposited by north-flowing ice sheets (Liverman and St. Croix, 1989).

The natural drainage system in the Rambler area was modified to accommodate the mine tailings and isolate them so as not to affect the stream-water quality. A tailings compound was made by constructing a dyke across Little Rambler Pond and excavating a diversion ditch to permit South Brook to bypass the tailings to the west (Figure 2). Additional dykes and a second diversion ditch were constructed along the north side of the tailings area to re-route the flow of Rambler Brook and England's Brook around the compound. A few years ago, however, the western diversion ditch was reportedly dammed by beavers causing the newly created western half of Little Rambler Pond to breach the dyke and re-route South Brook into the tailings pond. The breach rapidly eroded the dyke and today South Brook continues to flow into the tailings pond and then out over a dam on the north side of the tailings area.

Table 1. Analytical methods for stream waters

ANALYSIS	METHOD	PREPARATION
pH	Corning combination pH electrode	None
Conductivity	Corning conductivity sensor	None
Ca, Fe, K, Mg, Mn, Na, Si, SO_4	ICP-ES	Filtration (0.45 μm) and HNO_3 acidification in field laboratory
Al, Ba, Be, Co, Cr, Cu, Li, Mo, Ni, P, Sr, Ti, Y, Zn	ICP ultrasonic nebulizer	Filtration (0.45 μm) and HNO_3 acidification in field laboratory
Ag, Al, As, Ba, Be, Bi, Br, B, Ca, Cd, Ce, Cl, Co, Cr, Cs, Cu, C, Fe, Hg, I, La, Li, Mg, Mn, Mo, Ni, N, Pb, P, Rb, Sb, Si, Sr, S, Ti, Tl, U, Zn	ICP-MS	Filtration (0.45 μm) and HNO_3 acidification in field laboratory

Ore was brought to the surface at four locations and trucked to a mill that was located near the east end of the tailings area. Some waste rock was dumped at the surface, near the ore bodies located north of Highway 414; this may be creating an acid drainage problem separate from the tailings compound. The tailings themselves are mostly above water, and thus are exposed to oxidation. In addition, windborne tailings are dispersed about the area during dry, windy conditions. The results of this dispersion have been observed for a 2 to 3 km radius around the tailings as reflected by high concentrations of metals including Cu, Zn and Au in the bark and twigs of black spruce (Dunn, 1993).

SAMPLING AND ANALYTICAL METHODS

Eighty-six stream-water samples were collected in clean, 250 ml, nalgene bottles. Fifty-four of these are from 28 sites that were sampled in early June and again in late August (seasonal duplicates) in order to determine whether, and how, water chemistry varied seasonally. As well, pairs of samples were collected from 13 sites (site duplicates) to determine the combined effect of sampling and analytical errors for various elements. Samples were collected both from areas considered to be free of the effects of mining activity as well as from drainages downstream from mine workings and tailings.

Conductivity determinations were done in the evening following sample collection using a Corning meter with a conductivity sensor. Acidity (pH) was measured in the Department's geochemical laboratory using a Corning meter with a combination pH electrode. Water samples for geochemical analyses were filtered in the field through 0.45 μm filter paper and then acidified. The filter papers from all samples from South Brook collected downstream of the tailings dam became clogged with a thick layer of fine brown material and required fresh replacements to complete filtration. Samples were analyzed for a broad range of elements using three techniques. The Department's geochemical laboratory employed both inductively-coupled-plasma-emission-spectrometry (ICP-ES) and inductively-coupled-plasma-emission-spectrometry using an ultrasonic nebulizer (ICP-USN). The Department of Earth Sciences at Memorial University of Newfoundland analyzed samples for thirty-eight elements by inductively-coupled-plasma-mass-spectrometry (ICP-MS). The elements determined by each method are summarized in Table 1. Analytical methods were described in detail by Finch *et al.* (1992).

RESULTS

SEASONAL VARIATION

Data from seasonal duplicates obtained from streams considered to be affected by mining activity are treated separately from data obtained from seasonal duplicate sites located on background streams. Both sets of data indicate that concentration levels of most elements are higher in the late summer stream water. Figure 3 shows the mean concentrations of 10 elements for 13 background sites and 9 mine-affected sites sampled in June and again in August. For example, the mean concentration of aluminum in August from contaminated streams is more than twice the mean value for the same sites sampled in June. The figure also shows that metal levels in the mine-effected streams are much higher than in background streams. For instance, the mean copper value in background August streams is 3 ppb compared to the corresponding value of about 500 ppb in mine-effected streams. Figures 4 and 5 show the seasonal variation for copper and arsenic in background streams in which all samples, except one pair for copper, have higher values in the August samples. The correlations for the two elements are strong, with Cu having a correlation coefficient of 0.79 and As having a coefficient of 0.93.

STREAM GEOCHEMISTRY IN MINING AND SURROUNDING AREA

Samples were collected from a wide region around the Rambler Mines but results presented here focus on a 30 km^2

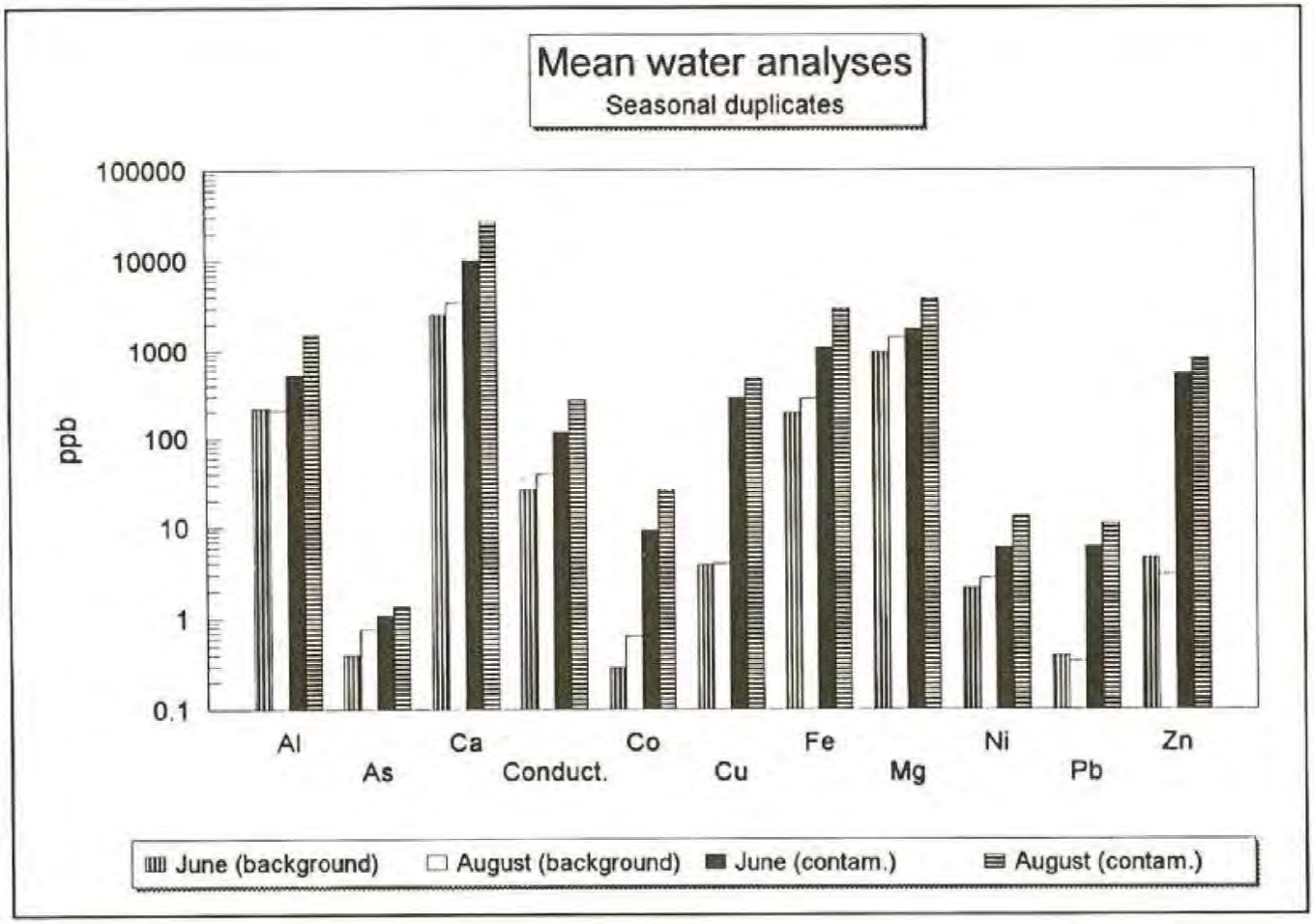

Figure 3. *Mean water analyses from sites sampled in June and August on background and mine-effected streams.*

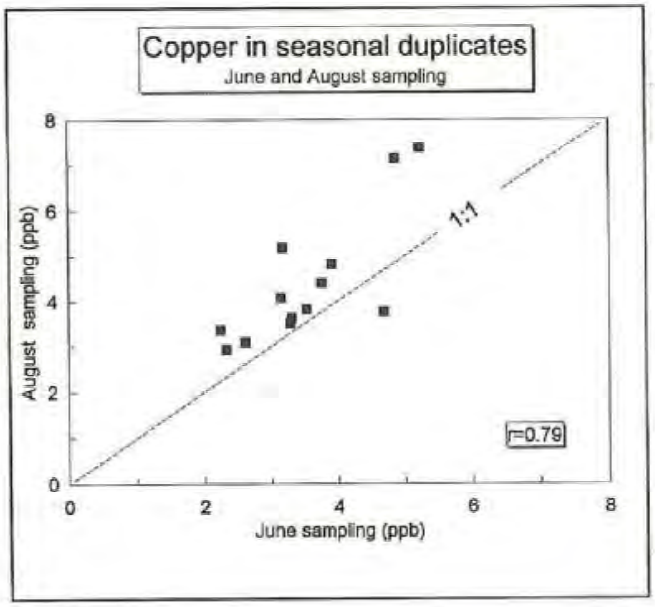

Figure 4. *Seasonal duplicates; copper in water from 13 sites on background streams sampled in both June and August.*

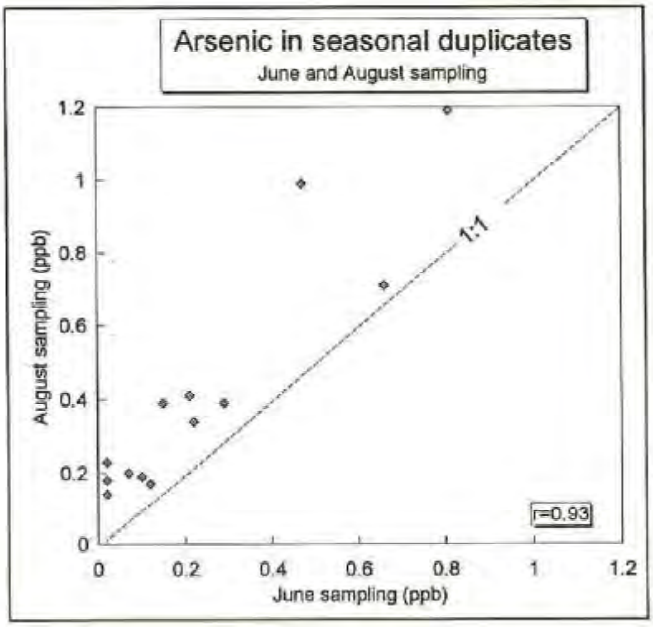

Figure 5. *Seasonal duplicates; arsenic in water from 13 sites on background streams sampled in both June and August.*

area centred on the old mining area. Not surprisingly, the base metals show high values in waters collected down-drainage from the damaged tailings reservoir. The highest values, however, are from streams draining the mines located north of Highway 414. The distribution of pH, Cu, Pb, and Zn in stream water from 20 sites sampled in August are shown in Figures 6 to 9. The histograms included in these figures are data from all sites sampled in August. Analyses of pH (acidity) and a histogram of their distribution are shown in Figure 6. The histogram shows a bimodal distribution with one mode at 4.6 and a second at 6.4. The first population corresponds mainly to the mine-effected streams and the second to the background streams. The most acidic samples (pH <4.5) are all from sites downstream of the tailings and the mine workings. The most extreme acidification is seen in samples from streams draining the area around the Ming Mine and the Ming West deposit. The lowest pH analysis (3.2) is from the south-flowing stream that joins the diversion ditch 750 m north of the tailings. A second very acidic stream (3.7) is the one that flows northwest from its source near the Ming Mine. The three samples in South Brook downstream of the tailings are also very acidic.

The two highest Cu analyses (1980 and 1330 ppb, Figure 7) are from the two most acidic streams described previously. All sites upstream of the tailings and mining locations have near background concentrations of Cu. The histogram, which is bimodal, also shows two extreme samples. The two main subpopulations consist of background samples <12 ppb and mine-effected streams >50 ppb; the two extreme samples are >1000 ppb. The highest 'background' sample is 10.3 ppb Cu (not shown) and is from a site on a small stream about 50 m upflow of a small (45 000 tonnes) mined-out, satellite orebody about 1 km south of the map boundary. A sample obtained downflow of the mineralization on the same stream has 181 ppb Cu. The high downstream value is doubtlessly due to the exposure of the mineralization to surface water by mining. The high upstream value of 10.3 ppb, however, suggests that mineralized till or bedrock is giving rise to a weak but significant anomaly.

The map of Pb distribution (Figure 8) is similar to that of Cu although differs in detail. The highest Pb analysis (34 ppb) is from the same sample with the highest Cu. The second highest Pb (19 ppb), however, is from a sample obtained at the dam draining the tailings pond and the third highest corresponds to the 1330 ppb Cu sample. The distribution of Zn (Figure 9) is similar to that of the other base metals. The two highest analyses (3090 and 1350 ppb) are from the two samples with the highest Cu analyses. The histogram is extremely bimodal with complete separation between background and mine-effected streams indicated by <15 ppb and >300 ppb respectively.

STREAM GEOCHEMISTRY ALONG SOUTH BROOK

South Brook is the major drainage system in the area. After discharging over the tailings dam, it flows through a series of small lakes and ponds for 10 km before emptying into Baie Verte. It was sampled along its length from its source to near its mouth and the results of the August sampling are presented in Figure 10 for Cu, Zn, Pb and pH. The guideline concentration levels for survival of aquatic life for Cu, Pb and Zn are shown as dashed lines. These are levels above which metal contents are increasingly toxic to many freshwater organisms for water hardness below 60 ppm (Environment Canada, 1991). Water hardness in South Brook varies from 5.3 to 6.3 ppm above the tailings pond and from 27.3 to 34.3 ppm downstream of the pond. Note that the base metals (left-hand Y-axis) are shown using a logarithmic scale; pH units are also log based. The distributions of base metals in the stream from its source (-8 km) to 9 km downstream of the tailings show very similar patterns differing only in magnitude and detail. Zn, for example, has a range of 2 to 4 ppb in the three samples upstream of the tailings and increases to about 400 ppb downstream of the tailings. Concentrations decrease only slightly over the 9 km distance that was sampled downstream of the tailings. Cu and Pb show similar patterns to Zn although the concentration of Pb in the river declines more rapidly downstream. The shape of the pH pattern is the reverse of the base metals. Values of about 6.0 upstream fall to 3.8 at the dam and then increase gradually downstream to 4.7 at the most distant sample.

SUMMARY AND CONCLUSIONS

The results of a study to measure seasonal variations in stream-water chemistry indicate that for many elements the late summer concentration levels are higher than those of the spring. This shift is noted in samples from both background and mine-effected streams. These higher concentration levels coincide with lower rainfall and water levels. The resultant slower transit time from precipitation to stream discharge gives ground water more opportunity to dissolve metals from till, bedrock and tailings. However, the results of the seasonal duplicate samples indicate that seasonal shifts are very consistent throughout the area. Thus, water samples collected at different times of the year could be levelled by reference to the results a few monitoring sites resampled during each collection period.

The histograms of pH and ore-related elements in water are strongly bimodal. The concentration levels in water downstream of mine workings and tailings are much higher (sometimes hundreds-fold as in Cu and Zn) than in background streams. The high concentrations presumably result from two main factors: first, the presence of waste rock and tailings expose a large surface area of material with high metal contents; and, second, oxidation of the abundant sulphide leads to acidification of the surface water and a marked increase in its ability to dissolve metals. This two-fold effect would also lead to higher metal contents in water contacting undisturbed, sulphide-rich bedrock or till derived from such rock. Streams that included a component of such water could be expected to have anomalous metal concentrations although not nearly as pronounced as the levels encountered downstream of mining operations.

Finally, the acidity and the concentration levels of some elements in the mine-effected streams are lethal to freshwater

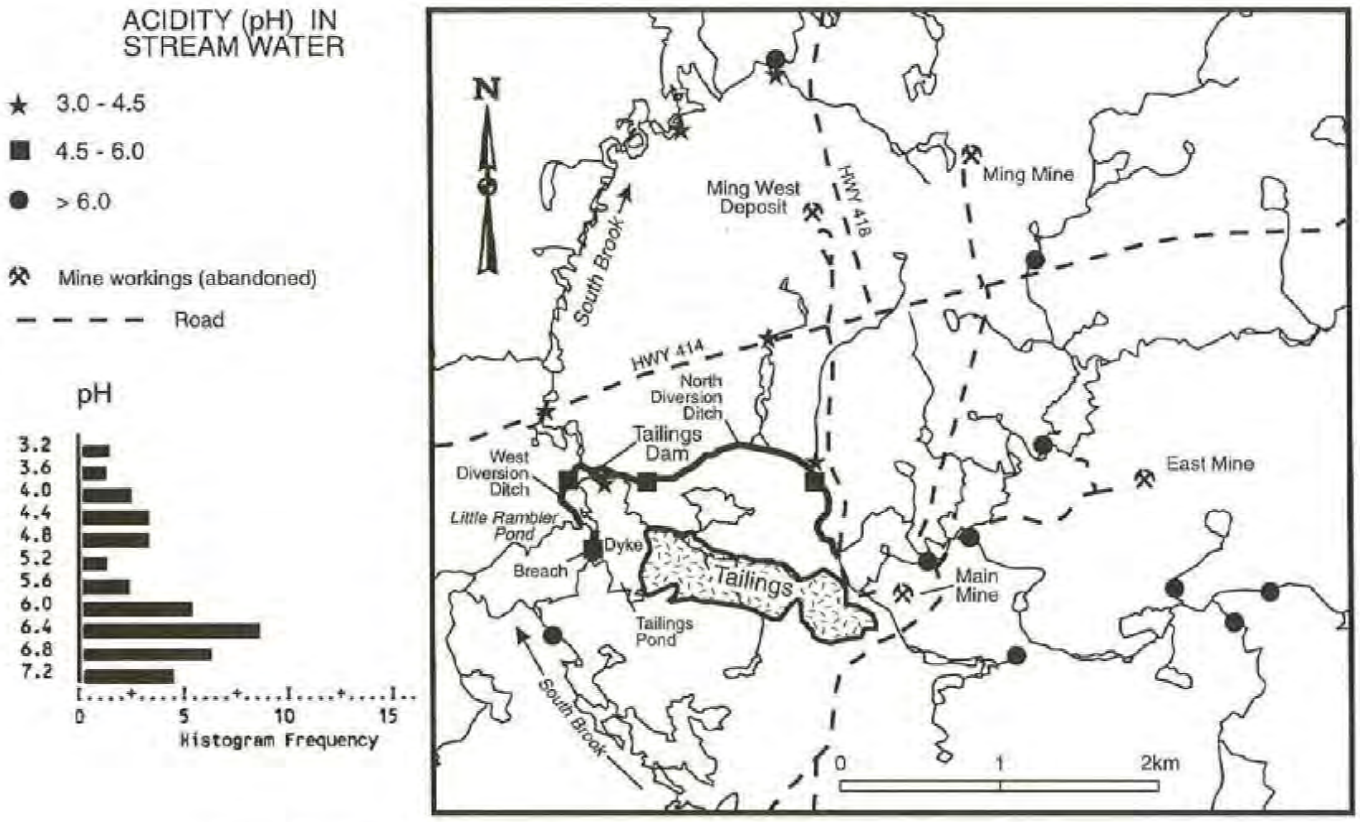

Figure 6. *Distribution of pH analyses of stream waters in the Rambler Mines area.*

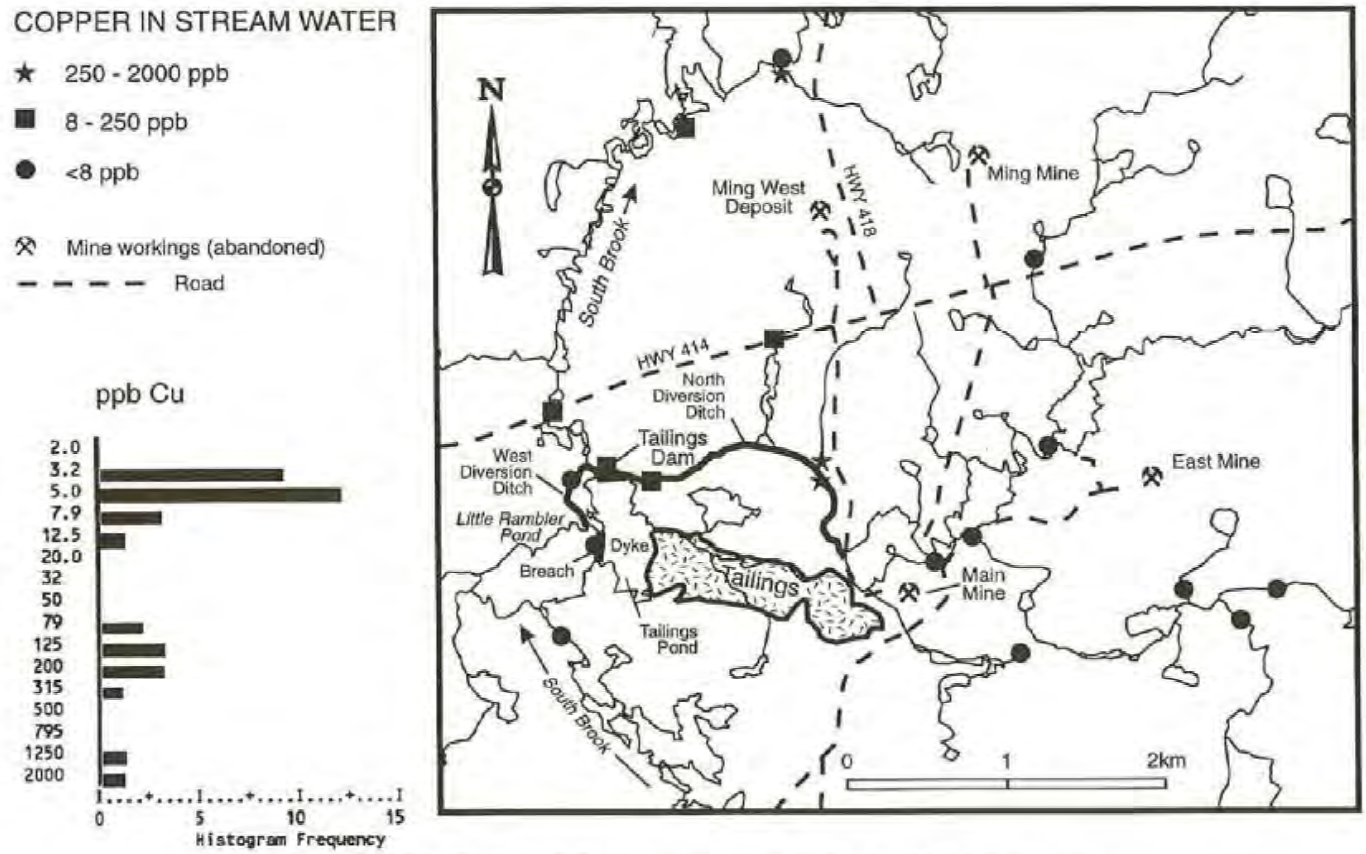

Figure 7. *Distribution of Cu in stream water in the Rambler Mines area.*

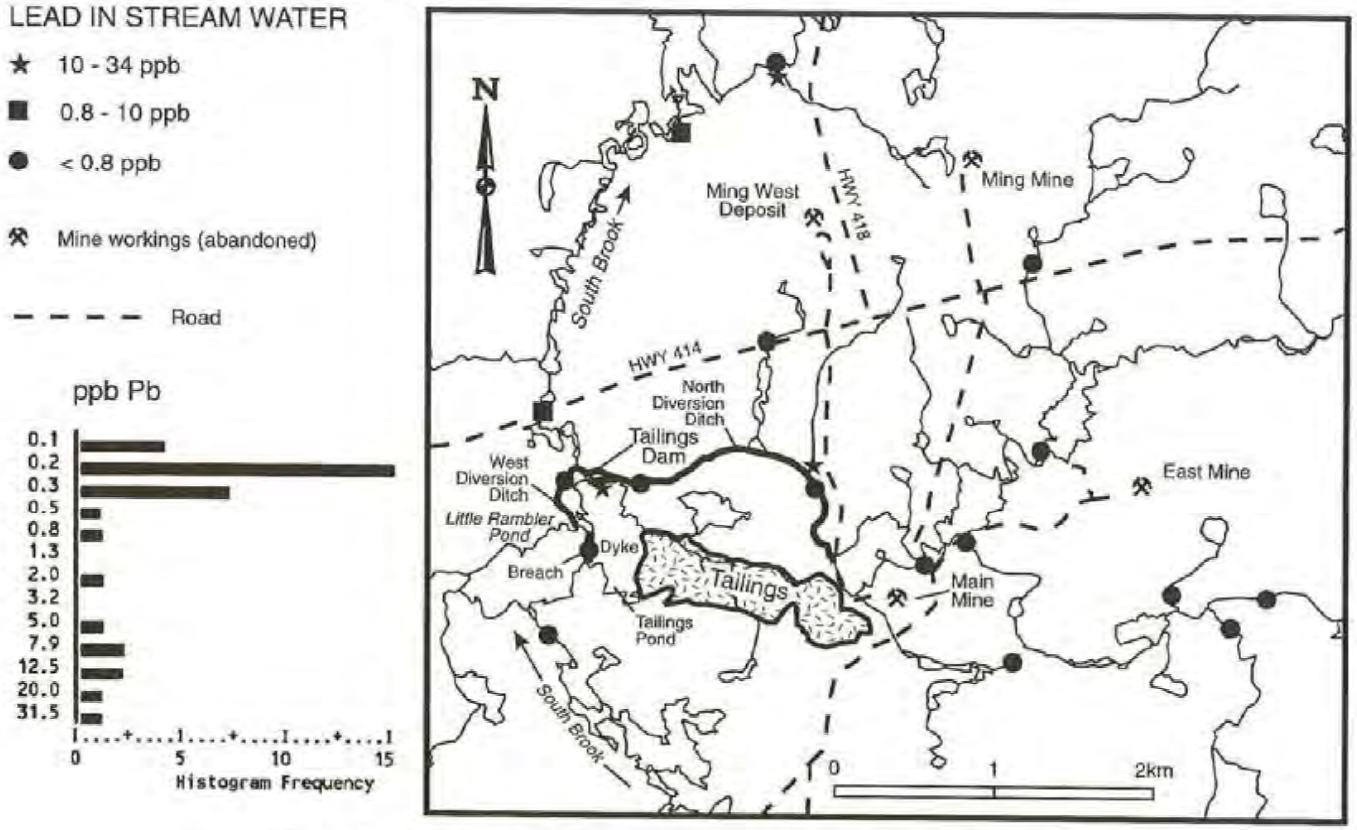

Figure 8. *Distribution of Pb in stream water in the Rambler Mines area.*

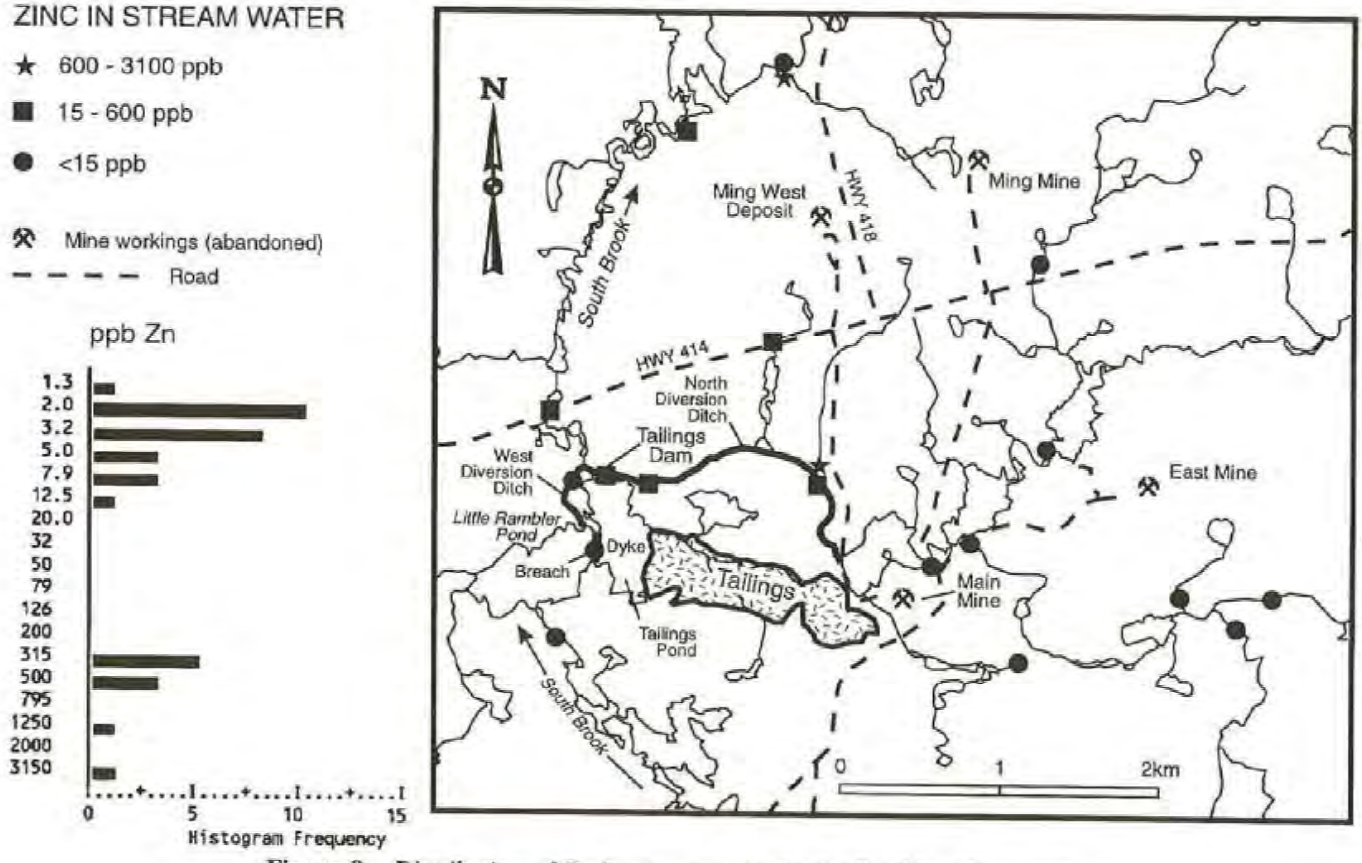

Figure 9. *Distribution of Zn in stream water in the Rambler Mines area.*

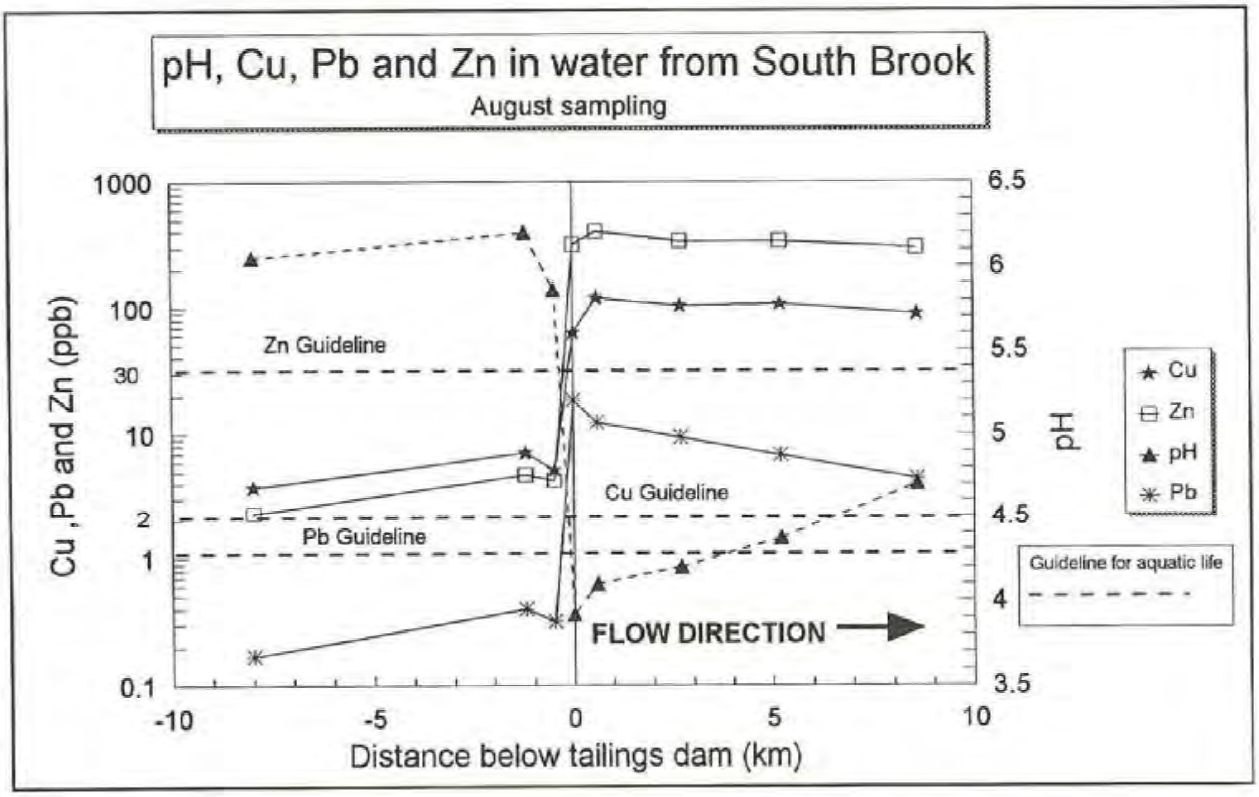

Figure 10. *Distribution of pH, Cu, Pb and Zn in water from South Brook.*

aquatic life. The most serious contaminant measured is Cu, which exceeds the guideline levels in some streams by 1000 times. Particularly effected are two small streams draining mines north of Highway 414, the northern diversion ditch and South Brook downstream of the tailings pond.

ACKNOWLEDGMENTS

I would like to thank Jody Hodder for her capable and cheerful assistance during the field work, Terry Sears for draughting assistance with several of the figures and Peter Davenport for constructive discussions during the interpretation of the data and for reviewing the manuscript.

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STREAM-WATER GEOCHEMISTRY AS A GUIDE TO SOURCES OF ACID-MINE DRAINAGE IN THE FORMER RAMBLER MINES AREA

J.W. McConnell
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ABSTRACT

This paper describes the results of stream-water sampling in the South Brook watershed around the former Rambler Mines property on the Baie Verte Peninsula. The Rambler Mines produced primarily, Cu and lesser amounts of Au, Ag and Zn from five volcanogenic massive sulphide deposits. The ore was milled onsite, and a tailings compound and water-course diversions were built in an effort to prevent the generation of acid-mine drainage. Water sampling in 1993, 2000 and 2001 indicate that acid-mine drainage is prevalent and affects several streams, including the largest river in the area (South Brook) from the mining area downstream to its mouth at Baie Verte.

Comparison of data from the same sites over an eight-year period suggests that acidification and metal contamination of the affected streams is now the same or more severe than earlier. The major contaminants, with respect to impacts on aquatic life, are the high levels of Cu and acidification of affected streams. Stream-water geochemistry has identified three major sources of acid drainage. The largest source appears to be near the head of the North Diversion Ditch. The actual source or sources is unclear but may include leakage from the tailings compound and sulphidic waste-rock exposed in the catchment basin. A second source occurs in the vicinity of the Ming Mine as shown by high base-metal contents and acidification of the stream draining to the northwest from the former mine site. A third source is the Ming West Mine, which gives rise to a small stream having extremely high Cu contents flowing north into South Brook. More detailed sampling will be required to accurately delineate the sources of the metals.

INTRODUCTION

The former Consolidated Rambler Mines operation on the Baie Verte Peninsula (Figure 1) produced 4 300 000 tons of Cu, Au, Ag and Zn ore from five separate volcanogenic, massive sulphide orebodies during the period 1964 to 1982. An additional 150 000 tons were mined from the Ming West orebody by Ming Minerals Inc. from 1995 to 1996. Subsequent to the cessation of mining, acid-mine drainage from the property into the surrounding drainage system was recognized. Stream-water geochemistry is being used to identify and document the nature and sources of the acid-mine drainage that is being generated by the interaction of air and water, both with the tailings and with various sources outside the tailings compound (thought to be principally sulphide-bearing waste rock). This report summarizes the results of the current stream-water assessment.

PREVIOUS WORK

During an earlier project conducted in 1992 on the Baie Verte Peninsula to evaluate stream-water geochemistry as a mineral exploration tool, acid-mine drainage was recognized in the Rambler Mines area (Hall, 1993). As part of an

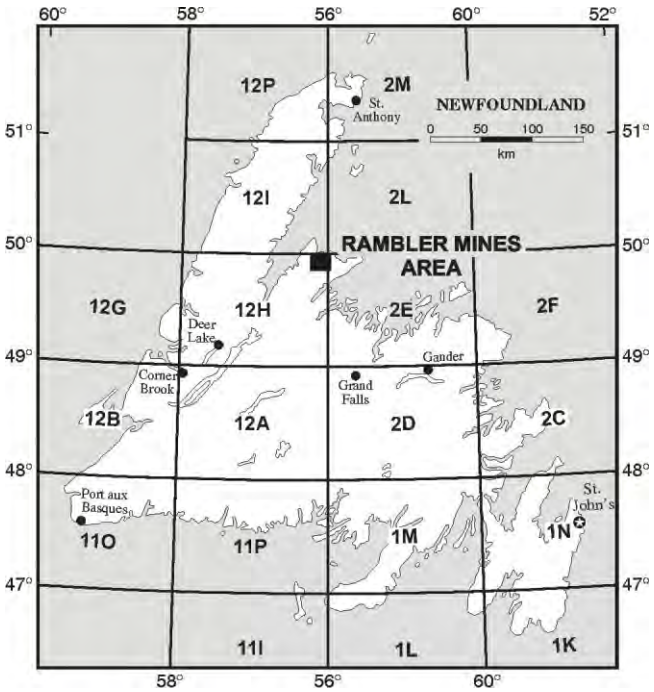

Figure 1. *Index map of the study area.*

exploration-focused project, several stream sites were sampled in the Rambler area during 1993 (McConnell, 1995). Results of that work indicated that waters in South Brook downstream of the tailings compound, as well as some sites on tributary streams, were very acidic and contained toxic levels of heavy metals, particularly Cu (McConnell, *op. cit.*). In 2000, several of the 1993 sites, as well as additional sites were sampled. Similar water chemistry to that analyzed in 1993 was found; some results of that study were published by Lee (2001). Most recently, Environment Canada conducted a mortality study of rainbow trout using water collected from the effluent stream from the tailings area pond. The test resulted in the complete mortality of the fingerlings. The tested water had a pH of 3.2 and analyzed 712 ppb Cu (Ronald Hunter, personal communication, 2001)

DESCRIPTION OF MINE WORKINGS

During the life of the mining operation, four major orebodies, and a small deposit east of Big Rambler Pond were developed and exploited. Ore was processed at a mill located near the Rambler Main Mine and tailings were discarded subaerially into a partially isolated compound created by diverting and damming existing streams and ponds in the area. Figure 2 shows details of the mining area, stream diversion structures and the water-sample sites within the detailed area. The mill was connected to the mining areas by gravel haulage roads, which in some cases were built with sulphide-bearing waste rock from the mining operations. The major drainage network in the area consists of South Brook and its tributaries, which form a drainage basin of approximately 120 km^2 and empty into the east side of Baie Verte, about 2.5 km northeast of the town of Baie Verte. To preserve the water quality of this watershed, an effort was made to isolate the tailings compound by excavating diversion ditches around the west and north sides of the compound and constructing a dyke across Little Rambler Pond to prevent the water of South Brook from gaining contact with tailings (Plate 1). Rambler Brook and England's Brook were also re-routed to avoid flowing into the tailings area. As with the haulage roads, sulphide-bearing waste rock was used in several locations to line the banks of the ditches. In the early 1990s, the western diversion ditch was reportedly dammed by beavers causing the newly created western half of Little Rambler Pond to breach and erode the dyke and reroute South Brook into the tailings compound. Removal of the beaver dam and work by the Mineral Lands Division of the provincial Department of Mines and Energy on the dyke has largely alleviated this problem with the possible exception of flood periods such as spring run-off.

Plate 1. *Looking southwest from tailings pond across breach in dyke into Little Rambler Pond. Note the abundance of weathering, sulphide-rich, waste rock used in dyke construction.*

SAMPLE COLLECTION, PREPARATION AND ANALYSES

Sample collection and analytical procedures for results discussed here were similar to that described in previous years. In 2001, 45 samples were collected from 42 sites including 12 sites that were also sampled in 1993 and 2000. Two 250 ml, clean, nalgene bottles were filled at each site. One was used for conductivity and pH determinations. The content of the other was filtered through 0.45 µm filter paper and then acidified prior to analysis.

Conductivity measurement were made using a Corning meter with a conductivity sensor. Acidity (pH) determinations were made using a Corning meter having a combination electrode. Samples were analyzed for a suite of elements using two methods. The department's geochemical laboratory employed both inductively coupled plasma–emission spectrometry (ICP-ES) and inductively coupled plasma–emission spectrometry using an ultrasonic nebulizer (ICP-USN). The elements determined by each method are summarized in Table 1.

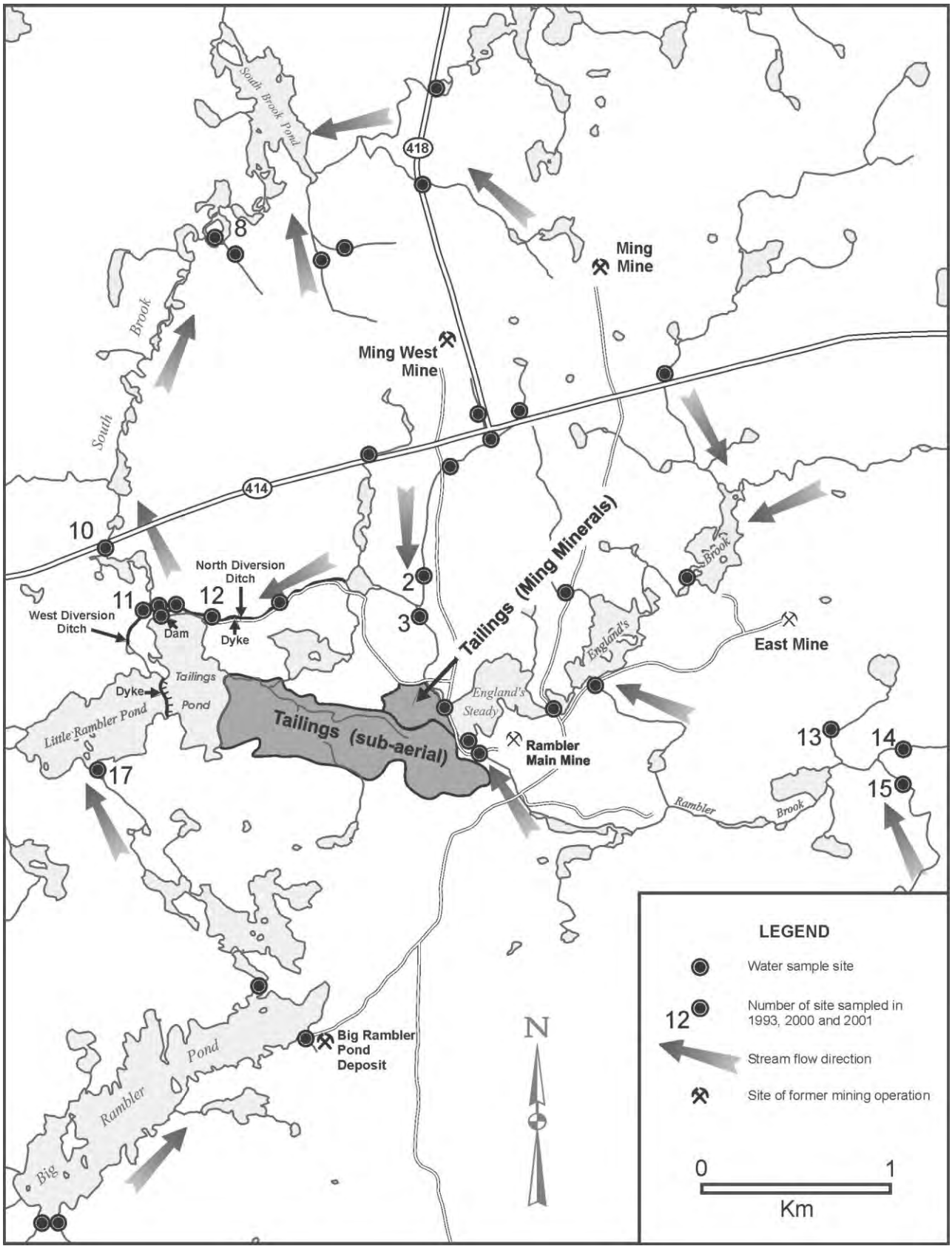

Figure 2. *Detailed map of mining operations, tailings area and water sample sites.*

Table 1. Analytical methods for stream-water samples

ANALYSIS	METHOD	PREPARATION
pH	Corning combination pH electrode	None
Conductivity	Corning conductivity sensor	None
Ca, Fe, K, Mg, Mn, Na, Si, So_4	ICP-emission spectroscopy[1]	Filtration (0.45 µm) and HNO_3 acidification
Al, Ba, Be, Co, Cr, Cu, Li, Mo, Ni, P, Pb[2], Sr, Ti, Y, Zn	ICP ultrasonic nebulizer[1]	Filtration (0.45 µm) and HNO_3 acidification

[1] Finch, C.J., 1998.
[2] 2001 analyses only

DESCRIPTION AND DISCUSSION OF RESULTS

STATISTICAL SUMMARY

Histograms provide a visual depiction of the distribution of data for a given population. Histograms of data from the 42 sites sampled in 2001 are presented for pH, Cu, SO_4 and Zn (Figure 3). Note that the X-axes have an exponential scale. All four plots produce bimodal populations where SO_4 and pH have particularly sharp separations. The most populous intervals for Cu and Zn analyses are below their respective detection limits giving misleading spikes in the lowest intervals. The histogram of pH suggests a population break at pH=5; for Cu, a break is suggested at about 5 ppb; for SO_4, at about 3.2 ppm and for Zn, at about 2 ppb.

Since Cu is the most biotoxic element in the streams, its distribution is used as a means of dividing the sites into two groups for comparison purposes. Those having Cu >5 ppb are regarded as being from streams affected by acid-mine drainage and those <5 ppb are from stream not affected by acid-mine drainage (background streams). Table 2 shows summary statistics for data from the 2 populations. Variables are listed in order of decreasing value of the "enrichment ratio", determined by dividing the median value of the the mine-affected streams by the median value of the background streams. These ratios should be regarded as order-of-magnitude estimates, particularly for Zn, Cu, Co and Ni, which have several analyses less than the detection limit. Nevertheless, this table provides a guide to the relative enrichment of several elements in the mine-affected streams relative to the background streams in the area. Acidity (pH) is treated differently in Table 2. The value of pH is the negative logarithm of the hydrogen ion concentration, hence the corresponding enrichment ratio is calculated by dividing the antilog of the median background by the antilog of the median mine-affected value.

DATA DISTRIBUTION MAPS

Distribution of Cu, pH, Zn and SO_4 in stream water are discussed here. Loadings in Cu and pH are likely causing the greatest damage to the biotic environment. Copper contents in water above 2 to 8 ppb, depending on water hardness, are lethal to most aquatic life including the many microscopic organisms at the base of the food chain on which fish and other aquatic and avian life depend (Ministry of Environment, Lands and Parks, 2001). Low pH values promote the dissolution of heavy metals, and pH values below 4.5 produce lethal effects on aquatic life (*ibid*). Zinc in high concentrations is also toxic to aquatic life, and like Cu, its toxicity is a function of water hardness. Water hardness can be regarded primarily as a measure of the dissolved calcium and magnesium ions. Using the equation $CaCO_{3equivalent}$= (2.497*Ca + 4.116*Mg), hardness values were calculated for the water samples collected from 42 sites in 2001. The resulting values ranged from 4.52 to 500.4 mg/L having a median value of 27.6 mg/L. Thirty-eight of the 42 samples had values <65 mg/L. If a value of 65 mg/L is assumed for all samples, the highest non-lethal level for Cu is 8.1 ppb. This is derived from the equation Cu_{max}=(0.094 (hardness) + 2) = ((0.094*65) + 2).

The distribution of Cu in water is shown in Figure 4. The range of Cu values associated with each symbol is shown on the cumulative frequency plot. The bimodal nature of the distribution is clearly shown by the sharp break in the curve. Most samples fall into one of two groups – those having Cu values >100 ppb and those <5 ppb. The

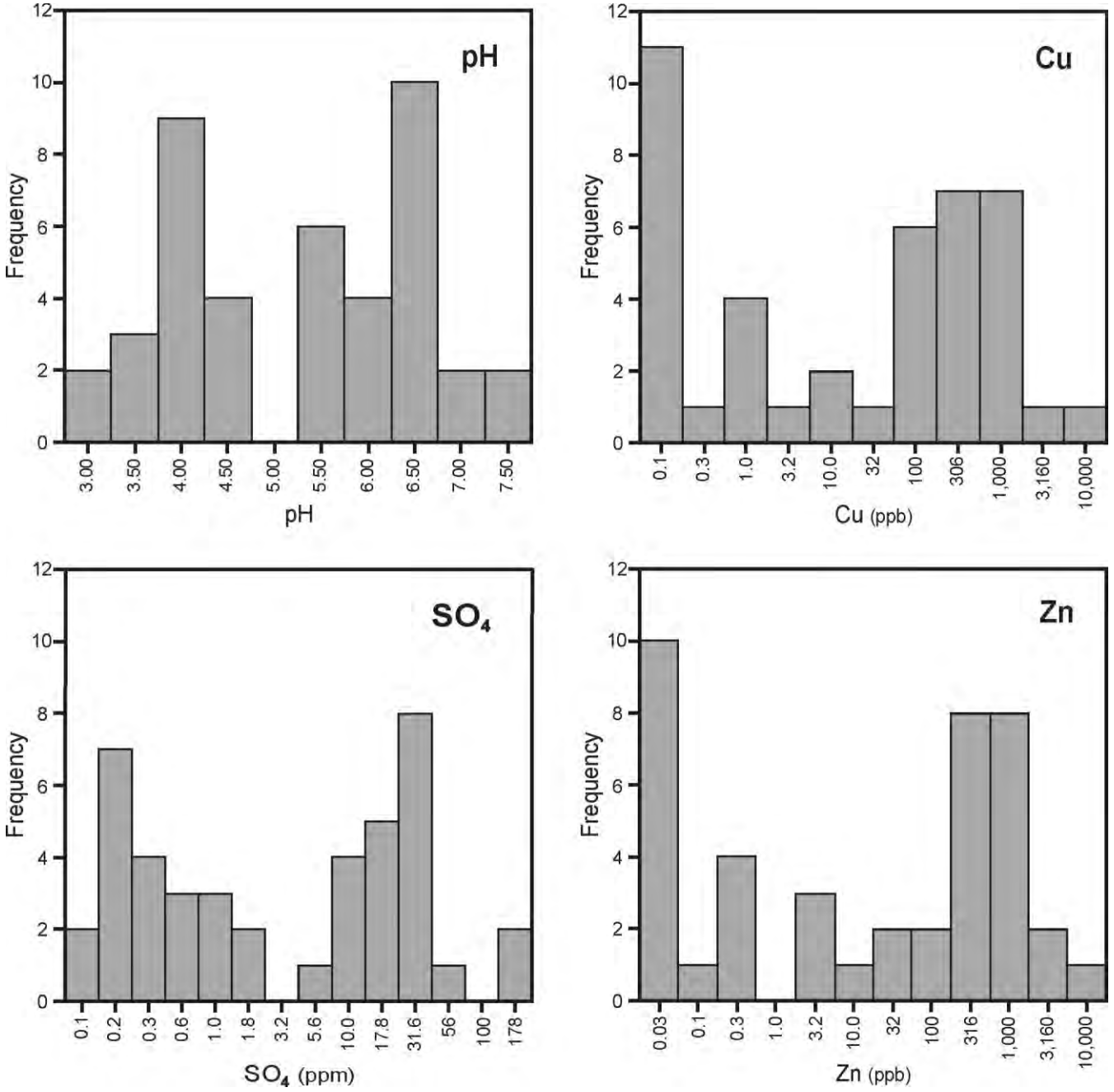

Figure 3. *Histograms of pH, Cu, SO_4 and Zn in 2001 water samples.*

blue and green symbols reflect Cu levels that are non-toxic to aquatic life. Orange and red dots and red stars reflect sites that have lethal Cu contents. The most serious toxic values are streams indicated with red stars, in which Cu contents range from 800 to 7000 ppb. The 7000 ppb site is located 900 m northwest of the Ming West Mine. Another serious problem is in the stream crossing Highway 418 (2200 ppb Cu) that drains the area of the Ming Mine.

Perhaps the most serious problem with Cu levels is found in the North Diversion Ditch, which carries high volumes of water and drains England's Steady, the pond into

Table 2. Summary statistics for data from background (N=17) and mine-affected (N=25) streams

	Background (<5 ppb Cu)			Mine-affected streams(>5 ppb Cu)			Enrichment Ratio*
	median	minimum	maximum	median	minimum	maximum	
Zn	0.1	0.1	2.93	500	5.54	5760	5000
Cu	0.1	0.1	2.90	254	6.2	7066	2540
pH	6.36	5.4	7.43	4.18	2.86	6.73	151**
Co	0.1	0.1	2.71	11.7	0.1	134	117
Ni	0.1	0.1	2.54	10.7	0.1	86.2	107
SO_4	0.21	0.11	1.60	16.1	0.34	214	76.7
Mn	16	8	349	581	4	6775	36.3
Y	0.01	0.01	0.23	0.27	0.01	2.71	27.0
Pb	0.1	0.1	0.5	2.1	0.1	173	21.0
Al	83	13	323	949	66	5284	11.4
Fe	269	70	676	1994	177	62480	7.4
Cr	0.11	0.10	1.08	0.71	0.10	8.45	6.5
Conductivity	34	20	77	213	39	1475	6.3
Mg	0.76	0.46	1.74	2.98	0.88	38.54	3.9
Ca	3.22	1.02	10.13	12.34	2.42	177.6	3.8
Li	0.22	0.22	0.50	0.61	0.22	9.54	2.8
Si	0.43	0.18	0.99	1.09	0.49	5.94	2.5
Sr	6.84	4.19	20.9	16.6	6.72	176.8	2.4
K	0.25	0.11	0.52	0.53	0.16	4.18	2.1
Ba	3	1.5	6.3	6.1	2.0	26.9	2.0
Na	2.83	2.17	4.87	4.05	2.81	17.94	1.4
Ti	0.09	0.05	3.90	0.05	0.05	4.28	0.6
V	0.14	0.05	2.20	0.07	0.05	1.72	0.5
P	10.1	6.3	23.6	0.5	0.5	83.7	0.05

All element values in ppb except SO_4, Mg, Ca, Si, K and Na which are ppm. Conductivity is expressed in µS.

* ratio of (background median)÷ (mine-affected median)

** pH is a negative log value, hence the ratio was determined by dividing the anti-log of the median background by the anti-log of the median mine-affected value.

which England's Brook discharges (Figure 2 and Plate 2). The five samples collected along the ditch range from 560 to 1000 ppb Cu and the highest values occur in the first 2 sites, downstream of the pond. The largest stream flowing into the pond has a content of 2.9 ppb. The content at the discharge site from the pond is 808 ppb. The only other stream flowing into the pond at the south end has elevated Cu values (110 and 135 ppb) but does not account for the extreme values leaving the pond. The pond is flanked on the west by the subaerial tailings pile and by a mine-access road. It seems likely that the principal sources of Cu include groundwater flow from the tailings, interaction of stream water with bank material, contributions from the southern stream and possibly leaching from sulphide-rich rock used in the road construction. Water leaving the tailings pond over the spillway is also high in Cu (1110 ppb) however the flow rate is relatively low because the net addition to the Cu load in South Brook is less significant than that from the North Diversion Ditch.

Plate 2. *Looking north down South Brook at the confluence of North Diversion Ditch (right) and South Brook (left). Analyses at this location in 2001 from South Brook included Cu: <1 ppb and pH: 5.6; analyses of the North Diversion Ditch were Cu: 565 ppb and pH: 3.7.*

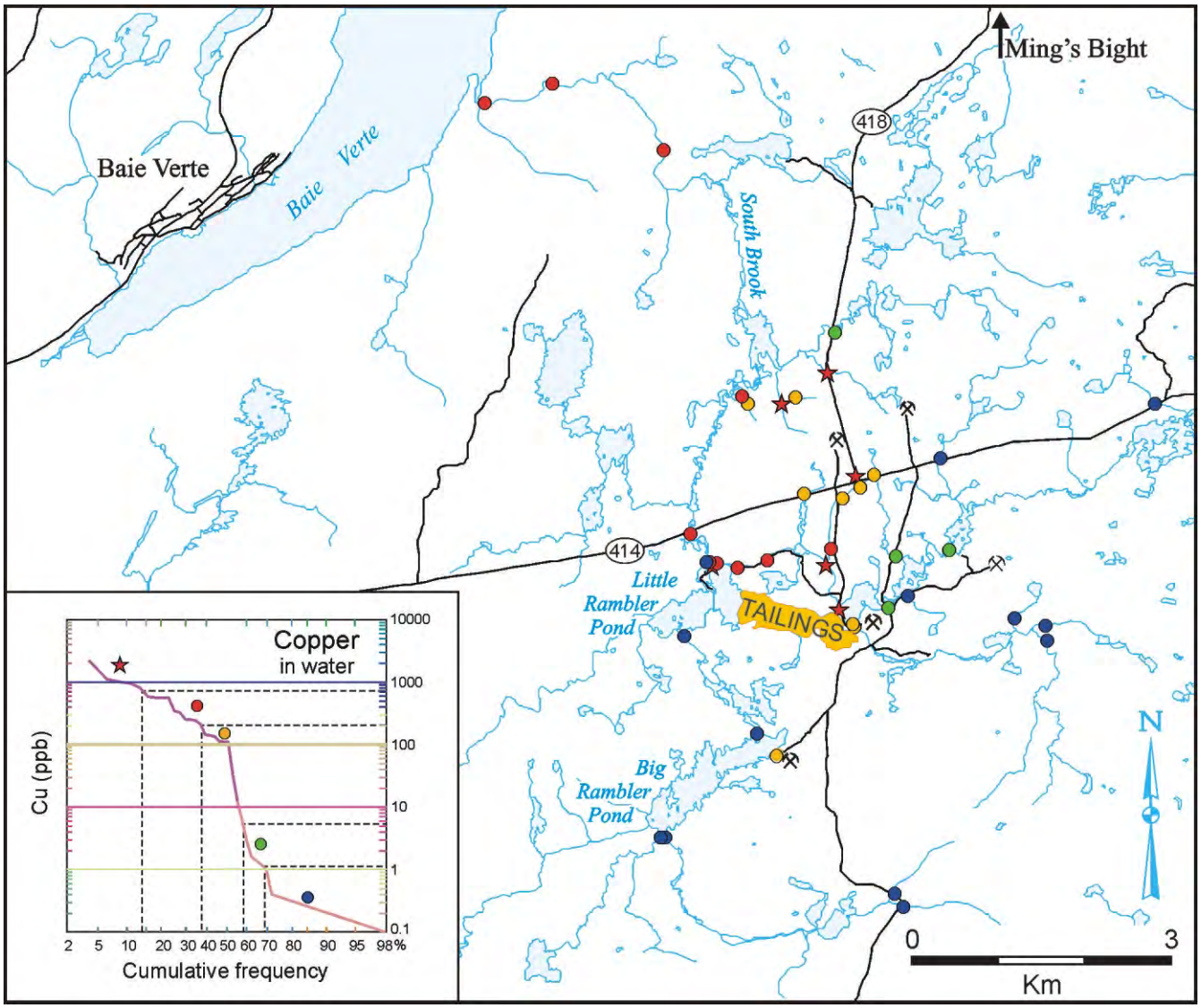

Figure 4. *Cu in stream water. Data from 2001 water samples. See text for explanation of symbols.*

Water acidity in streams is shown by the map of pH (Figure 5). Values of pH <7 are increasingly acidic and values >7, increasingly alkaline. The values are logarithmic so that a 1 unit difference in pH represents a 10-fold difference in acidity. The distribution pattern of pH is similar to that of Cu with a few distinct differences. As with Cu, blue and green symbols reflect water quality that supports aquatic life (pH>4.5). As with Cu, all streams above the mining activities are permissive of aquatic life whereas most streams below the start of the North Diversion Ditch, and below the confluence of the ditch with South Brook, are not. The problem areas are the North Diversion Ditch, South Brook between the tailings pond and Baie Verte and the stream draining to the northwest from the Ming Mine. The stream with 7000 ppb Cu is only moderately acidic (pH=4.2). The sources of this acid drainage are likely the same sources producing high Cu levels in the streams

The distribution of Zn in streams is shown in Figure 6. The distribution pattern is nearly identical to that of Cu. One minor difference is that the Zn contents in the stream entering the south end of the England's Brook pond are proportionately higher than the Cu contents.

The distribution of sulphate (SO_4) in water is shown in Figure 7. The shape of the cumulative frequency plot is strongly bimodal and similar to those of the metals and pH. The distribution pattern of the values is also similar to the others.

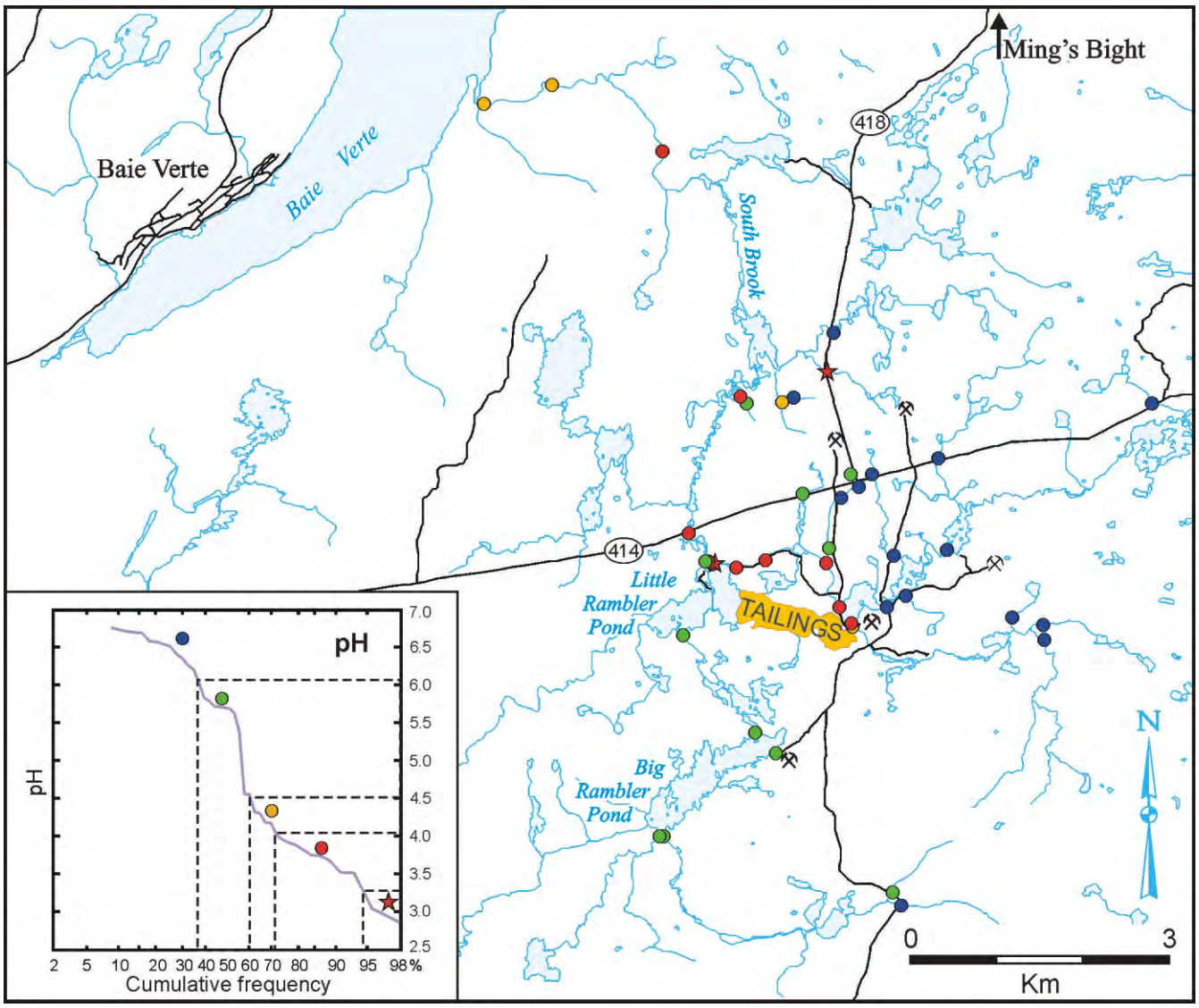

Figure 5. *pH in stream water. Data from 2001 water samples. See text for explanation of symbols.*

Site Duplicates

Copper analyses are available from 12 sites that were sampled in 1993, 2000 and 2001. Determinations of pH from 1993 are not regarded as reliable and are not included. These data may be used to monitor changes in water chemistry over time. Figures 8 and 9 plot the results for Cu and pH, respectively. For ease of comparison, data are sorted by increasing value of the 2000 data. Locations of site duplicates falling within the detailed map area are shown in Figure 2. The Cu plot indicates that Cu levels in the mine-affected sites (>10 ppb Cu in Figure 8) were very similar in 1993 and 2000 but considerably higher in the most recent sampling. The lower values for the background streams in the 2001 data likely result mostly from a lowered analytical detection limit in the new data. The sites with high Cu are also the same sites with low pH values (<5.0). The pH analyses from the 2001 samples are similar to the 2000 data for the background streams but are considerably more acid in five of the six mine-affected samples. These five samples are all from the North Diversion Ditch or from various sites along South Brook – drainages that carry most of the mine-affected stream water. The sixth site is from a south-draining tributary of the North Diversion Ditch. This lowering of pH levels in the most recent sampling and the corresponding increased metal levels, indicates that the problem with acid mine drainage is not improving with time.

SUMMARY

The mining operation at the Rambler Mines property produced primarily Cu and lesser amounts of Au, Ag and Zn

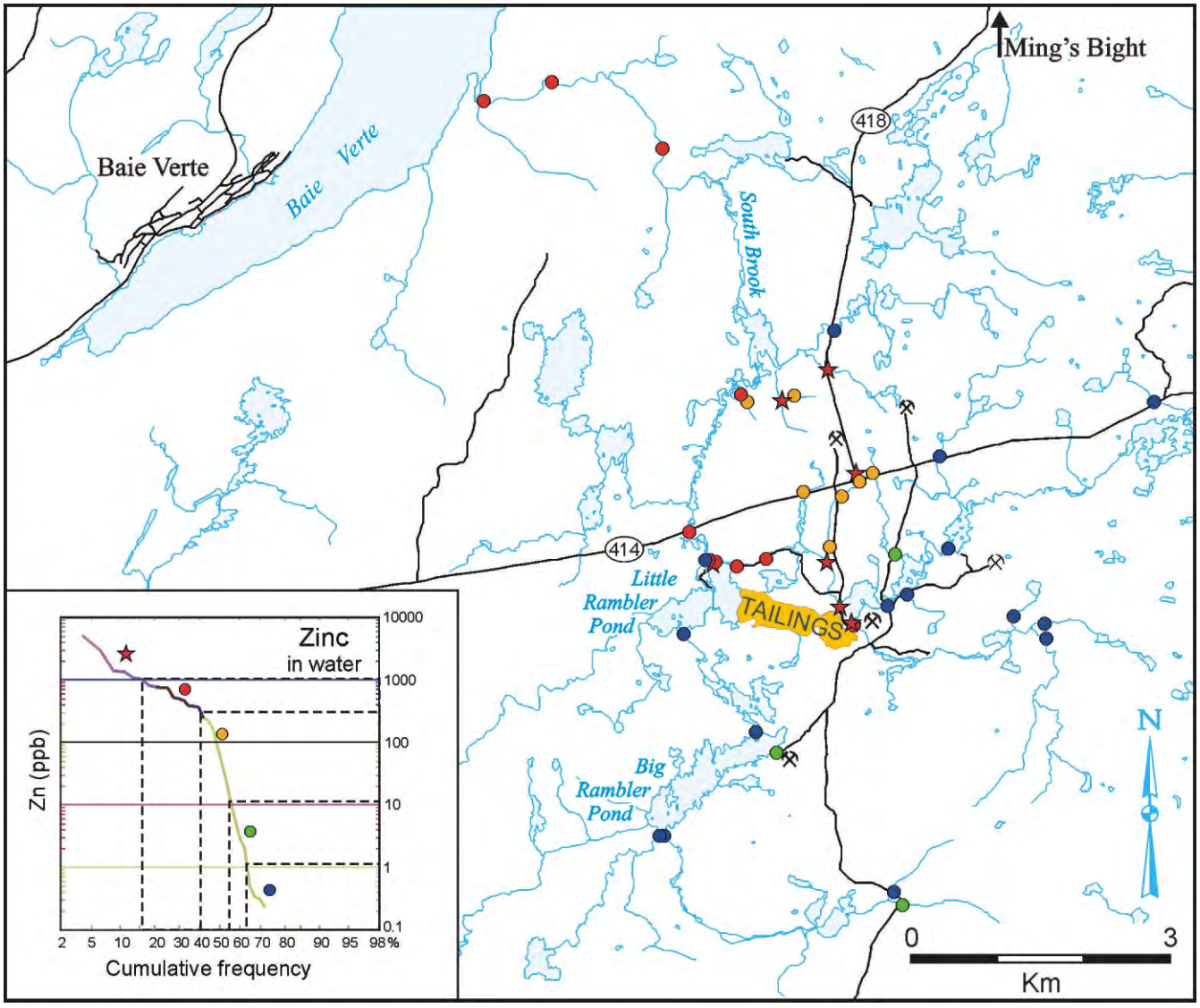

Figure 6. *Zn in stream water. Data from 2001 water samples. See text for explanation of symbols.*

from five volcanogenic massive sulphide deposits. The ore was milled onsite and a tailings compound and water-course diversions were built in an effort to prevent the generation of acid mine drainage. Water sampling in 1993, 2000 and 2001 of streams in the area indicate that acid mine drainage is prevalent and affects several streams including the largest river in the area (South Brook) from the mining area downstream to its mouth at Baie Verte. Comparison of data from the same sites over an eight-year period suggests that acidification and metal contamination of the affected streams is now the same or more severe than earlier. The major contaminants, with respect to impacts on aquatic life are high levels of Cu and acidification of affected streams. Streamwater geochemistry has identified three major sources of acid drainage. The largest source appears to be near the head of the North Diversion Ditch. The actual source or sources is unclear but may include leakage from the tailings compound and sulphidic waste rock exposed in the catchment basin. A second source occurs in the vicinity of the Ming Mine as shown by high base-metal contents and acidification of the stream draining to the northwest from the former mine site. A third source is the Ming West Mine that gives rise to a small stream having extremely high Cu contents flowing north into South Brook. More detailed sampling in the Rambler Mines area will be required to further delineate the sources of the metals.

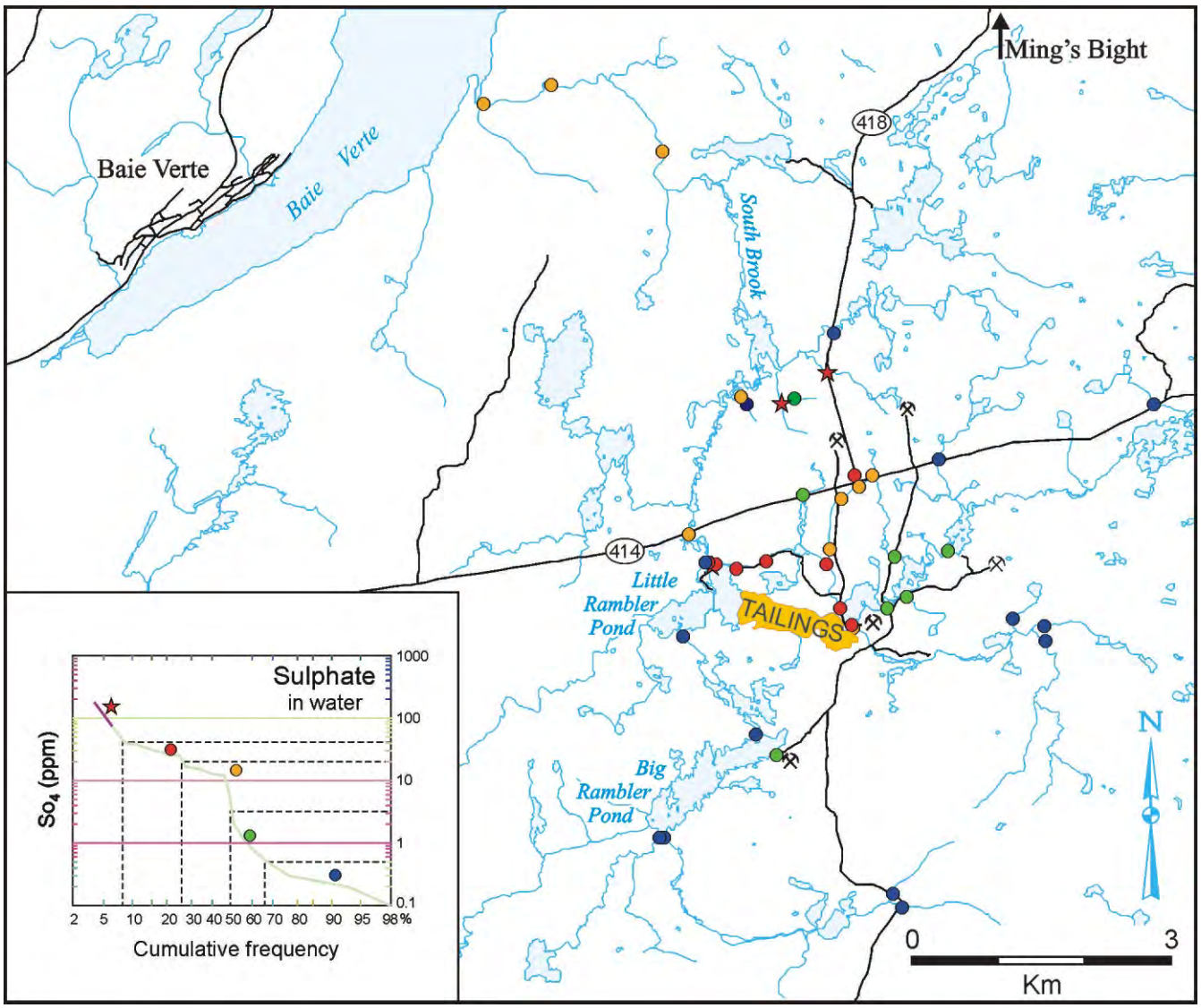

Figure 7. *SO_4 in stream water. Data from 2001 water samples. See text for explanation of symbols.*

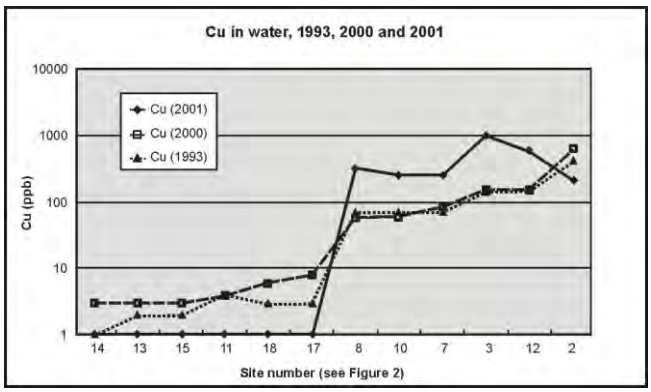

Figure 8. *Cu in site duplicates. From 1993, 2000 and 2001 data.*

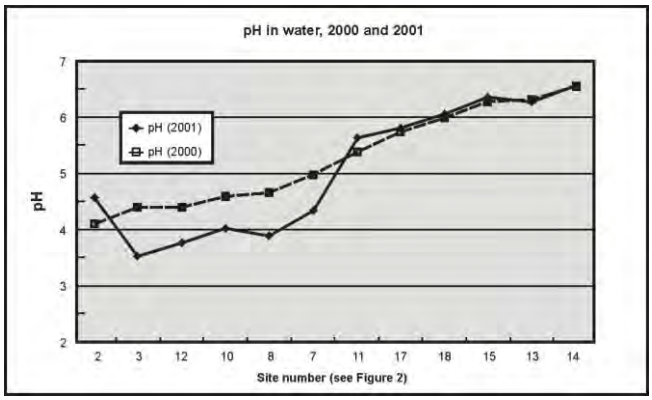

Figure 9. *pH in site duplicates. From 2000 and 2001 data.*

ACKNOWLEDGMENTS

Several people contributed to the success of the field aspects of this project including Jody Hodder (1993), Vanessa Lee (2000) and Peter McConnell (2001). Discussions with Ned Vukomanovich, Brad Way and Chris Finch were invaluable in preparing this report. Dave Leonard is thanked for applying his graphics skills to the figures.

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Appendix 2.B Diversity Plan

FireFly METALS

Diversity Plan

Table of Contents

1.0 Introduction

The Green Bay Project (the 'Project') is being operated by Firefly Metals Canada Ltd. (The Company)

The project was acquired in October 2023 by Auteco Minerals (now FireFly Metals Canada Ltd) and is currently focusing on Phase 1 exploration program. This is comprised of drilling 40, 000 meters of diamond drilling and 700 meters of development.

The project currently has a twenty-year+ life of mine based on the most recent mineral resource/ reserve estimate.

This Program has encompassed a proactive approach to best industry practices geared towards a workplace culture supportive of a diverse workforce to attract and retain the talent for organizational success. The revisions from a Women's Employment Plan (by past owners) to the Diversity Plan indicates Firefly's evolving commitment to diversity in the workplace and will incorporate this cultural ideal into all our policies for employment planning. FireFly Metals will take full accountabilities for all aspects of the Diversity Plan, to support and promote workforce diversity and gender employment parity for itself and all contractors working on site on an ongoing basis.

FireFly Metals is committed to a workplace design with policies in place to strengthen professional and career development opportunities for a diverse workforce. These policies promote moral fairness, enhance the work/life balance, and provide a working environment that is free from harassment and discrimination. With an appreciation for gender differences and gender diversity, FireFly Metals recognizes that having strong female leaders brings new perspectives to business challenges, which in turn create new approaches and solutions to these challenges. The Company is prepared to explore every opportunity to promote gender and cultural diversity in the workplace with the goal of increasing awareness and integration of this diversity into normally non-traditional roles.

FireFly Metals currently employs 65 people of whom 10 are women representing over 6% of the workforce. This target was met in early 2023 and as the project continues to grow the Company is committed to exceeding that number whenever possible. It's FireFly Metals goal to focus its efforts in areas which have been typically under-represented by women/other diverse groups. These positions include but are not limited to all mining careers, mechanics, electricians, and other trade disciplines. Pre 2023, before laying of approximately 170 employees, this site boasted a very diversified workplace including

people of different genders, socioeconomic, and cultural backgrounds. (21% of workforce) We will work towards having at least this number again as we grow.

A number of strategies and initiatives for the Diversity Plan have been adopted by the Company's Human Resources (HR) Department. The mandate of the HR department will be to provide a means of measurable actions set at achieving the Company's goal for diversification within the project. These include but are not limited to:

1. Work closely with colleges throughout Newfoundland and the OAWA (Office to Advance Women Apprentices) to determine the number of graduated women with courses and skills transferrable to the mining sector.
2. Representation of company on Women in Resource Development Board, this will ensure we are up to date on the latest programs in career development, diversity, equity, and inclusion in the province.
3. Conduct annual meetings with senior management to review the goals of the Diversity Plan and how they are being met.
4. Ensure the use of appropriate methods of promoting the participation and employment of a diverse workforce in all internal and external communications.
5. Review employment information to guide initiatives intended to advance diversity in non-traditional occupations.
6. Collaborate with government, communities, schools, and all other stakeholders to ensure non-traditional populations are familiar with the various employment opportunities in the industry.

The Company will continue to work with all contractors hired on the project to promote the Diversity Plan and its initiatives. FireFly Metals believe that these additional communication efforts will contribute to increasing the overall level of diversity in non-traditional occupations. Over time this increased awareness will hopefully promote further employment opportunities.

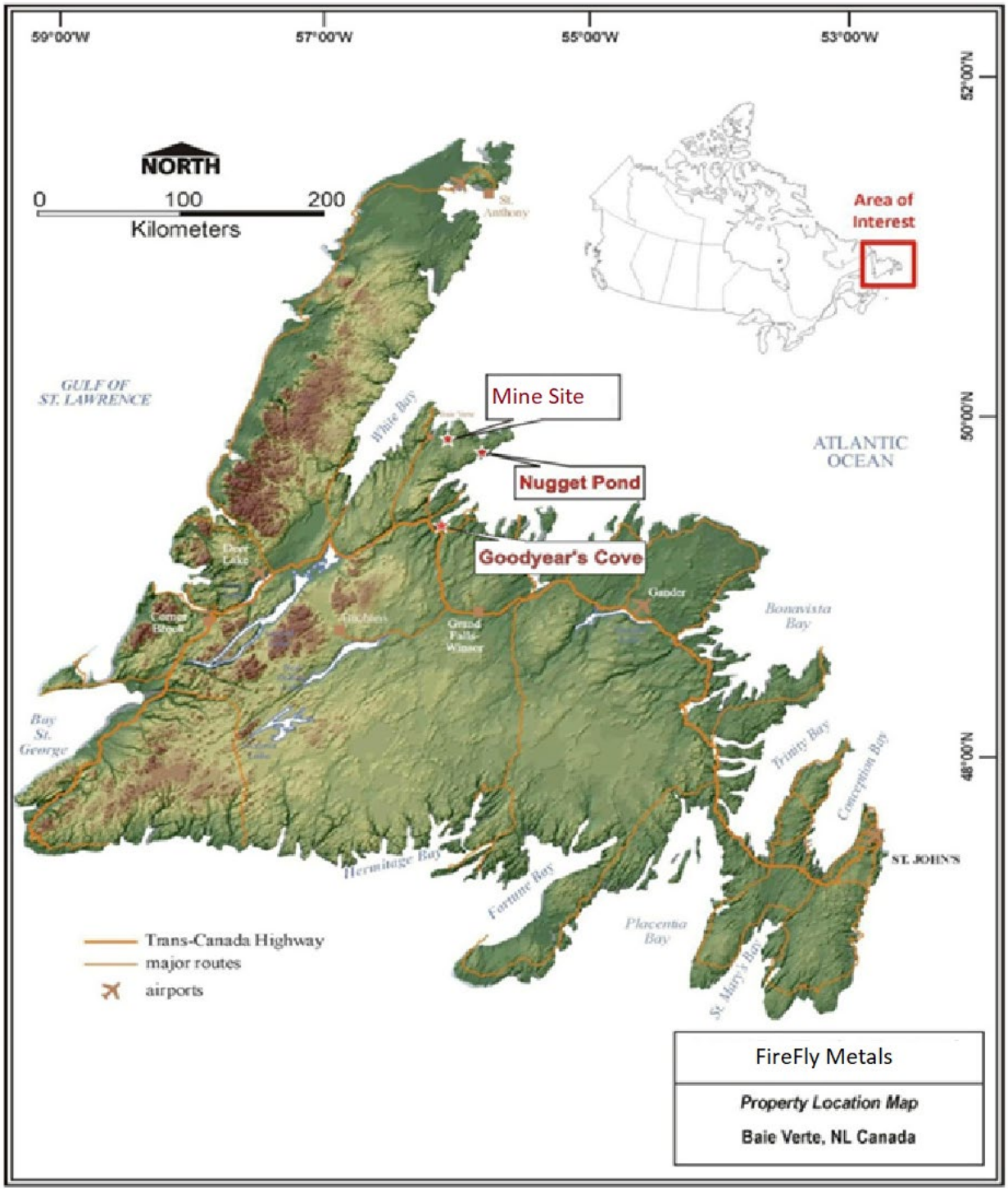

Figure 1: Location of the FireFly Metals Green Bay Project on the Baie Verte Peninsula, Newfoundland.

2.0 Community Support

FireFly Metals is prepared to learn from other organizations within the industry and implement a positive approach to employment diversification. The Company is committed to working with the public sector, government agencies, various groups such as the Newfoundland and Labrador Organization for Women Entrepreneurs (NLOWE) and educational institutions to maximize opportunities for non-traditional mining groups.

Specifically, the Company will:

1. Ensure diverse groups are advised of procurement and other business opportunities when possible;
2. Participate in information sessions at the community level, with the assistance of government and non-government stakeholders, which are highly responsive to diversity in the workplace;
3. Provide career information to guidance counsellors in secondary school systems;
4. Support and encourage female employees to act as role models and to serve as part of a mentoring group;
5. Engage educational, health and any diversity group to help understand the needs and goals of the mining industry, in areas where diversity is currently underrepresented.

3.0 Communication

While FireFly Metals itself is taking a proactive approach to encourage diversity in non-traditional roles, the Company also recognizes that to significantly impact these employment levels in specific areas that industry and government organizations will have to work together to promote a positive message. This message should outline the advantages of gender and cultural diversity in the workplace in addition to referencing the current levels of employment by women and other underrepresented groups in the various trade and professional occupations.

To support this incentive at the local level, as outlined throughout the Diversity Plan, the Company will develop and utilize the following tools as part of its own communications strategy:

1. Incorporate high school and post-secondary schools in the area to promote diversity in the mining industry, specifically women in non-traditional roles.
2. Reinforce key messages and promote diversity in the local community.

3. Liaison with women's organizations and diversity groups on an annual basis to review and discuss ideas designed at broadening the participation of women in non-traditional careers within the mining industry.
4. Engage with different organizations to fill positions when possible, with employees from all types of ethnic backgrounds. (ANC – Association for New Canadians, Office of Immigration and Multiculturalism, Dept of Immigration, Population Growth, and Skills, etc.)

4.0 OPERATIONS

During past operations this project has created over 250 positions, with countless other indirect support services. Table 1 summarizes the employment statistics of the projects past as well as the contracted positions. Additional information, including NOC codes, can be found in Appendix 1.

Table 1: Employee Statistics

Project Phase	# of Personnel
Operations	
Ming Mine	155
Nuggett Pond Mill	44
Goodyear's Cove	1
	200
Contracted	
Ming Mine	40
Nuggett Pond Mill	7
	47

Operations at the Ming Copper-Gold Mine Project under Rambler Metals and Mining have been ongoing since 2011 and will continue into Phase 1 of an exploration Phase in 2024 with FireFly Metals plan to drill and add value with the drill bit. This phase if successful will lead to studies, which in turn will add additional years to the life of the mine. To ensure the success of the Diversity Plan, the Company will continue to pursue every opportunity to endorse gender diversity and equal opportunity for all employees.

To ensure that as we grow the 21% women's employment target of staff and those hired by contractors/subcontractors can be achieved the company is committed to:

1. Promote gender diversity in the workplace through:
    - The support and analyze diversity employment statistics throughout the mine's life.
    - Communicating diversity through the Company's newsletter or on bulletin boards and notices.
    - Continued communication with the Women's Policy Office and other identified diversity groups,
    - Every effort will be made to provide a wide range of informational material promoting the education and training of underrepresented populations.

2. Assign Management to be responsible for diversity.
    - Senior representatives will be given management responsibility for diversity throughout the organization and the involvement of contractors on site.
    - This representative will be given the tools and resources to achieve company goals and will be required to provide feedback on an annual basis.
    - On an annual basis, or more frequently if required, the Human Resources Manager will be responsible for the evaluation and revision of all procedures relating to diversity initiatives.

5.0 Recruitment and Retention

The Company is committed to be an equal opportunity employer with competitive benefits and compensation and the continuous improvement in our diversity. To achieve this, FireFly Metals recognizes that it will have to specifically target and promote underrepresented groups involvement in many of the non-traditional occupations, specifically implementation of qualitative targets in positions where these groups have been underrepresented.

To support the recruitment of diversity in its workforce the company will adhere to the following policies and practices:

1. Commit to working with training institutes in the province and the Office of Women Apprenticeship to support the integration of female registered apprentices and their transferrable skills into the project;

2. Use gender and culturally sensitive language in job advertisements, and other resources used in the recruitment and selection process;
3. Develop training sessions to educate supervisors and managers in the recruitment processes to guarantee practices free of any prejudice;
4. When possible having a diversified hiring panel;
5. Consider, where possible, job shadowing and on-the-job opportunities to women enrolled in science, technology fields, and industrial trades where women are underrepresented;
6. Continue to practice a zero-tolerance policy on discrimination and harassment;
7. Continue to support and promote hiring practices that are consistent with a healthy and productive working environment;
8. Encourage trained professional role models to join the organization; and
9. Conduct exit interviews for analysis and feedback into the Company's recruitment and retention plan.

In addition to the recruitment of women and other diverse groups, FireFly Metals has also initiated policies and practises to retain and promote its existing diversity. These include but are not limited to:

1. A zero-tolerance approach to harassment;
2. An employment equity policy throughout the Company; and
3. FireFly Metals will continue to communicate and update its policies with regards to gender diversity and women's employment.

By implementing the above policies and practices FireFly Metals believes that it is working toward a better, healthier working environment free of any form of harassment, discrimination, and barriers towards any diverse group.

6.0 Training and Career Planning

FireFly Metals is focused on strengthening, mentoring and coaching structures that provide employees with the knowledge, skills and motivation to accomplish short and long terms goals within the industry. The Company will use a succession of management programs to fully support diversity at all levels within the organization through training, workshops, policies, etc. as they express interest to advance in their careers. The programs will be modified as feedback that is received from employees and from monitoring developments in technology and learning from other organizations.

In addition, the company will support advancement in their careers by:

1. Develop an internal commitment from managers and supervisors to identify potential employees for higher-level positions within the organization.
2. Promoting a culture that supports a positive relationship between employees.
3. Providing opportunities to enhance women's professional development.
4. Identifying and addressing barriers that can be a hindrance to peak performance.
5. Support and offer personal development courses in the workplace.
6. Allocating required resources to assist employees in career planning and aspirations; and
7. Examining innovative ways for employees to network and support career growth and planning for women.

The Company's Human Resources Department will take the necessary steps to align operational requirements with employee needs. FireFly Metals is confident that with sound business practices and clear company goals, gender diversity will play an important role throughout the life of the project in addition to the training future of leaders.

Finally, FireFly Metals is committed to supporting the province's efforts and initiatives to encourage women in non-traditional occupations such as management, mine operators, building trades, sciences, and trades and technology-based programs that support the Company's operational requirements.

7.0 Compensation and Benefits

The Company provides a competitive compensation and benefits package for employees that are based on current local labour market and labour market surveys. The company promotes no gender inequality in pay scales between females and males for equal jobs or any incumbents who have similar experience/qualifications.

Each position's base pay is based on current salary rates within the Company and labour market surveys. The Company provides permanent employees with a comprehensive group benefits package including life, health, medical and dental coverage, as well as a RRSP plan to assist employees with retirement plans. Pay periods are bi-weekly, monthly, or semi-monthly depending on the position held.

8.0 Workplace Policies

The Company is committed to supporting the Human Resources policies and procedures ("Best Practices"). These "Best Practices" create a positive workplace, incorporate the concepts of wellness, safety, social responsibility, and community involvement.

The Company has established "Best Practices" to support diversity in the workplace. The Company has implemented a Respectful Workplace Policy where employees are expected to conduct themselves in a positive manner and refrain from behaviour or conduct that is offensive. Harassment of any form is prohibited, and individuals engaged in it will be disciplined, up to and including termination. The Company also prohibits engaging in or threatening acts of violence, fighting or assault, and possessing or using drugs and alcohol on its property.

During the mandatory site orientation period, the Company's orientation will communicate the Company's "Best Practices" to new employees informing them that gender and culturally sensitive or offensive language will not be tolerated at the workplace.

The Company will ensure all materials, such as safety clothing, tools, and equipment will be gender neutral and suitable for any gender. The Company will ensure, when possible, a diverse representation on committees formed throughout the workplace.

9.0 Reporting and Monitoring

The Company is committed to the success of the Diversity Plan throughout all its operations. The Company will appoint the Human Resources Manager to monitor the Diversity Plan and continuously provide strategies for improvements and upgrades to ensure the continuous success of the plan. The company will continue to review contingency strategies on an ongoing basis to reach indicated targets. Periodically throughout the life of the project as targets are reached the company is committed to advancing these targets, where possible.

Finally, as we grow the Human Resources Department will collect and compile diversity-based information on recruiting, hiring and retention, and from exit interviews. This information, along with any diversity information collected, will be communicated when requested with applicable parties such as the Women's Policy Office and the Department of Natural Resources on an annual basis to ensure that the Company's Diversity Plan is aligned with industry objectives and goals.

APPENDIX 1

Ming Copper Gold Mine – Detailed Project Employment Statistics - 2022

Ming Mine Labour Statistics

Ming Mine Labour Statistics			
Occupation	NOC	Full Time/Part Time	# of Personnel
Ming Mine Operations			
Mine Superintendent	8221	F/T	1
Mine Supervisors	8221	F/T	4
Jumbo Operators	2263	F/T	8
Conventional Miner Crew	8231	F/T	4
Bolter Operators	8231	F/T	8
Development Miners	8231	F/T	4
Longhole Blasters	8231	F/T	4
Blaster Helpers	8231	F/T	4
LHD Operators	8231	F/T	12
Truck Operators	8231	F/T	20
Construction Crew	8231	F/T	8
Underground Grader Operator	7521	F/T	2
Loader Operator	7521	F/T	1
Equipment Trainer	8231	F/T	1
Yardman	7611	F/T	2
Core Shack Handler	9619	F/T	3
WWTP	9243	F/T	3
Runner/Washer	8614	F/T	1
Nipper	8411	F/T	4
Warehouse Attendent	1522	F/T	2
Mine Electrical Supervisor	8221	F/T	1
Electrician	7242	F/T	5
Apprentice Electrician	7242	F/T	2
Mechanical Supervisor	8221	F/T	2
Mechanic	7312	F/T	14
Industrial Mechanic	7312	F/T	1
Apprentice Mechanic	7312	F/T	3
Welder/Fabricator	7237	F/T	2
Maintenance Man	8614	F/T	1
Manager Tec Service	2212	F/T	1
Grade Control Geologist	2212	F/T	1
Resource Geologist	2212	F/T	1
Mine Geologist	2212	F/T	2
Geo Tec	2212	F/T	2
Senior Engineer	211	F/T	2
Intermediate Engineer	2143	F/T	2
Junior Engineer	2143	F/T	2
Ventelation Survey Tec	2143	F/T	1
Mine Planner	2143	F/T	1
			142

Contracted		
Ming Mine	Variable	40
Nuggett Pond Mill	Variable	7
	Total	**47**

Ming Mine Labour Statistics

Occupation	NOC	Full Time/Part Time	# of Personnel
Nugget Pond Operations			
Mill Superintendent	911	F/T	1
Metallurgist	9211	F/T	1
Mill Maintenance Supervi	7301	F/T	1
Crew Leader	9211	F/T	4
Flotation Operator	9411	F/T	6
Grinding Operator	9421	F/T	1
Filter Press Operator	9421	F/T	4
Operator	9421	Call In	4
Tailings/Dewatering	9421	F/T	2
Crusher Operator	9211	F/T	4
Millwright	7311	F/T	6
Welder	7237	F/T	1
Electricians	7242	F/T	3
Yardman	7611	F/T	1
TPM	9421	F/T	1
Lab Technician	2212	F/T	4
			44

General and Administration Labour Statistics

Occupation	NOC	Full Time/Part Time	# of Personnel
General and Administration Labour Force			
General Manager	0811	F/T	1
Administrator, Payroll	1432	F/T	1
Superintendent, HSE	0112	F/T	1
Advisor, HSE	0112	F/T	1
Financial Controller	111	F/T	1
Administrator, Accounting	1431	F/T	2
Administrator, Mill	1411	F/T	1
Administrator, Mine	1411	Call In	1
Purchaser, Mine	1225	F/T	1
Purchaser, /Warehouse Attendent, Mill	1225/1522	F/T	1
Manager Human Resources	112	F/T	1
Coordinator, Human Resources	1121	F/T	1
			13

Appendix 2.C Environmental Protection Plan

Appendix 2.D Waste Management Plan

WASTE MANAGEMENT PLAN

FOR

FireFly Metals Canada Limited

P.O. Box 610, Baie Verte, NL, A0K 1B0

Date Issued: October 16, 2018

Revised: October 23, 2024

Version 3.0

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1.0 INTRODUCTION

1.1 Purpose and Goals

This Waste Management Plan (WMP; this Plan) provides direction on waste handling, storage, transport, treatment and disposal of the various wastes produced at the Green Bay Copper Gold Project (the "Current Operations") including the Ming Mine site (including the proposed expansion of the Green Bay Ming Mine Project) and the associated Nugget Pond Mill site and Goodyear's Cove shipping facility. This Plan provides a waste management system to deal with waste streams and allows for the implementation of reduction and diversion opportunities. The Plan will also serve as an internal quality control document that provides clear and concise direction for company staff and contractors regarding waste management policies and procedures that must be followed.

The goals of this Plan are to:

- Minimize adverse effects on the environment.
- Incorporate and optimize the basic principles of waste management including reduce, reuse, recycle, recovery and residual waste disposal.
- Meet all regulatory requirements for waste management.

1.2 Scope

FireFly Metals Canada Limited (FireFly), acquired the Rambler Metals and Mining assets in October 2023. FireFly owns and operates the Green Bay Copper Gold Project, which includes Ming Mine, Nugget Pond Mill and Tailings Management Facility, Goodyear's Cove port facility, and the Tilt Cove, Whalesback, Little Deer and surrounding claims and leases forming the Gold Hunter land package located on the Baie Verte peninsula in Newfoundland and Labrador.

FireFly is proposing an expansion of the Ming Mine, referred to as the Green Bay Ming Mine Project (the "Project"). This Project aims to increase the production rate at the Ming Mine and includes the construction of a new processing plant and a tailings management facility (TMF) on-site. Additionally, it plans to build a port access road to a third-party port and develop an accommodation complex to house the workforce.

Currently, the Nugget Pond Mill and TMF and Goodyear Cove Port are in care and maintenance. The WMP supports both the expansion Project and the current operations and will reference combined facilities such as the process plants (including Nugget Mill and the new Process Plant at Ming Mine), the TMFs (at Nugget and the new TMF at Ming Mine) and ports (third party and Goodyear's Cove). Note that the third-party owner of the port to be used for the expansion will be responsible for environmental protection measures at their site in accordance with their own permit and approval requirements

This Plan provides direction on waste handling, storage, transport, treatment and disposal for the current activities and future expansion and operations. The WMP addressed the

industrial/commercial/domestic wastes produced at the sites; however, does not cover mining wastes such as waste rock from the underground exploration development. FireFly commits to updating the WMP to accurately portray the future conditions of the site at that time.

While the Goodyear's Cove site is generally unmanned and does not generate waste, all waste management protocols and policies outlined in this document apply to the site, when applicable, as long as the site is still recognized as part of the Project area.

1.3 Plan Organization

Section 1 of this Plan provides the purpose, goals and scope of the Plan. The regulatory framework which provides the basis for the Plan is summarized in Section 2.

Sections 3 to 6 detail the basic elements of the waste management system including waste characterization, management structure, operational procedures, handling practices and monitoring, reporting and auditing systems.

Much of the information is presented in tabular format which will provide simple, concise listings that can be easily reviewed and updated as part of the annual review of the Plan.

1.4 Document History

Table 1.1 Document History

Date	Version	Notes
November 2010	1.0	Submission to Department of Environment and Conservation, Pollution Prevention Division (NLDOEC, now NLDECC)
October 16, 2018	2.0	Revision, Submission to Department of Environment and Conservation, Pollution Prevention Division (NLDOEC, now NLDECC)
Pending		Revision, Submission to Department of Environment and Climate Change (NLDECC), Pollution Prevention Division and Submission to Department of Industry, Energy and Technology (NLDIET), Mineral Development Division

2.0 REGULATORY FRAMEWORK

The foundation of the WMP is based on the regulatory framework for industrial waste management in Newfoundland and Labrador including legislation, regulations and guidelines at the federal, provincial and municipal levels.

The principal legislation guiding and governing waste management in Newfoundland and Labrador is the *Environmental Protection Act* (EPA), assented in 2002, and amended in 2006, 2013 and 2019 which consolidates the previous *Environment Act, Environmental Assessment Act, Pesticides Act, Waste Management Act* and *Waste Material Disposal Act*. The EPA covers the technical aspects of waste disposal, including handling, diverting, recovering, recycling, reducing and reusing waste materials. Under the provisions of this legislation, waste materials may be designated for recycling, composting or reuse and bans may be placed on the disposal of certain wastes.

The following table provides a list of the current, applicable requirements that affect this WMP.

Table 2.1 Regulatory Requirements for Solid Waste Management

Legislation, Guideline, etc.	Section or Reference	Requirements/Comments
Certificate of Approval (No. AA23-045695)	Conditions 19 – 22, 28, 29 – 32, and 33 – 37.	Covers pollution control equipment, chemical operations, spill prevention containment, and used oil.
Environmental Protection Act (EPA)	Parts IV and V.	Covers all aspects of waste disposal, handling, etc. and provides for the requirement of this plan.
National Fire Code of Canada 2020 and National Building Code of Canada 2020	Section 3.2.4 of the NFCC and Section 3.3.6.5 of the NBCC	Covers fire separation for indoor tire storage.

Note: A copy of the Certificate of Approval issued by the Department of Environment and Conservation and relevant sections of the EPA, NFC, and NBC are located in Appendices A, B and C of this plan.

3.0 WASTE CHARACTERIZATION

Typically, in order to assess the current and future requirements of a WMP, a qualitative and quantitative assessment or characterization of the waste materials being generated is required. This characterization establishes the baseline conditions and serves as a guide for monitoring and auditing.

In order to ensure that the WMP will remain flexible and responsive to the needs of the waste management systems, reporting, auditing and monitoring procedures will be established. These procedures will:

- Ensure review, as required, of waste quantities and composition for specific waste streams.
- Ensure appropriate infrastructure and equipment are provided for handling waste materials.
- Ensure that the collection frequency of waste materials is appropriate.
- Assist in assessing the feasibility of new waste reduction, diversion and disposal options.

A list of the various waste types, origins, and disposal categories based on anticipated waste streams are provided in Table 3.1 below.

Table 3.2 Waste Type, Origin and Disposal Categories

Category	Waste Type	Waste Origin	Waste Disposal Category
General	Domestic Waste (all materials that cannot be recycled or reused)	All Areas	Landfill
	Phones, Computers, Monitors, Printers and Related Hardware	Offices	Contracted Removal for Recycling
	Printer and Copier Ink Cartridges	Offices	Recycled
Sewage	Biological (Sewage) Waste	Offices, Plant, and WWTP	Removal by Contractor - Pardy's Waste Management
Plastics and Rubber	Plastic Pails, Containers, or Parts etc.	Maintenance Workshops, Storage Areas, Process Plant, Laboratory, and Kitchen/Dining/Recreation Area, WWTP, Port Site	Recycled Where Possible / Removal by Contractor - Pardy's Waste Management
	Conveyor Belts	Process Plant, Port Site	Recycled/Reuse
	Used Tires	Maintenance Workshops (adhering to NFC and NBC with regards to fire separation for indoor tire storage)	Recycled/Reuse Where Possible / Removal by Contractor - Pardy's Waste Management
Recyclable Food and Drink Product Packaging	• Aluminum cans • Plastic drink and food containers • Glass bottles • Drink boxes • Steel cans • Gable top containers • Alcoholic containers • Other plastics - (yogurt drinks, flavoured drink pouches, foil-topped juice, white juice jugs, etc.)	Offices, Kitchen/Dining/Recreation Areas	Recycled
Food Waste	Personnel lunches and Kitchen Scraps	Offices, Kitchen/Dining/Recreation Area	Compost
Glass	Windows	Process Plant and Maintenance Workshops	Recycled
Wood and Paper	Pallets	Process Plant, Maintenance Workshops, Port Site	Landfill
	Wire Spools	Process Plant	Recycled
	Scrap Wood	Process Plant and Maintenance Workshops	Landfill

Category	Waste Type	Waste Origin	Waste Disposal Category
	Cardboard and Paper	Mine, Maintenance Workshops, Offices	Recycled
Metals	Large Pieces of Machinery and Mobile Equipment	All Areas	Recycled Where Possible / Removal by Contractor - Central Metals Recycling
	Scrap Metal, Piping, Small Parts and Machinery, Non-recyclable Aluminum Cans	Mine, Process Plant, Maintenance Workshops	
	Coated Wire and Electrical Cable	Mine, Process Plant, Maintenance Workshop	
Hazardous Materials	Aerosol Cans	Maintenance Workshops and Kitchen/Dining/ Recreation Area	Removal by Qualified Contractor - Pardy's Waste Management
	Lithium/NiCad Batteries	All Areas	
	Bulbs (fluorescent, halogen, etc.)	All Areas	
	Plastic Drums Containing Contaminant Residues	Process Plant and Maintenance Workshops	
	Paint and Other Toxic Products Containers	Process Plant, Laboratory, Maintenance Workshops and Other Areas	
	Lab Chemicals	Laboratory	
	Bio-medical Waste • diabetic needles • materials such as bandages, gloves, dressings etc. that have been in contact with blood	Offices	
Hydrocarbon Materials	Fuel and Oil Filters	Maintenance Workshops	Removal by Contractor - Pardy's Waste Management Contaminated Soils – Guy J. Bailey Ltd.
	Sweepings from Maintenance Workshop	Maintenance Workshops	
	Solvent/Oil Contaminated Rags, Workwear, and Absorbent Pads	Process Plant, Maintenance Workshop and Mobile Equipment	
	Petroleum Contaminated Soils	All Areas	
	Paint Filters	Maintenance Workshops	
	Grease Tubes	Maintenance Workshop and Mobile Equipment	
	Hydraulic Hoses	Maintenance Workshops	
	Waste Grease	Maintenance Workshops	
	Solvents and Oils	Maintenance Workshops	
	Glycol	Maintenance Workshops	
	Used Oil	Process Plant, Maintenance Workshops and Mobile Equipment	

4.0 MANAGEMENT STRUCTURE

4.1 Management Commitment

FireFly is committed to the preservation and protection of the environment. As such, FireFly commits to the implementation, maintenance and upgrading of this WMP as the conditions of the Project change in the future. FireFly also commits to incorporating new initiatives into the sites existing waste management strategies to better control site waste if needed.

FireFly's management recognizes that staff time and resources are required to implement and maintain this Plan. All employees must understand the importance of the Plan and of following procedures. The roles and responsibilities of the General Manager/VP of Operations or Health, Safety and Environmental (HSE) Superintendent, as well as other staff, are defined below.

4.2 General Manager/VP of Operations

The General Manager/VP Operations will be responsible for the management of contractors managing the waste, the review of the WMP initiatives and procedures with the VP of Environment and Community to ensure that this plan is carried out with a full understanding of the applicable regulations and requirements, and the effective implementation of the plan.

4.3 Roles and Responsibilities

The effectiveness of this WMP depends on the commitment and actions of all employees. Therefore, all personnel must be fully aware of their individual duties and responsibilities, as outlined below.

<u>HSE Superintendent</u>

- Provide guidance and expertise to the General Manager on all aspects of waste management activities.
- Support waste management orientation and awareness training for all FireFly employees and contractors.
- Review results of routine monitoring and/or audits with respect to waste handling, infrastructure and equipment, and contractors as part of the continual approval process.
- Interface with regulators with regards to waste management and recycling programs, as required.

General Manager/VP Operations

- Review onsite waste management needs and contract requirements with the Mine Manager and Process Plant Superintendent.
- Report any health and safety issues with respect to the WMP to the Environmental Superintendent
- Respond to any urgent onsite waste management issues.
- Report on any issues relating to the implementation of the WMP to the Environmental Superintendent.
- Be responsible for ensuring onsite operational compliance with the WMP at all times.
- Forward results of routine monitoring and/or audits with respect to waste handling, infrastructure and equipment to the Environmental Superintendent.
- Collect and maintain all records pertaining to waste management activities for compliance monitoring.
- Provide to the Environmental Superintendent all necessary documentation pertaining to the transportation, final disposal location and disposal process for all waste removed from FireFly's property.

Employees

- Must be aware of the waste management requirements specific to their area or type of work.
- Are encouraged to increase their efforts and awareness in waste reduction/reuse/recycling.
- Must attend and sign off on WMP orientation program.

4.4 Orientation, Awareness and Training

Employee education and awareness about the WMP, and continual communication are important to ensure the success of the Plan. All company staff and contractors/sub-consultants should be informed about the Plan and should know and understand their responsibilities under the Plan. On-going communication about plan implementation, changes and results will ensure a high level of awareness about the Plan.

Information on waste management and the WMP at the FireFly mine, process plant(s) and port site and access will be provided to all new employees and contractors/sub-consultants during standard site orientation training. Additional information and training will be provided on an individual basis, specific to the work area of the employee or contractor/sub-consultant. All contractors/sub-consultants will be provided with specific instructions on how to deal with waste disposal on FireFly's project sites.

A list of employees, staff and contractors/sub-consultants will be kept by the General Manager/VP Operations, and provided to the HSE Superintendent, and will include the type of WMP training each individual received, the date of the training and any updates or additional training.

5.0 OPERATIONAL PROCEDURES

5.1 On-Site Waste Disposal

There is no on-site waste disposal at the FireFly sites. All waste will be disposed of / recycled / reused off-site.

5.2 Off-Site Waste Disposal

Off-site waste disposal includes any waste that is disposed of outside of FireFly's properties. This would include waste materials taken off-site to be recycled, reused, treated, stored, sent to an off-site landfill, or returned to distributers. All waste products that must be disposed of off-site will be handled for shipping by trained mine staff. The current proposed system for waste management involves transporting domestic waste to a designated landfill and other hazardous materials to the appropriate designated recyclers or approved disposal facilities. The Green Bay Waste Management landfill site, located in South Brook, is used as the Projects main waste disposal site in the region.

Various recycling bins will be stored on all sites to collect recyclables (air filters, batteries, pop bottles, etc.) before they are transferred to the nearest recycling depot.

Inert office refuse and non-recyclable, non-putrescible items such as cardboard boxes, packaging materials, wooden shipping materials, plastic sample bottles and containers, non-recyclable metal materials, will be handled based on the nature of the material. Items such as clean, non-recyclable metals, synthetic liners, and other inert materials will be trucked to the designated landfill. Non-recyclable empty containers and steel drums will be drained, flushed, if necessary, crushed, and disposed at the land fill. Reagent bags will be triple washed to ensure no residue remains and then disposed of in a designated landfill. All non-recyclable scrap vehicle parts and machinery will be drained of their petroleum products prior to transporting to landfill.

Compostable food waste will be added to designated composting bins stationed at the Ming Mine and Nugget sites (Goodyear's if manned and deemed applicable). Each covered food waste bin will reduce waste hauled off-site and produce compost which could be used to increase the volume of organic materials available for the revegetation activities to be undertaken during the eventual closure of the Project sites. Any non-compostable food waste will be placed in covered containers located throughout each property and hauled to the landfill/solid waste disposal site on as as-needed basis. The waste depending on size may be hauled to the landfill by a contractor at the mine, process plant transports or by using employee vehicles.

Used oil filters will be crushed or hot drained, then collected by approved chemical decommissioning companies. Waste oil, oily rags, and used absorbent materials will also be collected and stored in appropriate containers before disposal by an approved recycling company. Companies used for various waste disposal are shown on Table 5.1.

Neither hazardous nor liquid wastes will be disposed of within any of the landfill sites. All hazardous wastes will be handled by trained personnel in accordance with provincial regulations. Materials not designated for a disposal site will be sorted and shipped to an approved company for recycling or disposal.

Table 5.3 Waste Disposal Contractors

Waste Material	Contractor
Industrial Waste	Exploits Salvage and Demolition Ltd - (709) 489-1170 68 Whitmore St, Grand Falls-Windsor, NL
Waste/Used Oil	Pardy's Waste Management - (709) 686-2013 25 Stentaford Ave, Pasadena, NL
Hazardous Waste	Pardy's Waste Management - (709) 686-2013 25 Stentaford Ave, Pasadena, NL
Contaminated Soils	Guy J. Bailey Ltd - 1-709-532-4642/8216 325 Highway 410 Baie Verte NL A0K 1B0
Metals/Equipment Not Recyclable On-Site	Central Metals Recycling – (709) 256-7780 53 McCurdy Dr, Gander, NL

5.3 Waste Diversion and Reduction Programs

Waste diversion and reduction programs are necessary to optimize the reduction of waste materials, the cost of purchased materials and the return, rebate and sale of recyclable or reusable materials. FireFly management will review all aspects of waste reduction and diversion practices on a continual basis or as required. This review will, at a minimum cover the following aspects:

- Purchasing practices;
- Packaging materials;
- Supplier rebates;
- Recycling or reuse returns and rebates;
- Regional, government and commercial waste management initiatives, operations and services; and
- Examine potential partnerships with regional municipalities and businesses to manage waste.

Table 5.2 provides a list of waste reduction and diversion options and considerations. This list will be updated as required and all past considerations and options will remain listed with details on implementation or why an option was not implemented.

Table 5.2 Waste Reduction and Diversion Options and Initiatives

Initiative	Date	Options and Issues	Implementation Plan
Reduce amount of drink containers		• Supply refillable thermos bottles for personnel • Procure large water and juice coolers/containers • Procure an ice machine	During Future Operational Period
Reduce amount of plastic waste disposed in landfill		• Investigate new recycling possibilities in the region • Investigate possibilities of suppliers accepting return of plastic containers for re-use • Consider bulk packaging possibilities	During Future Operational Period
Reduce amount of paper and ink cartridges		• Implement employee awareness to reducing paper use and printing initiatives	During Future Operational Period
Reduce amount of cardboard/paper waste disposed in landfill		• Maximize amount that can be shredded and added to composting system • Investigate recycling opportunities in Newfoundland and Labrador	During Future Operational Period
Use of environmentally friendly clean agents		• Address use of cleaning agents with mining contractor and employees	During Future Operational Period
Reduce water use and possibilities for recycling water		• Investigate water filtration/purification systems for well water to drinking standards, thus reducing bottled water consumption • Investigate water recycling options available at mine site during future production	During Future Operational Period

5.4 Waste Handling

Waste handling covers all aspects of waste sorting and transportation and storage of common waste and special wastes. A summary of the current general waste handling procedures including collection, storage and transportation practices are provided in Table 5.3.

There will be no open burning of the materials listed in Table 1 of the Certificate of Approvals located in Appendix A, and permission of NLDECC will be obtained prior to open fires for burning of other materials.

Table 5.3 Waste Handling Procedures

Category	Waste Type	Site Collection/ Transportation	Initial Storage Location	Final Collection/ Transportation
General	Domestic Waste (all materials that cannot be recycled or reused)	Exploration Development / Future Operations	Land fill	The Green Bay Waste Management landfill
	Phones, Computers, Monitors, Printers and Related Hardware	Exploration Development / Future Operations		Contracted Removal for Recycling
	Printer and Copier Ink Cartridges	Exploration Development / Future Operations		Recycled On Site During Exploration Development & Future Operations
Sewage	Biological (sewage) Waste	Pardy's Waste Management	Sewage plant	Pardy's Waste Management
Plastics and Rubber	Plastic Pails, Containers, or Parts etc.	Exploration Development / Future Operations	Laydown	Recycled On Site if Possible / Pardy's Waste Management
	Conveyor Belts	Exploration Development / Future Operations	Laydown	Recycled or Reused On Site if Possible / Pardy's Waste Management
	Used Tires	Exploration Development / Future Operations	Laydown	Recycled or Reused On Site if Possible / Pardy's Waste Management

Category	Waste Type	Site Collection/ Transportation	Initial Storage Location	Final Collection/ Transportation
Recyclable Food and Drink Product Packaging	• Aluminum cans • Plastic drink and food containers • Glass bottles • Drink boxes • Steel cans • Gable top containers • Alcoholic containers • Other plastics - (yogurt drinks, flavoured drink pouches, foil-topped juice, white jus jugs, etc.)	Exploration Development / Future Operations	Laydown	Recycled Where Possible / The Green Bay Waste Management landfill
Compostable Food Waste	Personnel Lunches and Kitchen Scraps	Exploration Development / Future Operations	Laydown	On site Composting
Glass	Windows	Exploration Development / Future Operations	Laydown	The Green Bay Waste Management landfill
Wood and Paper	Pallets	Exploration Development / Future Operations	Laydown	The Green Bay Waste Management landfill
	Wire Spools	Exploration Development / Future Operations	Laydown	Recycled or Reused On Site
	Scrap Wood	Exploration Development / Future Operations	Laydown	The Green Bay Waste Management landfill

Category	Waste Type	Site Collection/ Transportation	Initial Storage Location	Final Collection/ Transportation
	Cardboard and Paper	Exploration Development / Future Operations	Laydown	Recycled On Site
Metals	Large Pieces of Machinery and Mobile Equipment	Exploration Development / Future Operations	Laydown	Recycled or Reused On Site on site if Possible / Removed by Central Metals Recycling.
	Scrap Metal, Piping, Small Parts and Machinery, Non-recyclable Aluminum Cans	Exploration Development / Future Operations	Laydown	
	Coated Wire and Electrical Cable	Exploration Development / Future Operations	Laydown	
Hazardous Materials	Aerosol Cans	Exploration Development / Future Operations	Laydown	Removal by Qualified Contractor - Pardy's Waste Management
	Lithium/NiCad Batteries	Exploration Development / Future Operations		
	Bulbs (fluorescent, halogen, etc.)	Exploration Development / Future Operations		

Category	Waste Type	Site Collection/ Transportation	Initial Storage Location	Final Collection/ Transportation
	Plastic Drums Containing Contaminant Residues	Exploration Development / Future Operations	Laydown	
	Paint and Other Toxic Products Containers	Exploration Development / Future Operations	Laydown	
	Lab Chemicals (not currently in use)	Future Operations	Laydown	
	Bio-medical Waste • diabetic needles • materials such as bandages, gloves, dressings etc. that have been in contact with blood	Exploration Development / Future Operations	Laboratory area Nugget Pond.	Removal by Qualified Contractor – Pardy's Waste Management
Hydrocarbon Materials	Fuel and Oil Filters	Exploration Development / Future Operations	Site	Removal by Qualified Contractor – Pardy's Waste Management Contaminated Soils Removal by Qualified Contractor – Guy J. Bailey Ltd.
	Sweepings from Maintenance Workshop			
	Solvent/Oil Contaminated Rags, Workwear, and Absorbent Pads			
	Petroleum Contaminated Soils			
	Paint Filters			
	Grease Tubes			
	Hydraulic Hoses			

Category	Waste Type	Site Collection/ Transportation	Initial Storage Location	Final Collection/ Transportation
	Waste Grease			
	Solvents and Oils			
	Glycol			
	Used Oil			Removal by Qualified Contractor – Pardy's Waste Management

Waste handling procedures shall conform to all existing or new internal and external regulations and policies as identified in this WMP or that come into effect prior to revision of this Plan.

Handling of waste related to an employee's specific line of work should be conducted by the employee as required within his/her normal duties. Depending on the waste type and method of storage, proper training and/or instruction and orientation may be required to ensure that the procedures as outlined in this Plan are followed.

Handling of special, hazardous or hydrocarbon waste should only be conducted by personnel trained in all aspects of handling, transportation and storage of the material or materials.

5.4.1 Special Waste Handling

Special waste handling procedures are as follows:

- Special wastes are wastes that must be handled to ensure that the material does not cause contamination, fire or affect the health of personnel. Special wastes may include hydrocarbon, sewage, bio-medical, hazardous or any other waste that, when not handled properly, induce additional risk to personnel or property.
- Special wastes must be handled by employees trained to complete this work or a licensed waste disposal contractor.
- Solid waste to be recycled/treated should be separately binned and/or stored in temporary containers until final storage. These wastes include:
    - Aerosol cans
    - Lithium/NiCad batteries
    - Bulbs (fluorescent, halogen, etc.)
    - Plastic drums (totes and bags) containing contaminant residues
- Liquid and liquid contaminated wastes to be recycled/treated should be drummed or put in approved containers **ensuring no mixing** of materials. These wastes include:
    - Fuel and oil filters
    - Sweepings from shops
    - Solvent/oil contaminated rags, workwear, and absorbent pads
    - Paint filters
    - Paint and other toxic products containers
    - Grease tubes
    - Hydraulic hoses

- Waste grease
- Solvents/oils
- Laboratory Chemicals
- Glycol

- For drum storage of waste, the following practices must be followed. Drummed waste is stored in a properly dyked and protected storage area. The General Manager will be responsible for ensuring that there are proper interim storage areas for these materials. The drums must be clearly labelled indicating their contents and that materials are not mixed. See comments below regarding handling and storage requirements:
  - Full Drums

    Labelling - Drums must have proper labelling (MSDS available where applicable)

    Storage - On pallets and in designated areas protected from damage and properly ventilated

    Movement - Verify that drums are tightly closed to prevent spills

    - For multiple drums, ensure drums are secured on pallet before moving

    - For single drums, use proper slings or secure drum to cart before moving
  - In-use Drums

    Labelling - Drums must have proper labelling (MSDS available where applicable)

    Storage - In designated areas protected from damage and properly ventilated

    Movement - Verify that drums are tightly closed to prevent spills

    Decanting - Ensure that decanting nozzle does not leak when installed

    - Use with a drip pan to prevent spills, keep clean-up material nearby

    - Use only properly labelled decanting containers (do not mix products)
- Bio-medical waste removal from site will only be handled by employees or contractors trained and certified in the Transportation of Dangerous Goods (TDG).

5.4.2 Waste Transportation

The following procedures apply to waste transportation:

- Transportation of waste may include:
  - Movement of waste from a work area to the appropriate disposal or storage area.

- Movement of waste from a temporary disposal or storage area to a bulk storage area or off-site.
- Movement of waste from a bulk storage area or laydown area to off-site.

- Movement of common or routine waste from a work area to the appropriate disposal or storage area should be completed by a designated employee. The employee should be aware of the type of waste and the proper handling and transportation procedures specific to that type of waste.
- Movement from a temporary disposal or storage area to a bulk storage area or off-site should be completed by waste handling personnel (unless additional employees or contractors are designated). Movement of such materials should be conducted using appropriate equipment while utilizing appropriate personal protective equipment (PPE) at all times.

5.4.3 Waste Storage

Waste storage applies to on-site temporary pallets, bins, laydown areas and bulk storage areas:

- All waste should be stored at the designated location in/on approved containers, pallets or laydown areas, and be dyked if applicable.
- Storage areas/containers are to be clearly marked and located at approved locations around the site based on the waste requirements of each area.
- Waste placed at laydown areas or stored in containers will be collected at appropriate intervals to avoid spillage, overflow or congestion.
- Bulk storage areas will be maintained to ensure safety, maximization of available space and access for waste haulers to all adjacent areas.
- Storage areas will be inspected and reviewed based on space, necessity, access, etc. as required or at a minimum, annually.
- The hydrocarbon and hazardous waste containment area must be properly maintained and inspected to ensure full access, proper storage procedures and early leak or spill detection.
- Used oil storage containers must be inspected and maintained on a monthly basis.
- On-site storage of used tires at one time will be minimized and will adhere to the National Fire Code and National Building Code fire separation requirements (refer to applicable sections in Appendix C).

5.4.4 Infrastructure and Equipment Maintenance

Waste management infrastructure and equipment includes any or all infrastructure and equipment related to handling, transportation, storage or removal of wastes from the site. All waste management infrastructure and equipment must be maintained to ensure the health and safety of employees and avoid contamination or degradation of waste during storage or transportation.

FireFly will not have equipment specifically dedicated to waste management. There will be several loaders, boom trucks, flatbed tractor trailer trucks, and pickup trucks that will be involved in waste

management. An inspection and maintenance schedule will be developed and implemented for all mobile equipment. Inspections will include review of the condition, necessity, location and cleaning/repair/maintenance requirements for each piece of equipment or infrastructure.

6.0 MONITORING, REPORTING AND AUDITS

Continual review and enhancement of the WMP will be conducted with a goal of continuous improvement. The purpose of monitoring and auditing the waste management system is to identify any problems or aspects of the plan that can be improved, and to determine appropriate actions to address these issues.

6.1 Reporting of Problems or Concerns

All FireFly employees are responsible and encouraged to report problems or concerns related to any aspect of this WMP.

Issues pertaining to training, waste handling, transportation, storage, infrastructure and equipment should be reported to the General Manager. Any appropriate issues will be reviewed and forwarded to the HSE Superintendent for action. A record will be kept of all problems or concerns that are identified.

6.2 Record Keeping

Records related to FireFly's waste management system will be kept by the General Manager and copies are to be provided to the HSE Superintendent.

Records may include documents and information related to:

- orientation and waste management training;
- waste characterization;
- waste management legislation, regulations and guidelines;
- waste management contractors;
- off-site waste disposal;
- Waste Management Committee meetings;
- inspections of waste storage facilities; and
- any other aspects or issues related to the waste management system.

All records, including inventory and tracking of hazardous materials transported to site will be maintained and made available for inspection by NLDECC, Pollution Prevention Division representatives and inspectors.

6.3 Routine Monitoring

Routine monitoring of waste management activities will be conducted to ensure that the guidelines and procedures outlined in this plan are being followed. Routine monitoring may consist of informal or formal checks on personnel, equipment and contractors and review of records related to waste management activities. Monitoring may include, but is not limited to:

- location and condition of on-site waste and recycling collection bins;
- condition and organization of waste laydown and storage areas;
- waste collection, transportation and handling operations for FireFly employees and waste management contractors;
- waste volumes from mine areas; and
- any other aspects or issues related to the waste management system.

6.4 Annual Monitoring, Reporting and WMP Revision

This Plan will be reviewed annually or as necessary to ensure that all components of the plan are current and operating properly. The review of the Plan will be conducted by the HSE Superintendent in consultation with the General Manager.

The review of the Plan should include the following:

- existing, new and upcoming changes in legislation, regulations and guidelines;
- existing and potential waste diversion and reduction programs; and
- operational procedures, equipment and infrastructure.

Monitoring of some components of the waste management system may be required prior to or as a result of the formal review process. If monitoring is required as a result of the review, an additional formal review may be required where changes to the WMP are necessary.

Revision of the WMP may only be completed with the approval of the HSE Superintendent. Personnel affected by any revisions or changes should be notified by the General Manager and their training updated if necessary. Revisions or changes in the WMP will also be updated in the waste management orientation and operations training by the General Manager.

APPENDIX A

Certificate of Approval

(AA23-045695)

APPENDIX B

Part IV and V of the Environmental Protection Act

APPENDIX C

Applicable Sections of National Fire Code and National Building Code on Indoor Tire Storage

3.2.4. Indoor Tire Storage

3.2.4.1. Application

1) This Subsection shall apply to *buildings* or parts of *buildings* used for the storage of rubber tires.

3.2.4.2. Fire Separations

1) A tire storage area designed to contain more than 375 m^3 of rubber tires shall be separated from the remainder of the *building* by a *fire separation* conforming to Article 3.3.6.5. of Division B of the NBC. (See Note A-3.2.4.2.(1).)

3.2.4.3. Sprinkler Protection

1) *Buildings* regulated by this Subsection shall be *sprinklered* in conformance with NFPA 13, "Standard for the Installation of Sprinkler Systems," whenever

a) the aggregate of *individual storage areas* in the *building* exceeds 500 m^2,
b) any *individual storage area* exceeds 250 m^2, or
c) the height of storage is more than 3.6 m, and the total volume of tires in the *building* is more than 375 m^3.

3.2.4.4. Portable Extinguishers

1) In addition to the requirements of Part 2, multi-purpose dry chemical portable extinguishers having a rating of 4-A:80-B shall be installed

a) in every 500 m^2 of *floor area*, and
b) so that the travel distance to any extinguisher does not exceed 25 m.

3.2.5. Indoor Storage of Aerosol Products

3.2.5.1. Application

1) This Subsection shall apply to the indoor storage of packaged aerosol products as classified in Article 3.2.5.2. (See Note A-3.2.5.1.(1).)

3.2.5.2. Classification

1) For the purposes of this Subsection, aerosol products shall be classified as Level 1, 2 or 3 in conformance with NFPA 30B, "Code for the Manufacture and Storage of Aerosol Products." (See Note A-3.2.5.2.(1).)

3.2.5.3. Level 1 Aerosols

1) Packaged Level 1 aerosol products shall be protected as required for Class III commodities, in both palletized and *rack* storage, in conformance with Article 3.2.3.2.

3.2.5.4. Level 2 and 3 Aerosols

1) The storage of packaged Level 2 and 3 aerosol products shall conform to Table 3.2.5.4. and Articles 3.2.5.5. to 3.2.5.8.

2) Where storage of packaged aerosol products is mixed, protection shall be provided for the most hazardous classification present.

Table 3.2.5.4.
Maximum Amount of Packaged Level 2 and 3 Aerosol Products, kg(1)
Forming Part of Sentences 3.2.5.4.(1) and 3.2.5.5.(2)

Product Classification	Type of Dedicated Area Required					
	Buildings that are not *Sprinklered*			*Sprinklered Buildings*		
	None	A(2)	B(3)	None	A(2)	B(3)
Levels 2 and 3	1 000	5 000	10 000	10 000	50 000	No Limit

3.3.6.3. Indoor Storage of Anhydrous Ammonia and Flammable, Toxic and Oxidizing Gases

1) Where required by the NFC, cylinders of *dangerous goods* classified as flammable gases stored indoors shall be located in a room

a) that is separated from the remainder of the *building* by a gas-tight *fire separation* having a *fire-resistance rating* of at least 2 h,
b) that is located on an exterior wall of the *building*,
c) that can be entered from the exterior, and
d) whose *closures* leading to the interior of the *building* are
   i) equipped with self-closing devices that keep the *closures* closed when not in use, and
   ii) constructed so as to prevent the migration of gases from the room into other parts of the *building*.

2) Where required by the NFC, cylinders of anhydrous ammonia or *dangerous goods* classified as toxic or oxidizing gases stored indoors shall be located in a room

a) that is separated from the remainder of the *building* by a gas-tight *fire separation* having a *fire-resistance rating* of at least 1 h,
b) that is located on an exterior wall of the *building*,
c) that can be entered from the exterior, and
d) whose *closures* leading to the interior of the *building* are
   i) equipped with self-closing devices that keep the *closures* closed when not in use, and
   ii) constructed so as to prevent the migration of gases from the room into other parts of the *building*.

3.3.6.4. Storage and Dispensing Rooms for Flammable Liquids and Combustible Liquids

1) *Fire separations* for rooms where *flammable liquids* and *combustible liquids* are stored are required to be constructed with a *fire-resistance rating* in conformance with Subsection 4.2.9. of Division B of the NFC.

2) Where Class IA or IB liquids specified in Subsection 4.1.2. of Division B of the NFC are dispensed within a storage room, the room shall be designed to prevent critical structural and mechanical damage from an internal explosion in conformance with good engineering practice such as that described in NFPA 68, "Standard on Explosion Protection by Deflagration Venting." (See Note A-3.3.6.4.(2).)

3.3.6.5. Tire Storage

1) A tire storage area designed to contain more than 375 m^3 of rubber tires shall be separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* of not less than 2 h. (See Note A-3.3.6.5.(1).)

3.3.6.6. Ammonium Nitrate Storage

1) Where Article 3.2.9.1. of Division B of the NFC applies due to the quantity and nature of the stored product, and as stipulated in Sentences (2) to (6), *buildings* used for the storage of ammonium nitrate shall be classified as *medium-hazard industrial occupancies* (Group F, Division 2).

2) *Buildings* intended for the storage of ammonium nitrate shall be not more than one *storey* in *building* height.

3) *Buildings* intended for the storage of ammonium nitrate shall not

a) have *basements* or crawl spaces, or
b) contain open floor drains, tunnels, elevator pits or other pockets that might trap molten ammonium nitrate.

4) *Buildings* intended for the storage of ammonium nitrate shall have not less than 0.007 m^2 of vent area for each square metre of storage area, unless mechanical ventilation is provided.

APPENDIX D

Emergency Contact Phone Numbers

Emergency Phone Numbers Organization	Phone
Local Medical, Fire and Police Services	
Baie Verte Ambulance	1-709-532-5200
Baie Verte Hospital	1-709-532-4281
Baie Verte RCMP	1-709-532-4221
Baie Verte Fire Department	1-709-532-4400
Ming's Bight Fire Department	1-709-254-7461
La Scie Ambulance	1-709-675-2300
La Scie Medical Clinic	1-709-652-3410
La Scie Fire Department	1-709-675-2771
Department of Transportation - Baie Verte	1-709-292-4444
Provincial Ambulance, Police, and Fire	
(St. John's, Gander, Grandfalls-Windsor, & Corner Brook)	911
Emergency Measures Organization	1-709-729-3703
Poison Information Centers	
Corner Brook	1-709-634-7121
Gander	1-709-256-5552
Grand falls-Windsor	1-709-292-2500
St. Anthony	1-709-457-334
St. John's	1-709-722-1110
Government Agencies	
NLDFFA - Wildlife Division (Springdale Office)	1-709-673-3821
Environmental Emergencies Fuel - Chemical Spills 24hr hotline	1-709-722-2083 1-800-563-9089
NLDFFA - Provincial Forest Fire Communications Centre Western Region	1-709-673-2328 1-709-637-2408

Service NL - Industrial Accidents Hotline	1-709-729-4444
FireFly -Ming Mine and Process Plant Site	
FireFly - Nugget Pond Mill Site	
Guy J Bailey Ltd. – Main office	
Main Office	1-709-532-4642/8216
Scott Bailey – Manager	1-709-532-7250
Peter Goudie – Site Supervisor	1-709-532-7295
Hillary Burt – Safety Coordinator	1-709-532-4642

Appendix 2.E Sustainability Policy

Sustainability Policy

FireFly Metals Limited (ACN 110 336 733)
Adopted by the Board with effect on 27 March 2025

1. Purpose

FireFly Metals Limited (**Company**) recognises the shared value for shareholders and other key stakeholders is paramount to any sustainable organisation. The Company commits to operate the business in line with the core principles of sustainable development, to deliver on the needs of the present, without compromising the needs of future generations and integrating environmental, social and governance considerations into all aspects of our decision making.

2. Environment

2.1 Closure and ecosystem services

The Company will consult and partner with stakeholders to ensure that current and future generations inherit a positive legacy, whereby the post mine land use delivers a sustainable environmental value. The Company will be proactive in taking into account the effect of changed climatic conditions. The Company will be responsible stewards and restore ecological values and leave a safe and stable landform. The Company will actively manage water as a precious resource through every stage of the mine life.

2.2 Biodiversity and rehabilitation

The Company commits not to mine or explore in world heritage sites. The Company will actively ensure that key biodiversity values are retained. The Company will follow the mitigation hierarchy to first avoid, minimise, rehabilitate and finally compensate for residual damage, where appropriate.

2.3 Circular economy and waste

The Company seeks innovative opportunities to grow its business by turning waste to value, increasing resource efficiency while regenerating nature. The Company commits to sustainable consumption and production and will continue to invest in technology that furthers the waste reduction aims of the circular economy. The Company commits to managing hazardous substances responsibly throughout storage, handling, use and disposal. Throughout the Company's supply chain, the Company will enter into partnerships with customers, governments and other stakeholders to support transparency and chain of custody standards aimed at delivering sustainable resources.

2.4 Air, soil and water pollutants

The Company will manage pollutants within safe and legal limits and aims to remove workers from exposure through effective work design. The Company commits to taking appropriate steps to manage the greenhouse gas emissions associated with its activities. Where the science outpaces legislation, the Company commits to adopt more stringent standards to protect workers' and communities' health and safety.

3. Social

3.1 Health and safety

The Company has designed the workplace to provide a healthy and safe environment and will continue to promote a culture to prevent workplace accidents and serious injuries, and to support positive mental health and wellbeing. The Company intent is to drive the continuous improvements necessary to integrate effective risk management and avoid any incidents that have the potential to harm workers or the community. The Company commits to maintaining effective technical standards, updated procedures, active in-field observations and instilling a culture of risk awareness and leadership around safety and health.

3.2 Labour rights

The Company supports the principles outlined in the International Labour Organisation (**ILO**) Declaration on Fundamental Principles and Rights at Work and other ILO core conventions. The Company supports the right to collective bargaining and seeks to develop respectful relationships with employees. The Company's Code of Conduct outlines its requirements for the workplace to be free from discrimination, including harassment and sexual harassment. The Company commits to training its employees so that they have up-to-date skills, even in the face of changing technology.

3.3 Diversity and inclusion

The Company seeks to create a culture of respect for different points of view. The Company will recruit the right people for the right job regardless of race, gender, age, marital status, disability, sexual orientation, nationality, political or religious beliefs, or any other factor not relevant to their competence and performance. The Company is active in its recruitment practices and in its internal promotion process to ensure that it is inclusive, seeks diverse points of view and actively supports groups that have been historically disadvantaged. The Company ensures adequate procedures for reporting and investigating complaints, with clear standards for the protection of any whistle-blowers.

3.4 Indigenous Peoples

In communities where we operate, we strive to maximise positive social and economic benefits and minimise potentially negative impacts.

The Company seeks to build sustainable, long-term and mutually beneficial outcomes with local communities and Indigenous Peoples that are impacted by its operations and to understand, recognise and respect their rights, culture and heritage.

The Company is committed to respecting Indigenous Peoples' rights by conducting meaningful consultation and engagement, to avoid or mitigate potential adverse impacts of our activities on the rights of Indigenous Peoples. In cases where the government leads consultation, we will coordinate our efforts accordingly.

The Company celebrates the cultural heritage, tangible and intangible, and the historical and ongoing spiritual connections of Indigenous Peoples to such heritage, and seeks to avoid and mitigate adverse impacts on cultural heritage and traditional practices.

3.5 Human rights

The Company respects human rights in line with the United Nations Guiding Principles on Business and Human Rights at every stage of the mining process. The Company recognises that its commitment to human rights extends beyond its operations and into its supply chain and will continue to actively engage with suppliers and customers to mitigate human rights risks.

4. Governance

4.1 Tax transparency

The Company commits to timely and fair payment of taxes and royalties. The Company will transparently report its total contribution in the interest of accountability to society and civil institutions. The Company supports the Extractive Industries Transparency Initiative.

4.2 Bribery, anti-corruption and anti-competitive behaviour

The Company will provide timely and accurate disclosure on material changes within the business. The Company does not give bribes and ensures it complies with the laws in each region where it operates, including competition law. The Company prohibits corruption in any form. The Company provides training and conducts active due diligence, investigation and intervention to ensure a culture where employees operate in accordance with ethical standards and the Company's values and policies.

4.3 Board of Directors

The Company will take steps to ensure that the majority of its Board of Directors are independent,[1] with an ability to act in the best interests of the Company. The Board reserves the right to make an assessment of independence by considering the materiality of any potential conflicts of interests. The Company will ensure its Directors have the appropriate breadth of skills and experience to steward the Company.

The Company's culture supports Directors to challenge management and each other in the interest of objectively representing the best interests of the Company, investors and other stakeholders. The Company will provide training to ensure that Directors are abreast of new regulation and best practice guidance. The Company actively fosters interactions between senior leadership and site-based workers to ensure a culture of openness and accountability is maintained.

[1] https://www.asx.com.au/documents/asx-compliance/cgc-principles-and-recommendations-fourth-edn.pdf

Appendix 2.F Environmental Contingency Plan

ENVIRONMENTAL CONTINGENCY PLAN

FOR

FireFly Metals Canada Limited
Green Bay Ming Mine Project
and
Current Operations

BAIE VERTE, NEWFOUNDLAND

AND LABRADOR

Date Drafted: October 16, 2018

Administrative Amendments Pending Submission and Approval

Version 3.0

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1.0 INTRODUCTION

This Environmental Contingency Plan (the Plan) has been prepared by FireFly Metals Canada Limited (FireFly) to satisfy the requirement of the Certificate of Approval (C of A / AA23-0456945), issued by the Pollution Prevention Division (PPD) of the Newfoundland and Labrador Department of Environment and Climate Change (NLDECC), for the operation of the Green Bay Copper-Gold Project (the "Current Operations") which includes the underground Ming Mine site, the Nugget Pond Mill site and Goodyear's Cove shipping facility and proposed expansion known as the Green Bay Ming Mine Project (the "Project"). The C of A was issued on April 13, 2023 and expires on April 13 2028.

FireFly acquired ownership of the Project on October 19, 2023, from the previous owner, Rambler Metals and Mining PLC (Rambler). The contents and layout of this Plan are in accordance with the guidelines set forth by the NLDECC which has been updated due to the ownership change of the project, the operational status change of some Project sites and the proposed expansion at the Ming Mine Site.

This Plan covers the underground mine site, the process plant sites (including Nugget Mill and the new Process Plant at Ming Mine), and the port site (third party and Goodyear's Cove), during the current exploration period of the Project and the future expansion of the Ming Mine. The Ming Mine is currently in an exploration development period and is not in active production which is anticipated to run for an 18-month period. It is anticipated the expansion Project will be released from the environmental assessment and move towards development in 2026. The expansion at the Ming Mine site proposes the construction of a new process plant, tailings management facility (TMF; at the Nugget Mill and new TMF at Ming Mine) port access road to a third-party-owned port facility, accommodation complex to house the workforce and expansion of the underground mine and supporting infrastructure. These proposed facilities are included in the Plan. Note that the third-party owner of the port to be used for the expansion will be responsible for environmental protection measures at their site in accordance with their own permit and approval requirements.

At this time, the Nugget Pond Mill site is not currently operational and is held within a care and maintenance status. As such, the Goodyear's Cove port area is not actively being utilized for ship loading or concentrate storage and is not regularly manned. Therefore, the likelihood of an environmental emergency occurring at these sites will be at a reduced quantity compared to what is generated during normal mining operations at the Project.

FireFly is currently in the process of finalizing the sale of the port site infrastructure at the Goodyear's Cove site and relinquishing the lease agreement for the private/municipal land, removing the site from the Project scope. Due to the timing of the deal, the Goodyear's Cove site is being carried as part of the Project in this document and will be included in the outlined policies and procedures. While the Goodyear's Cove site is generally unmanned and non-operational, all protocols and policies outlined in

this document will still apply to the site, when applicable, as long as the site is still recognized as part of the Project area.

In addition, this plan includes information and procedures regarding emergency preparedness and response related to the storage and use of propane at the site to satisfy requirements under the *Canadian Environmental Protection Act* (1999) regarding environmental emergency plans. This information has been incorporated into this plan as much of the emergency response procedures are the same or similar.

1.1 Purpose and Scope

The purpose of this Environmental Contingency Plan is:

- To outline communication and reporting procedures for fuel and hazardous spills at each of the Project sites.
- To define the roles of individuals and departments having particular responsibilities under this plan.
- To identify an action plan for spill response at any area of the Project.

This Plan is in effect for all properties (Nugget Pond, Ming Mine and Goodyear's Cove) and adjoining or surrounding areas associated with the Project. It also covers drainage areas to bodies of water on or outside of the property.

2.0 ENVIRONMENTAL CONTINGENCY PLAN DOCUMENT CONTROL

2.1 Distribution

This document will be distributed to the personnel/locations indicated in Table 2-1. Revised copies of this Plan must be forwarded to each person/location on this list if revisions or amendments to this Plan are made. All previous revisions of the Plan should be destroyed.

Table 2-1 Distribution List

Department or Organization	Individual or Location		
	Ming Mine	**Nugget Pond**	**Goodyear's Cove**
Management	General Manager Environment, Health and Safety Officer		
	Mine Superintendent	Mill Superintendent	Security Office
Environmental Health and Safety (HSE) Department	Environmental Coordinator	Environmental Health & Safety Officer	Environmental Health & Safety Officer
Site Locations	Security & Shifters Office WWTP Warehouse Lunchroom Emergency Response Maintenance Garage Mine Office	Security Warehouse Mill Control Room Millwright Shop Electrical Office Electrical Shop Laboratory Lunchroom Office Lunchroom Mill	Security Concentrate Storage Building
Fire/Police Department & Hospital	Baie Verte Ming's Bight	Baie Verte Snook's Arm La Scie	South Brook Springdale
NL Department of Environment and Climate Change	Pollution Prevention Division		
Department of Digital Government and Service NL	Corner Brook Office		

2.2 Review, Update and Revision History

This Plan will be reviewed annually, or as necessary, to ensure that all components of the plan are current and operating properly. The review of the Plan will be conducted by the HSE Department and should include, but not be limited to, review of existing, new and upcoming changes in legislation, regulations and guidelines, and changes to operational procedures, equipment and infrastructure.

Revision of the Plan may only be completed with the approval of the HSE Department and the General Manager. Personnel affected by any revisions or changes should be notified and their training updated if necessary. Revisions or changes in the Plan should also be updated in the environmental and safety training.

Table 2-2 Document History

Date	Version	Notes
February 28, 2011	0.1	Draft Submitted to Rambler (Previous owners)
N/A	1.0	Submission to Department of Environment and Conservation, Pollution Prevention Division (NLDOEC, now NLDECC)
October 16, 2018	2.0	Revision, Submission to Department of Environment and Conservation, Pollution Prevention Division (NLDOEC, now NLDECC)
Pending	3.0	Administrative Amendments to be submitted to Dept. of Environment and Climate Change (NLDECC), Pollution Prevention Division (PPD)

2.3 Monitoring, Reporting and Audits

Continual review and enhancement of the Plan will be conducted with a goal of continuous improvement. The purpose of monitoring and auditing the emergency response systems is to identify any problems or aspects of the Plan that can be improved, and to determine appropriate actions to address these issues.

2.3.1 Reporting of Problems or Concerns

All employees and contractors/consultants are responsible and encouraged to report problems or concerns related to any aspect of this Plan. Issues pertaining to training, fuel and hazardous materials handling, transportation, storage, infrastructure and equipment should be reported to the HSE Department. Any appropriate issues will be reviewed by the HSE Department in consultation with the Area Superintendents, and acted on or, if necessary, reviewed by Management. A record will be kept of all problems or concerns that are identified.

2.3.2 Routine Monitoring

Routine monitoring of hydrocarbon and hazardous materials activities will be conducted to ensure that the guidelines and procedures outlined in this Plan adequately address site operations and conditions. Routine monitoring may consist of informal or formal checks on personnel, equipment and contractors and review of records related to hydrocarbon and hazardous materials storage, handling and transportation activities.

2.3.3 Summary of Alerting and Notification Procedures

In the event of a spill involving hydrocarbon or hazardous materials, follow the steps outlined below:

- The person (i.e., employee, contractor, etc.) who identifies the spill (the spill observer) should immediately notify Security, at their respective site, and give details of the release (e.g., location, volume, product, cause, date and time, etc.).
- Security will immediately call the environmental and management personnel responsible for the spill location (mine, mill, or port) and provide the details of the spill/release – see communication flow chart on the following page.
- Depending on the seriousness of the spill/release and related safety issues:
    - communications should immediately continue up the chain of command as per the flow chart. Refer to Table 6-3 for a full list contact information and numbers.
    - Security may deploy the Emergency Response Team and/or contact local emergency responders (fire/police/ambulatory).
- The first available environmental or management personnel will mobilize to the site and assume the role of On Scene Commander from the spill observer and coordinate the appropriate communications, reporting, and spill response as further outlined in this Plan. Only the Environmental Health and Safety Officer (EHSO) and the Environmental Coordinator (EC), in consultation with the Environmental Health and Safety Coordinator (HSE Department), the Area Superintendents, and the General Manager shall have the role of formally initiating the Environmental Contingency Plan.
- Based upon the information provided by Security, the EHSO or the EC, in consultation with the HSE Department and/or the Area Superintendent, will then immediately call the 24-hour Environmental Response Canadian Coast Guard Hotline at 1-800-563-9089 or 1-709-772-2083 with a preliminary report (see Section 4.3 for information requirements). The EHSO or the EC may request the Security to make this call on his/her behalf or the HSE Department or the Mill Superintendent may complete the call themselves.
- Assigned environmental personnel, in consultation with the Area Superintendents and/or the HSE Department, will continue with spill response activities and will provide cleanup and follow-up actions, as necessary.
- The HSE Department, in consultation with, the General Manager, the EHSO, and the EC will decide whether communication with external agencies (e.g., consulting firms, response agencies, etc.) is necessary. The EHSO or the EC, in consultation with the HSE Department, will follow up with external agencies if necessary.

- The General Manager, in consultation with the HSE Department, will handle any necessary reporting to the public or media regarding the release.

Refer to Emergency Response Communications Flowchart in Appendix A.

3.0 STRUCTURE AND RESPONSIBILITY

The initial stage of any emergency is critical, and the effectiveness of the response will determine if the emergency situation should escalate to a higher level. All personnel will be fully aware of their individual duties and responsibilities contained in this Plan, including the prompt notification of additional/support personnel. To reduce potential confusion, the roles and responsibilities of all personnel/groups associated with emergency response in this Plan are outlined below. All positions outlined below will have a designate should they not be available.

3.1 Management Commitment

FireFly is committed to the preservation and protection of the environment. As such, FireFly commits to the implementation, maintenance and upgrading of this Plan, as required.

FireFly management recognizes that staff time and resources are required to implement and maintain this Plan. All employees must understand the importance of the Plan and of following procedures. The roles and responsibilities of the HSE Department, Area Superintendents and the General Manager as well as other staff, are defined below.

3.2 Employees

All employees must understand their roles and responsibilities in preventative measures and, emergency response, including the contents of this Plan.

3.3 Spill/Release Observer

For all situations, the first person to observe an emergency is defined as the Spill/Release Observer. The Spill/Release Observer's responsibilities are as follows:

- Assess the situation and note any immediate risk to site personnel, the environment or assets (example: buildings, tanks, other pipelines, etc.).
- Immediately notify Security and provide details of the spill (e.g., location, volume, product, cause, immediate emergency response measures taken (if any), date and time, etc.). Refer to Table 6-3 for contact information.
- Act as On Scene Commander until arrival of environmental or management personnel.

- Aid environmental personnel to fill out an Environmental Incident Report Form and forward it to the HSE Department. The Environmental Incident Report Form is provided in Appendix B.

3.4 On Scene Commander

For all situations, the first person on the scene of an emergency is designated the On Scene Commander until such time as the EHSO, EC and/or the HSE Department arrives, or an alternate is designated. The On Scene Commander's duties include:

- Upon being notified of an emergency, the On Scene Commander will assess the situation based on all current information, and immediately contact Security.
- Ensure that Security has contacted the HSE Department and emergency response personnel or agencies, if required.
- Restrict access to the spill/release area to only authorized personnel.
- Continue corrective action to regain control of the spill/release, where necessary and safe to do so without putting themselves or any staff members at risk.
- Inform and consult with appropriate environmental and management personnel.
- Communicate directly with and provide direction to the Leader of the Emergency Response Team.
- Aid in any emergency response and remediation effort.

3.5 Security

Security's responsibilities are as follows:

- Contact the environmental and management personnel responsible for the spill/release area once the Release Observer reports a release or potential for release.
- Maintain the lines of communication between the incident site and the HSE Department or designate passing along all relevant details as they become available.
- If immediately necessary, or if advised to do so by the HSE Department:
    - Deploy the Emergency Response Team.
    - Ensure the release area is evacuated and secured.
    - Continue to keep the area clear of individuals not responsible for emergency response.

3.6 Emergency Response Team

The Emergency Response Team's responsibilities are as follows:

- Upon being notified by Security, proceed directly to the Emergency Response Centre for debriefing from team leaders.
- Assist the On Scene Commander in assessing the situation.
- Along with the On Scene Commander, secure the scene (i.e., doing everything reasonably possible to prevent further damage without risking safety or health of self or others) until arrival of the HSE Department or designate.
- Stop the release of the hydrocarbon or hazardous material, if safe and possible to do so, contain what has been released.

3.7 HSE Department

The HSE Department responsibilities are as follows:

- Assume role of On Scene Commander once on site or once regular telephone or radio contact has been established.
- Ensure that a spill does not create a fire, accident or other personal hazards.
- If the spill has the potential to enter the natural environment, ensure the management and/or external specialists contain the release by installing containment booms (or other) or by placing berms, dykes or other obstructions to divert the flow of product.
- Ensure the efficient execution of this Plan. The HSE Department and the Area Superintendent, is responsible for providing overall direction on the remediation of environmental issues.
- Inform and consult with Management as appropriate.
- Communicate directly with and provide direction to the Leader of the Emergency Response Team with respect to containment or initial clean-up of the spill/release.
- In consultation with the HSE Department and/or the Area Superintendent, provide expertise with respect to cleanup and follow-up actions once notified of a spill.
- Conduct all required sampling to determine concentrations of hydrocarbon or hazardous materials as identified in the appropriate regulations. In the case of a propane spill/leak, have tests conducted to determine existence of gas/vapors.
- Take responsibility for overseeing external specialized resources as directed.

- Conduct root cause analysis to determine the cause of the spill and provide mitigative measures to prevent reoccurrence in the future.
- Consult with the Area Superintendent, the HSE Department, and the General Manager in the decision of whether communication and/or support with/from external agencies (e.g., consulting firms, response agencies, etc.) are required.
- In consultation with the Area Superintendent, the HSE Department and the General Manager inform applicable government agencies as required under existing regulations.
- Provide relevant information to the Area Superintendent, HSE Department and the General Manager for distribution to the public or media regarding the release.
- Prepare a report covering all aspects of the spill and submit to the Area Superintendent and/or the HSE Department, who will submit to the appropriate personnel/organizations.
- In consultation with the Area Superintendent, the General Manager and the HSE Department, review and revise the Plan on an annual basis, or as required, ensuring that it is up-to-date and effective.
- In consultation with the HSE Department and/or the Area Superintendents, update the list of materials required for during Spill Response every 12 months.
- Maintain a current listing of available support equipment at the site indicating the locations of the same.
- Retain records required by this Plan, including training records, environmental incident reports, etc.
- Review the Plan on an annual basis.

3.8 Area Superintendents (Mine and Mill (s))

The Area Superintendent's responsibilities are as follows:

- Overall responsibility and authority to organize emergency response measures concerning mine or mill operations, i.e., shutting down operations to protect the health and safety of personnel on site, the environment or company assets/infrastructure.
- Provide resources for adequate and appropriate emergency response.
- In the event of a spill of hydrocarbon or hazardous materials, consult with the HSE Department and Site Superintendents and/or the General Manager to determine if it is appropriate to shut down the Mine or Mill or evacuate the site.

- In consultation with the HSE Department, determine when it is safe to return to routine Mine or Mill operations.

- Ensure a root cause analysis of the event is completed to identify risks and potential preventive measures to reduce the likelihood of the release recurring.
- Review the Plan on an annual basis.

3.9 Environmental Health and Safety Coordinator

The Environmental Health and Safety Coordinator's responsibilities are as follows:

- Provide overall leadership to the both the Nugget Pond Facility and the Ming Mine Site and be primarily responsible for the Goodyear's Cove site.
- Upon notification of a spill/release, consult with the HSE Department, the General Manager and/or the Area Superintendents in the decision of whether communication and/or support with/from external agencies (e.g., consulting firms, response agencies, etc.) are required.
- Ensure that each operating department has identified a list of personnel that could be called upon to assist the On Scene Commander in a spill response incident.
- Ensure that spill response training is conducted with employees who have been designated by their departments as responders to spill incidents.
- Consultation with the Area Superintendent and the General Manager regarding any necessary reporting to the public or media regarding the release.
- Review the Plan on an annual basis.

3.10 General Manager

The General Manager's responsibilities are as follows:

- Provide overall leadership to the, HSE Department and the Area Superintendents.
- In consultation with the HSE Department and the Area Superintendents, handle any necessary reporting to the public or media regarding the release.
- Review the Plan on an annual basis and provide approval of the Plan and any necessary revisions and/or updates.

3.11 Hydrocarbon and Hazardous Materials Suppliers/Contractors

Contractor's responsibilities are as follows:

- Are to be fully licensed to conduct hydrocarbon and/or hazardous materials storage, transportation and handling activities in the province of Newfoundland and Labrador.
- Must adhere to all federal, provincial and municipal hydrocarbon and hazardous materials regulations.
- Provide to the FireFly operations all necessary documentation pertaining to the transportation, storage, final disposal location and disposal process for all hydrocarbon and hazardous materials from the property.
- Adhere to all FireFly's operations and environmental, and health and safety guidelines.

4.0 ALERTING AND NOTIFICATION PROCEDURES

4.1 Communications Procedures

Responsibilities for internal and external communication, including the reporting of spills, must be clearly defined. In the event of a spill involving hydrocarbon or hazardous materials, follow the steps outlined below:

- The person (i.e., employee, contractor, etc.) who identifies the spill (the spill observer) should immediately notify Security, at their respective site, and give details of the release (e.g., location, volume, product, cause, date and time, etc.).
- Security will immediately call the environmental and management personnel responsible for the spill location (mine, mill, or port) and provide the details of the spill/release – see communication flow chart in Appendix A.
- Depending on the seriousness of the spill/release and related safety issues:
    - Communications should immediately continue up the chain of command as per the flow chart. Refer to Table 6-3 for a full list of contact information and numbers.
    - Security may deploy the Emergency Response Team and/or contact local emergency responders (fire/police/ambulatory).
- The first available environmental or management personnel will mobilize to the site and assume the role of On Scene Commander from the spill observer and coordinate the appropriate communications, reporting, and spill response as further outlined in this Plan. Only the HSE Department, the Area Superintendents and the General Manager shall have the role of formally initiating the Environmental Contingency Plan.

- Based upon the information provided by Security, the HSE Department and/or the Area Superintendent, will then immediately call the 24-hour Environmental Response Canadian Coast Guard Hotline at 1-800-563-9089 or 1-709-772-2083 with a preliminary report (see Section 4.3 for information requirements). The HSE Department may request the Security to make this call on his/her behalf or the Mill/Mine Superintendent may complete the call themselves.
- Assigned environmental personnel, in consultation with the Area Superintendents and/or the HSE Department, will continue with spill response activities and will provide cleanup and follow-up actions, as necessary.
- The HSE Department, in consultation with, the General Manager, the EHSO, and the EC will decide whether communication with external agencies (e.g., consulting firms, response agencies, etc.) is necessary. The HSE Department, will follow up with external agencies if necessary.
- The General Manager, in consultation with the HSE Department, will handle any necessary reporting to the public or media regarding the release.

Telephone numbers for internal and external emergency contacts are included in Table 6-3. All contacts (internal and external) included in the telephone contact lists shall be aware that they are on the list and know what is expected of them. When necessary, training will be provided to these individuals to ensure they are capable of responding to the situation. Refer to the Emergency Response Flowchart in Appendix A.

4.2 Internal Alerting Procedures

When a hydrocarbon or hazardous material spill is discovered by an employee, that person (the On Scene Commander) should take the following actions, in order, immediately:

1. Stop the flow of product if safe and possible to do so.
2. Warn anyone in immediate danger.
3. Remove sources of ignition if safe and possible to do so.
4. Contact security to report the emergency and notify Management.
5. Try to contain any spilled material. Spill kits are located at fuel storage tanks, propane and hazardous material locations and at designated locations.

Spill kit locations are presented in Tables 6-1 and 6-2 with the locations of the spill kits at each Project site shown on Figures 6-1 to 6-3.

Where a propane spill or leak is discovered by an employee, that person (the On Scene Commander) should take the following actions, in order, immediately:

1. Evacuate everyone up-wind of the leak/spill and out of the area where any vapors may concentrate.
2. Isolate the spill/leak area immediately, approximately 100 m in all directions. If the spill is large, increase the evacuation area to 500 m.
3. Eliminate all possible sources of ignition, including those that wouldn't normally pose a risk such as running vehicles and light switches if safe to do so.
4. Stop the leak if safe and possible to do so.
5. Ensure the leak/spill area is well ventilated to prevent concentrations reaching explosive levels.
6. Keep all personnel out of low-lying areas as propane gas is heavier than air and will collect in low or confined areas (i.e. sewers, basements and tanks).
7. In the case of a fire and the tank is exposed to flame evacuate to a minimum distance of 1,000 m and do not attempt to extinguish the fire unless the supply of gas can be stopped. Only emergency personnel trained to fight gas-fed fires should attempt any course of action.

Security personnel will collect essential information from the spill reporter and notify the On Scene Commander who will take charge of the situation. Signs indicating what to do in case of a spill will be posted at all hydrocarbon, propane, and hazardous material storage areas.

4.3 External Alerting Procedures

The HSE Department, Area Superintendent and the General Manager, will initiate the External Alerting Procedure when the amount or estimated amount of spillage is 70 liters (15 gallons) or greater. In the case of a propane leak or spill, the threshold is "any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more" (*Transportation of Dangerous Goods Regulations* – Part 8, under the *Transportation of Dangerous Goods Act*). The following steps will be taken:

1. Immediately call the Environmental Response Canadian Coast Guard at the Spill Report Line (709) 772- 2083 or (800) 563-9089 to report the spill (as required by the *Fisheries Act*). The Environmental Incident Report Form in Appendix B gives the categories of information required for this call.

Required pertinent information includes:

a. Name of reporter and phone number
b. Time of spill or leak
c. Time of detection of spill or leak
d. Type of product spilled or leaked

e. Amount of product spilled or leaked
f. Location of spill or leak
g. Source of spill or leak
h. Type of accident – collision, rupture, overflow, other
i. Owner of product and phone number
j. If the spill or leak is still occurring
k. If the spill or leaked product is contained, and if not, where it is flowing
l. Wind velocity and direction
m. Temperature
n. Proximity to waterbodies, water intakes, and facilities
o. Snow cover and depth, terrain, and soil conditions
p. Potential health and environmental hazards

2. Within 24 hours, provide a copy of the Environmental Incident Report Form to:

   Government of Newfound and Labrador Department of Environment and Climate Change, Pollution Prevention Division

   Trot Duffy – Environmental Engineer (Stephenville Office)

   Tel: (709) 643-6114

   Email: duffyt@gov.nl.ca

   Environment and Climate Change Canada

   Robert Robichaud – Director of Environmental Enforcement - Atlantic Region

   Email: Robert.robichaud@ec.gc.ca

3. Send copies of the Environmental Incident Report Form to the Area Superintendents, HSE Department, and the General Manager. If all the spill information is not available at the time of the spill, an Environmental Incident Report is still required in the timeframes noted above. When a report is incomplete, then a completed report should be sent to (2) and (3) above, as soon as it is available.

5.0 SPILL CONTROL AND CLEANUP PROCEDURES

5.1 Stages of Spill Control and Cleanup for Liquids

- Limit the spill.
- Contain and control the spill.
- Remove the contaminant.
- Complete an Environmental Incident Report (Appendix B).

5.1.1 Limit the Spill

- Immediate action is critical to prevent a minor spill from escalating into a major spill.
- The flow of products should be stopped (close open valves and/or stop pumps) if safe to do so.
- Plug a hole or leak, improvise where safe and possible.
- Preliminary repairs may be needed to allow operations to continue until a more complete repair can be done.

5.1.2 Contain and Control the Spill

- Containment of the spilled product is required to prevent spreading and to keep the problem localized.
- Spilled product should be prevented from entering drains.
- Berms of sand, soil or snow should be built to contain the flow of spilled product.
- Spills on water should be contained by using floating booms until it can be recovered. In flowing water, the boom should be stretched across the flow downstream from the spill. In standing water, the boom can contain the spill close to shore.

5.1.3 Remove the Product

- Where possible the product and any contaminated soil should be excavated and put into drums for disposal.
- When product is floating on water it should be pumped into a tank or other containment device to allow oil/water separation and eventual draining of the product into drums for disposal.
- Oil dispersants can only be used after approval has been obtained.
- When waterbodies are impacted by a spill, the product must be removed by manual or mechanical means and all contaminated soil or vegetation should also be removed.
- A list of available spill control and cleanup equipment is provided in Section 6.0 of this document.

5.1.4 Restoration

Restoration the site to pre-spill conditions as much as possible, as directed by the NLDECC, if required.

5.1.5 Complete an Environmental Incident Report

All spill occurrences shall be documented on the Environmental Incident Report Forms made available to throughout the site. These will be forwarded to the EHSO or the EC, the Area Superintendent, the HSE Department and the General Manager.

5.2 Stages of Spill Control and Cleanup for Propane

In addition to the steps and procedures (below) for control and clean-up, FireFly employees should be properly trained in preventative measures. Prevention of propane spills/leaks includes items such as proper installation, maintenance, protection, support, location, safe operation, disposal and operation.

5.2.1 Limit the Spill/Leak

- Immediate action is critical to prevent a minor spill from escalating into a major spill.
- The flow of products should be stopped (close open valves and/or stop pumps) if safe to do so.
- Preliminary repairs may be needed to allow operations to continue until a more complete repair can be done.

5.2.2 Control the Spill/Leak

- Ensure the leak/spill area is well ventilated to prevent concentrations from reaching explosive levels.
- Prevent entry of the propane into low-lying areas such as underground openings, drainage, and sumps.

5.2.3 Complete an Environmental Incident Report

All leak/spill occurrences shall be documented on the Environmental Incident Report Forms made available throughout the site. These will be forwarded to the EHSO or the EC, the Area Superintendent, the HSE Department and the General Manager.

5.3 Disposal

Instructions for disposal of contaminated materials will be given by the EHSO or the HSE Department and will be undertaken by qualified third party contractors.

6.0 EMERGENCY RESPONSE RESOURCES

6.1 Spill Response Inventory

Spill response inventory is listed in Table 6-1 and Table 6-2 for the Nugget Pond Facility and the Ming Mine site, respectively. Figures 6-1 to 6-3 presents the locations of pertinent spill response equipment, denoted by the red circles, for the Nugget Pond Facility, the Ming Mine site, and the Goodyear's Cove port site, respectively. Since Goodyear's Cove Port has been put into care and maintenance, only the spill response kit in the concentrate building is being maintained.

6.2 Spill Response Manpower

Each shift rotation will have a designated team who is responsible for firefighting, rescue, spill response, etc. referred to as the Emergency Response Team.

6.3 Infrastructure and Equipment Maintenance

Emergency response infrastructure and equipment includes any or all infrastructure and equipment related to emergency and/or spill response. All emergency response infrastructure and equipment must be maintained to ensure the health and safety of employees and avoid unnecessary environmental impacts that could have otherwise been prevented.

Regular inspections are conducted and will include review of the condition, necessity, location and cleaning/repair/maintenance requirements for each piece of equipment or infrastructure.

See Table 6-1 and Table 6-2 for a list of infrastructure and equipment available at the Nugget Pond Facility and the Ming Mine site. Spill response infrastructure and equipment at the Goodyear's Cove site is being maintained in the concentrate storage building.

6.4 Emergency Phone Numbers

Local emergency phone numbers are presented in Table 6-3, below. Emergency contact numbers for the Ming Mine site, the Nugget Pond Mill site and the Goodyear's Cove port site are listed in Tables 6-4, 6-5 and 6-6 respectively.

Table 6-1 Spill Response Inventory – Nugget Pond Facility

Equipment	Quantity	Contents
Loader	1	Not applicable
Dump Truck	1	Not applicable
Spill Kits for petroleum and hazardous material	4	Hi-point pads, sorb-sox, 1 bag of aclansorb, heavy duty yellow disposal bags, Caution Waste Material Sign, chemical resistant gloves, spark proof shovel, goggles
Rakes	5	Not applicable
Shovels	5	Not applicable
Emergency Generator	1 eper	Not applicable
Portable gas and diesel generators	2	Not applicable
Portable lighting	Not applicable	Not applicable
Warehouse supplies	Various	Assorted chemical resistant rubber boots & gloves, eye protection
Self-contained breathing apparatus (SCBA)	4 with 2 additional oxygen tanks	Oxygen
Hazardous Material Suits	4	Not applicable
Bunker Suits	4	Not applicable
20 lb fire extinguishers	20	Various depending on location
Carbon dioxide extinguishers	3	Carbon dioxide

Table 6-2 Spill Response Inventory –Ming Mine Site

Equipment	Quantity	Contents
Front End Loader	2	Not applicable
Kubota's	4	Not applicable
Mitsubishi 5 ton propane forklift	3	Not applicable
Scoop Tram	4	Not applicable
42 Haul Truck	4	Not applicable
Haul Truck	2	Not applicable
Excavator	2	Not applicable
Spill Kits for petroleum located at the fuel dispensing facility, maintenance shop and on the 1800 level underground	4	Hi-point pads, sorb-sox, 1 bag of aclansorb, heavy dutyyellow disposal bags, Caution Waste Material Sign, spark proof shovel, goggles
Rakes	5	Not applicable
Shovels	5	Not applicable
Portable gas and diesel generators	1	Not applicable
Portable lighting	Various	Not applicable
Warehouse supplies	Various	Assorted rubber boots & gloves, rubber suits and eye protection
20 lb fire extinguishers	30	Various depending on location
Carbon dioxide extinguishers	2	Carbon dioxide

*Note: the inventory lists and locations will be updated upon NL approval of the Ming Mine Project

Figure 6-1 Spill Kit Locations – Nugget Pond

Figure 6-2 Spill Kit Locations – Ming Mine Site [Note: the locations will be updated upon approval of the Ming Mine Project]

Figure 6-3 Spill Kit Locations – Goodyear's Cove Site [Note: Site in Care and Maintenance, kits no longer maintained at dock]

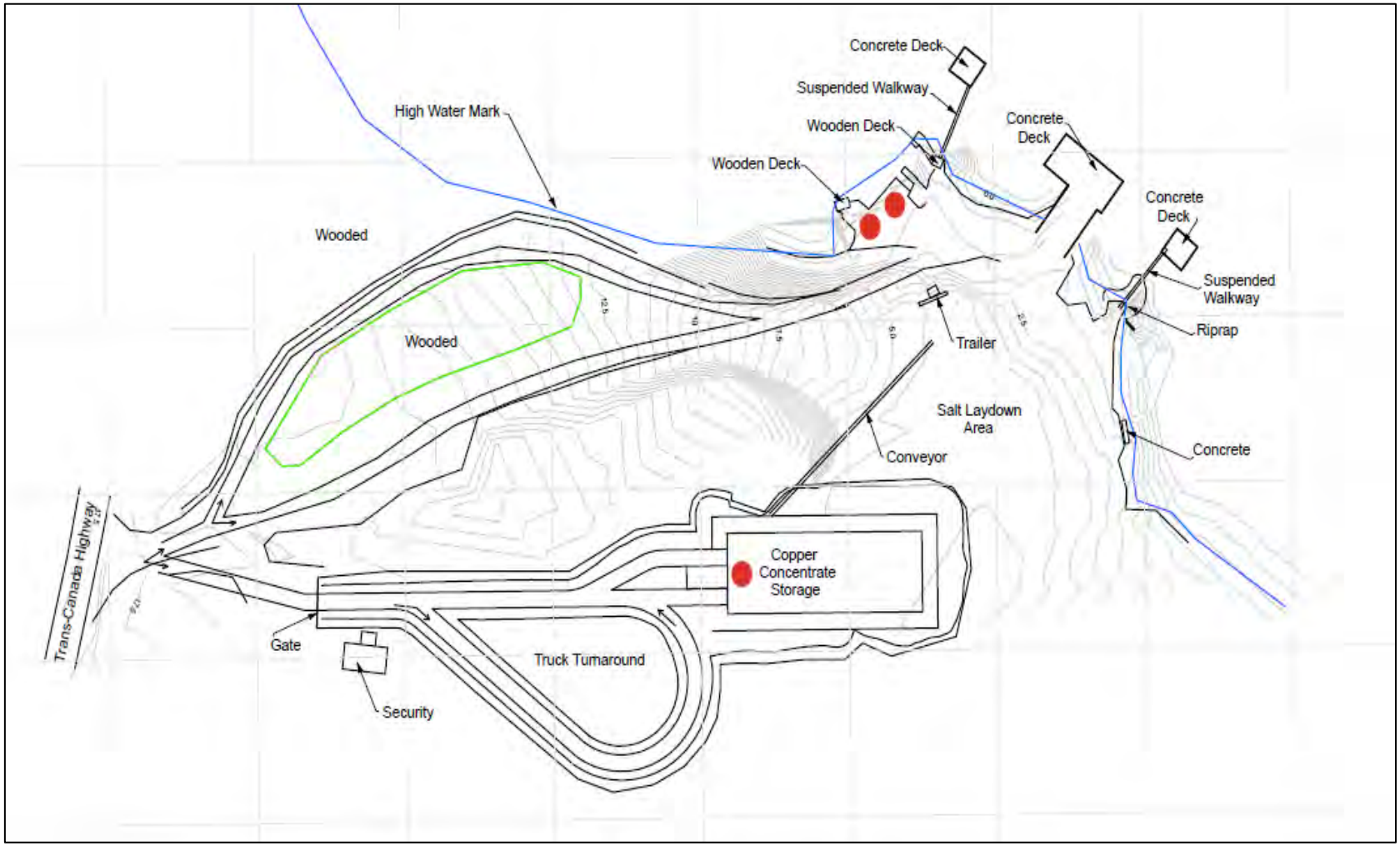


Table 6-3 Emergency Agencies Contact Numbers

Emergency & Important Numbers			
	Ming Mine	**Nugget Pond**	**Goodyear's Cove**
Security	709 800-1929 ext 200	(709) 800 1929 ext 504	709-532-7291
Fire Department	Baie Verte: (709) 532-4400 Ming's Bight: (709) 254-7461	Baie Verte: (709) 532-4400 La Scie: (709) 675-2771 Brent's Cove: (709) 661-5301	Springdale: (709) 673-3394
Hospital/Medical Services	Baie Verte Hospital/Ambulance: (709) 532-4281/5200 La Scie Medical Center /Ambulance: (709) 652-3410/2300	Baie Verte Hospital/Ambulance: (709) 532-4281/5200 La Scie Medical Center /Ambulance: (709) 652-3410/2300	Springdale Hospital/Ambulance: (709) 673-3911
Local RCMP Detachment	Baie Verte: (709) 532-4221	Baie Verte: (709) 532-4221	Springdale: (709) 673-3864
RCMP Province Wide Emergencies	(800) 709-7267		
Environmental Emergencies (Fuel - Chemical Spills 24hr)	(709) 722-2083 / 1-800-563-9089		
NLDFFA - Wildlife Division	(709) 673-3821 (Springdale Office)		
NLDFFA - Provincial Forest Fire Communications Centre	(709) 673-2328 (709) 637-2408 (Western Region)		
Digital Government and Service NL - Industrial Accidents	(709) 729-4444		
Poison Information Centre	(709) 722-1110		
CANADIAN COAST GUARD 24 HOUR SEARCH & RESCUE			
Marine Distress	(800) 563-2444		
Air Distress	(800) 565-1582		
HELICOPTER EMERGENCY NUMBER			
Emergency Measures Organization	(709) 729 3703		

Table 6-4 Emergency Company Contact Numbers – Ming Mine and Goodyear Cove Port

Contact Name	Position	Contact Number(s)
Gus Simbanegavi	General Manager & VP Operations	Office: 709-800-1929 ext xxx Cell: xxx-xxx-xxx
Tabatha LeBlanc	VP Environment and Community	Office: 709-800-1929 ext xxx Cell: xxx-xxx-xxx
Corey Greenham	HSE Superintendent	Office: 709-800-1929 ext 237 Cell: 709-532-7337
Jordan Cramm	Chief Mine Engineer	Office: 709-800-1929 ext xxx Cell: xxx-xxx-xxx
Bonnie Matthews	Human Resources Manager	Office: 709-800-1929 ext 234 Cell: 709-631-0777
Matthew Saunders	Lead Mine Technician	Office: 709-800-1929 ext xxx Cell: xxx-xxx-xxx
Aaron Burry	Electrical Foreman	Office: 709-800-1929 ext 236 Cell: 709-532 -7053
Jody Smith	Mine Rescue	Office: 709-252-2879 Cell: 709-532-5845
Steve Burton	Mine Rescue	Office: 709-532-4127
Security Office	Mine Site Security	Office: 709-800-1929 ext 200

Table 6-5 Emergency Company Contact Numbers – Nugget Pond

Contact Name	Position	Contact Number(s)
Sean Breen	Operations Manager	Office: 709-800-1929 ext 512
Security Office	Mill Site Security	Office: 709-800-1929 ext 504

7.0 EMERGENCY RESPONSE TRAINING

Employee education and awareness about the Environmental Contingency Plan, and continual communication are important to ensure the success of this Plan. All company staff and contractors/consultants should be informed about the Plan and should know and understand their responsibilities under the Plan. On-going communication about plan implementation, changes and results will ensure a high level of awareness about the Plan.

Information on environmental and safety awareness and the Environmental Contingency Plan for the Project will be provided to all new employees and contractors/consultants during standard site orientation training. Additional information and training will be provided on an individual basis, specific to the work area of the employee or contractor/consultant. All contractors/consultants will be provided with specific instructions on how to handle, transport, store and dispose of hydrocarbon and hazardous waste at the site.

A list of employees, staff and contractors/consultants will be kept by the HSE Department and the Human Resources Department and will include the type of training each individual received, the date of the training and any updates or additional training.

8.0 HYDROCARBON AND HAZARDOUS MATERIALS INVENTORY

8.1 Hydrocarbon and Hazardous Materials

A full list of hydrocarbon, propane and hazardous materials storage is presented in Table 8-1 and Table 8-2 for the Nugget Pond Facility and the Ming Mine site, respectively. The only hydrocarbon, propane, and hazardous materials storage present at the Goodyear's Cove site is a single 1,000L certified fuel tank.

8.2 Mobile Equipment

A list of mobile equipment with their associated hydrocarbon capacities that are presently on site for the current exploration development period are presented in Appendix C.

8.3 Chemical Storage

A list of chemicals and reagents stored at each site is presented in Appendix D.

Table 8-1 Hydrocarbon and Hazardous Materials Tank Inventory – Nugget Pond Facility

Parameters	Sodium Metabisulphite	Copper Sulphate	Hydrated Lime	Sodium Hydroxide	Sodium Cyanide	Hydrochloric Acid	Fuel (refinery)	Fuel (dispensing)	Fuel (genset)
Reg.Number	N/A	N/A	N/A	N/A	N/A	N/A	GAP95-044000	GAP1010-0203.01	N/A
ID Number	70-TK15	70-TK16	70-TK14	70-TK17	70-TK13	60-TK24	N/A	N/A	N/A
Material Stored	chemical reagent	chemical reagent	chemical reagent	chemical reagent	chemical reagent	chemical reagent	furnace oil	diesel	diesel
Capacity(M^3)	4.70	2.14	11.39	1.42	11.39	6.76	2.273	2.315	1.135 + 1.135
Yearly Throughput(M^3)	427.7	2343.3	1039.34	129.58	1039.34	41.12	4.546	6	2.27
Tank Material	steel	fiberglass	steel	steel	steel	fiberglass	steel	steel	steel
Tank Type	liquid flat bottom cylinder	liquid flat bottom cylinder	liquid flat bottom cylinder	liquid flat bottom cylinder	liquid flat bottom cylinder	liquid flat bottom cylinder	self-dyked	self-dyked	dyked
Diameter(meters	1.98	1.22	2.44	1.22	2.44	2.00	1.257	1.257	1.257 + 1.257
Height(meters)	1.52	1.83	2.44	1.22	2.44	2.20	1.80	1.40	1.17
Color	blue	blue	blue	blue	blue	blue	blue	red	brown
Roof Type	inside mill bldg.	inside mill bldg.	inside mill bldg.	inside mill bldg.	inside mill bldg.	inside mill bldg.	outside	outside	inside steel bldg.
Year Manufactured	1997	1997	1997	1997	1997	1997	1997	2001	1996
Year Installed	1997	1997	1997	1997	1997	1997	1997	2010	1997
Last Inspection date	VI-2010	VI-2010	VI-2010	VI-2010	VI-2010	VI-2010	VI-2010	VI-2010	VI-2010
Failure History	None	None	None	None	None	None	None	None	None
Maintenance History	minor pump change outs	minor pump change outs	minor pump change outs	minor pump change outs	minor pump change outs	minor pump change outs	None	None	None

Parameters	Sodium Metabisulphite	Copper Sulphate	Hydrated Lime	Sodium Hydroxide	Sodium Cyanide	Hydrochloric Acid	Fuel (refinery)	Fuel (dispensing)	Fuel (genset)
Dyke Capacity	dyke directed to sumps*	dyke directed to sumps*	dyke directed to sumps*	dyke directed to sumps*	dyke directed to sumps*	dyke directed to sumps*	110%	110%	110%
Next Inspection Date	VI-2024	VI-2024	VI-2024	VI-2024	VI-2024	VI-2024	VI-2024	VI-2024	VI-2024

VI - Visually Inspected EHSO

The Nugget Pond Mill Site is currently under Care and Maintenance and is not operational.

* - All chemical tanks are directed to mill sumps in a closed-circuit during operation

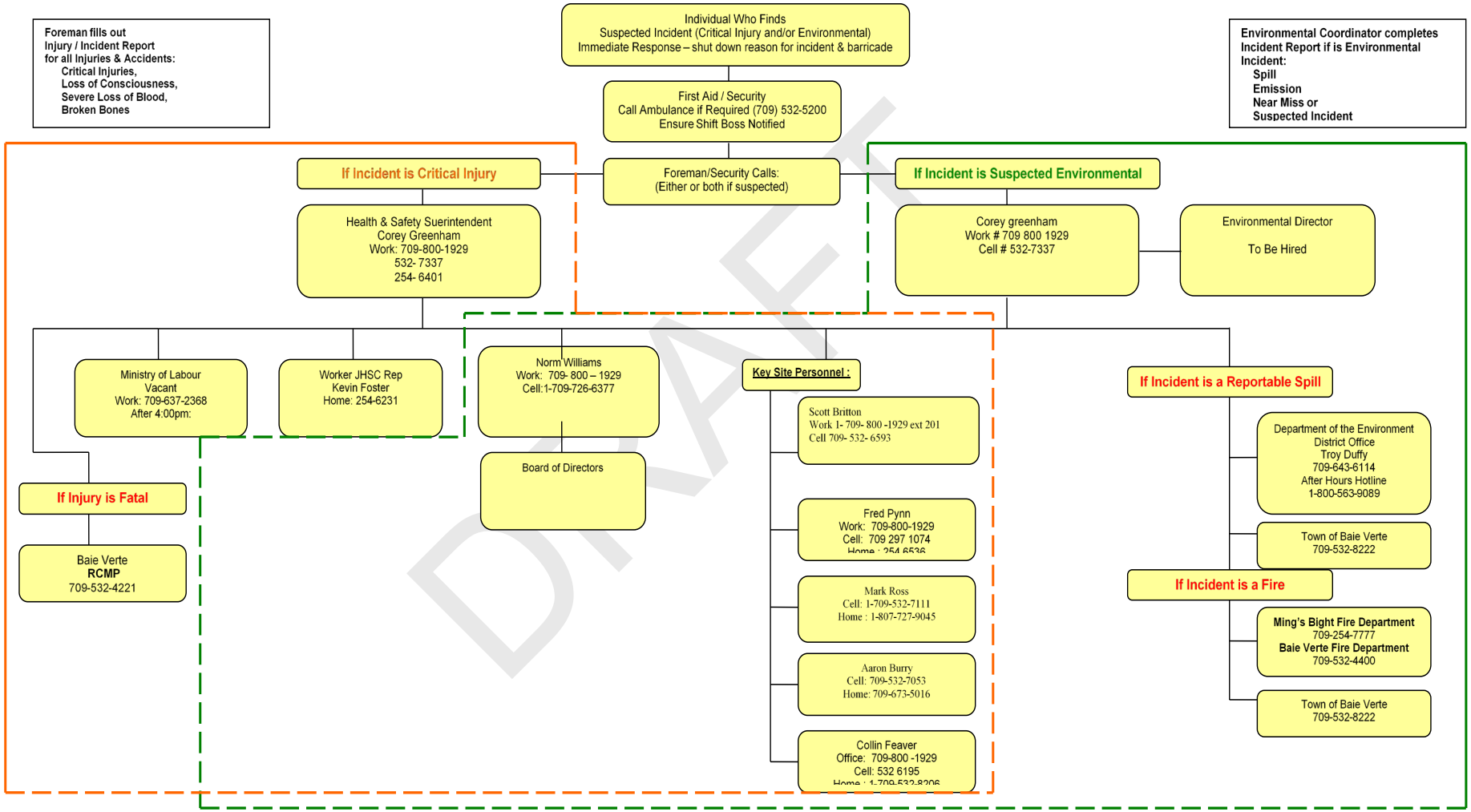
Table 8-2 Hydrocarbon Tank Inventory – Ming Mine Site

Parameters	Fuel (Dispensing)
Reg.Number	GAP057-0165-02
ID Number	B-935016
Material Stored	Diesel Fuel
Capacity(M^3)	22.73
Yearly Throughput(M^3)	12
Tank Material	steel
Tank Type	Geep style (mobile fuel storage)
Diameter(meters)	2.14
Height(meters)	2.14
Color	Blue
Roof Type	outside
Year Manufactured	1987
Year Installed	2007
Last Inspection date	VI-2007
Failure History	None
Maintenance History	None
Dyke Capacity	110%
Next Inspection Date	VI-2024

VI - Visually Inspected

APPENDIX A

EMERGENCY RESPONSE FLOWCHART



Placeholder – Flowchart to be provided for final EA Registration submission

APPENDIX B

ENVIRONMENTAL INCIDENT REPORT FORM

ENVIRONMETAL INCIDENT REPORT FORM

Green-Bay Copper-Gold Project

Incident Date (M/D/YR)	
Incident Time	
Type of Incident	
Product / Chemical / Gas	
Quantity	
Location	
Witnesses	
Supervisor	
Department, Department Head	
Cause / Description of Incident	
Contained (yes/no)	
Clean-up Procedure Implemented	
Weather Conditions	
Preventative Measures	
Reportable Incident (yes/no)	
Reported to Regulatory Agencies, if so by whom?	
Date / Time Reported	
Potential Environmental Effects	
Follow-up Required (yes/no) – provide detail	
Attachments	

Report Completed by: _____

Date: _____

Signature: _____

APPENDIX C

LIST OF MOBILE EQUIPMENT AND CAPACITIES FOR THE CURRENT EXPLORATION DEVELOPMENT PERIOD

Nugget Pond Mobile Equipment List (Pending Update)					
Equipment Type	**Manufacturer**	**Model #**	**Diesel/Fuel/Propane**	**Capacity (litres)**	**Hydraulic Oil (litres)**
Lift Truck	Hyster	Fortis 59 H50FT	Propane	40	45
Dump Truck	Volvo	Unknown	Diesel	100	225
Pay Loader	John Deere	644H	Diesel	275	340

Ming Mine Mobile Equipment List for Exploration Development Period (Pending Update)					
Equipment Type	**Manufacturer**	**Model #**	**Diesel/Fuel/Propane**	**Capacity (litres)**	**Hydraulic Oil (litres)**
Rockbolters	McLean's	975-425			
Rockbolters	Sandvik	DH312			
Jumbo Rock Drill	Sandvik	DD-321			
Front End Loader (5.7 m^3)	Caterpillar	RH1700H			
Front End Loader (4.8 m^3)	Caterpillar	R1600H			
Front End Loader (3.1 m^3)	Caterpillar				
Front End Loader (1.8 m^3)	Caterpillar				
ANFO Loader	Getman	A64			
Scissor Lift	Walden	N/A			
Grader	Galion	hd-06641	Diesel	91	91
Hilux X 3	Toyota				
Man Carriers X 2	Kovatera				
Man Carriers	ROXOR				
Mobile Maintenance	Minecat UTE				
Lubrication Supply	DUX Lube truck				

APPENDIX D

LIST OF CHEMICALS AND REAGENTS

Reagents and Chemicals – Nugget Pond Facility (Pending Update)					
Reagent/Chemical	**Description**	**Supplier**	**Estimated Quantity On-site**	**Packaging**	**Location**
Sodium Cyanide (NaCN)	Highly toxic, colorless salt, inorganic compound	Dupont	4MT	Steel drum with plastic liner	Warehouse # 4
Calcium Hydroxide (CaOH)	Hydrated lime, inorganic compound, white powder	Brentag	12,000 kg's	1,000 kg nylon bulk bag on a pallet	Warehouse # 4
The Magna Floc 10 (Floc)	Non-toxic white granular powder	Brentag	78,000 kg's	25 kg plastic bags on pallets – 40 bags per pallet	Warehouse # 4
Hydrochloric Acid (HCL)	Highly Corrosive liquid	Brentag	16 L	4L glass containers	Lab
Copper Sulphate (CuSO4)	Moderately toxic blue powder	Brentag	10,000 kg's	25 kg plastic bags on pallets – 40 bags per pallet	Warehouse # 4

Notes:

1. All chemicals used at the Nugget Pond Facility are transported to the site, on demand, via closed container transport trucks from various vendors across Canada.

2. Majority of the chemicals are stored in a designated cold storage warehouse to ensure containment, if an accidental spill should occur.

3. Once the package (ie. tote tanks or bulk bags etc.) are emptied, the package is properly cleaned and disposed of or recycled.

Reagents and Chemicals – Ming Mine Site (Pending Update)					
Reagent/Chemical	**Description**	**Supplier**	**Estimated Quantity On-site**	**Packaging**	**Location**
Ferric Sulphate Fe2(SO4)3	Reddish brown liquid	NL Ecotech	10,000 L	1,000 L plastic tote tanks	WWTP
Calcium Hydroxide (CaOH)	Hydrated lime, inorganic compound, white powder	Graymont	15,000 kg's	1,000 kg nylon bulk bag on a pallet	Cold Storage Warehouse
The Magna Floc 10 (Floc)	Non-toxic white granular powder	NL Ecotech	1,000 kg's	25 kg plastic bags on pallets – 40 bags per pallet	WWTP

Notes:

1. All chemicals used at the Ming Mine Waste Water Treatment Plant (WWTP) are transported, on demand, via flat-bed transport trucks from various vendors throughout Atlantic Canada.

2. Prior to use all chemicals with the exception of calcium hydroxide (hydrated lime), are stored in an area of approximately 6 m x 10 m, within the WWTP to ensure containment, if any accidental spill should occur.

3. The calcium hydroxide (hydrated lime) is stored in a newly constructed cold storage shed.

4. Once the package (ie. tote tanks or bulk bags) are emptied, the package is properly cleaned and disposed of or recycled.

Appendix 3.A Engagement Material

3A.1 December 2023 Public Information Sessions

Attendance

December 4, 2023 Baie Vista - Baie Verte Meet and Greet

	Name	Phone	Email	Comments/Feedback
1	D			N/A
2	L			N/A
3	S			N/A
4	C			Good Talk
5	G			N/A
6	L			N/A
7	D			N/A
8	D			N/A
9	D			N/A
10	S			Thank you for all the good info
11	A			N/A
12	W			N/A
13	K			N/A
14	T			N/A
15	Je		n	Over 10 years working in mining
16	P		om	N/A
17	C			N/A

Covered to protect identity of Participants

Note: Approximately 5 people did not complete ballot cards

Employee Attendees: Jordan Cramm, Barry Breen, Gus Simbanegavi, Bonnie Matthews, Corey Greenham, Darren Cooke, Tabatha LeBlanc

December 5, 2023 Ming's Bight Town hall Meet and Greet

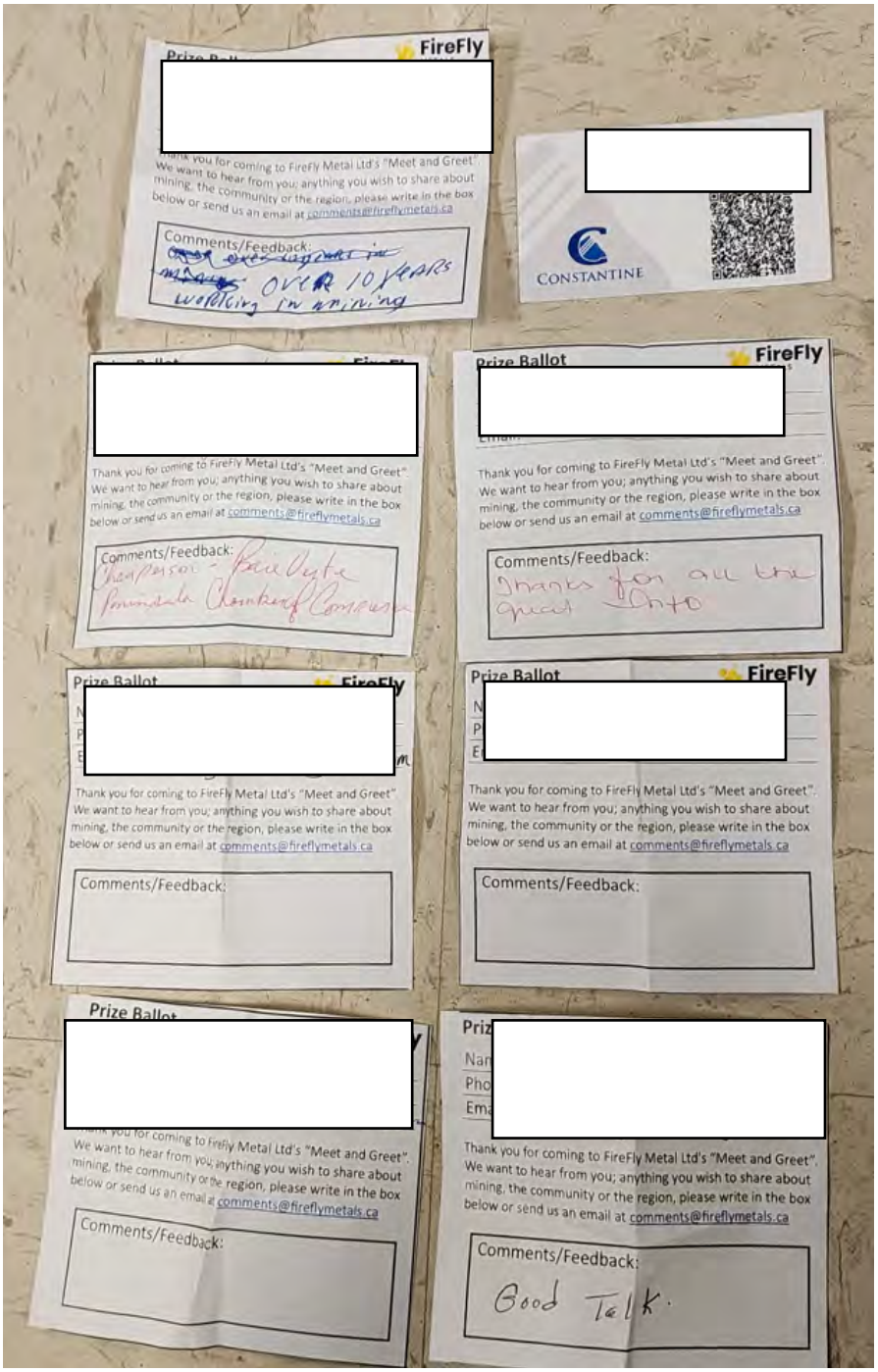
	Name	Phone	Email	Comments/Feedback
1	Ta		k.com	N/A
2	A			N/A
3	Ti			N/A
4	Ca		om	N/A
5	Sh			N/A
6	Br		.com	N/A
7	Ja			N/A
8	To			N/A
9	Ka			N/A
10	Ch			N/A
11	La			N/A
12	B			N/A
13	G			N/A
14	Te			N/A
15	Ju		n	N/A
16	R			N/A
17	W			N/A
18	D			N/A
19	R			N/A
20	D		com	N/A

Covered to protect identity of Participants

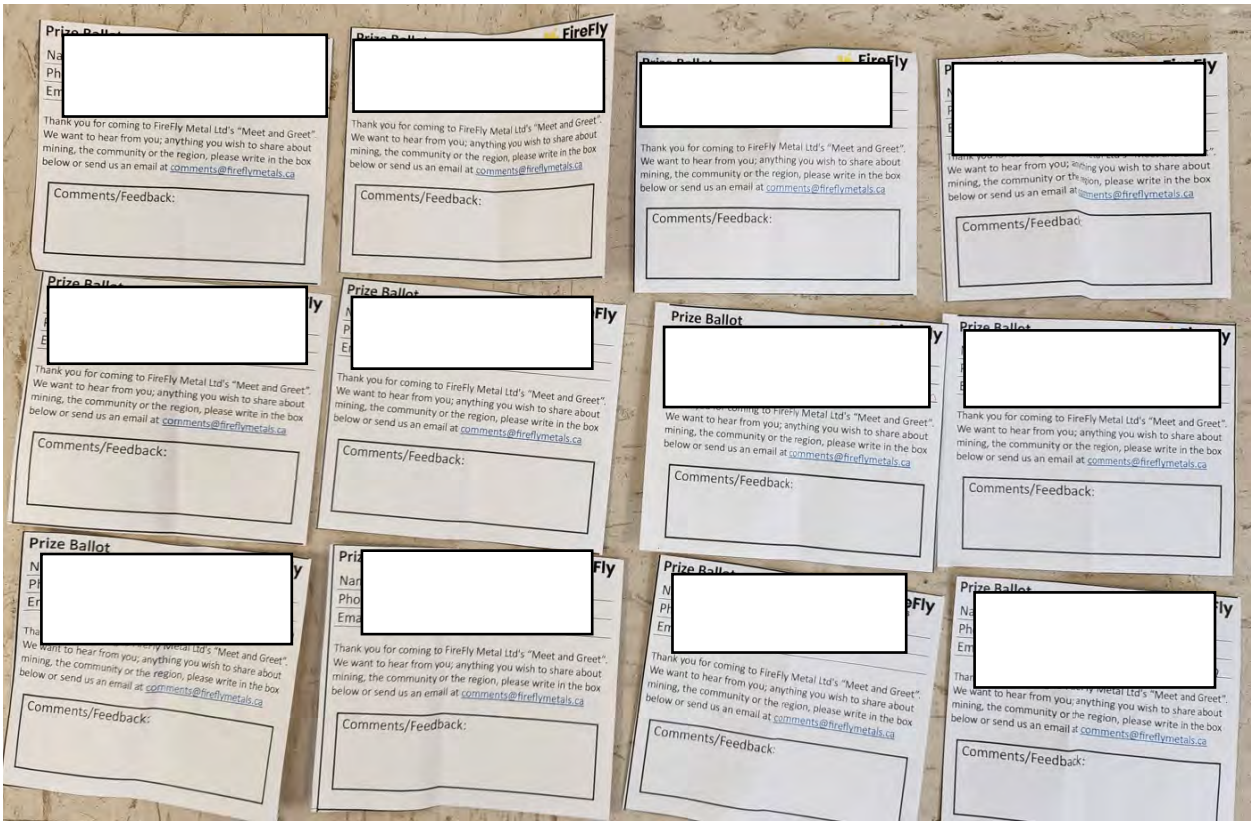
Note: Approximately 3 people did not complete ballot cards

Employee Attendees: Juan Gutierrez, Gus Simbanegavi, Bonnie Matthews, Corey Greenham, Darren Cooke, Tabatha LeBlanc

Comment cards received during Meet and Greet sessions in December 2023




Prize Ballot
FireFly
METALS
Thank you for coming to FireFly Metal Ltd's "Meet and Greet". We want to hear from you; anything you wish to share about mining, the community or the region, please write in the box below or send us an email at comments@fireflymetals.ca
Comments/Feedback: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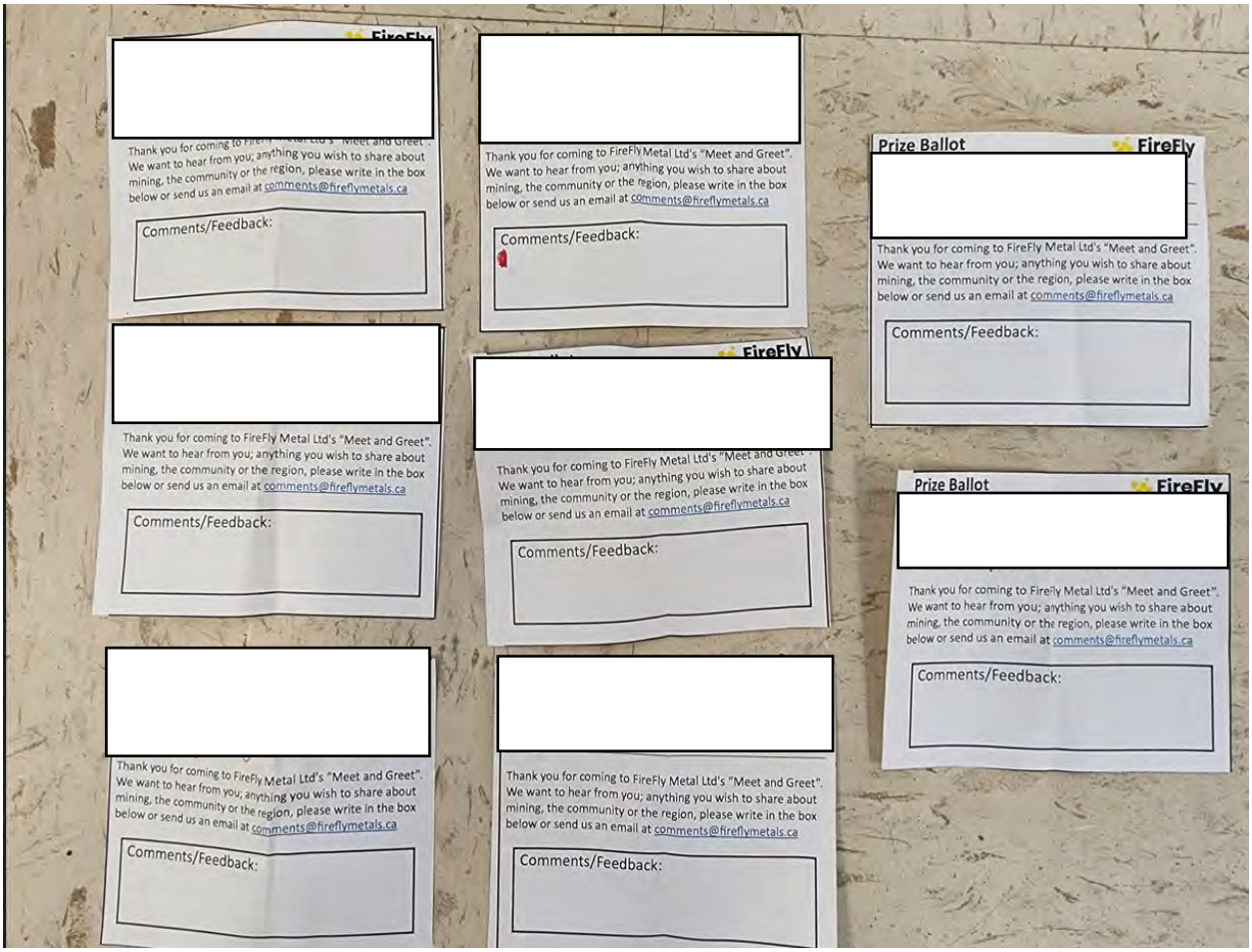
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Comments/Feedback:
Prize Ballot
FireFly

3A.2 May 2024 Public Information Sessions

Facebook Ad for Public Sessions in May

OPEN HOUSE

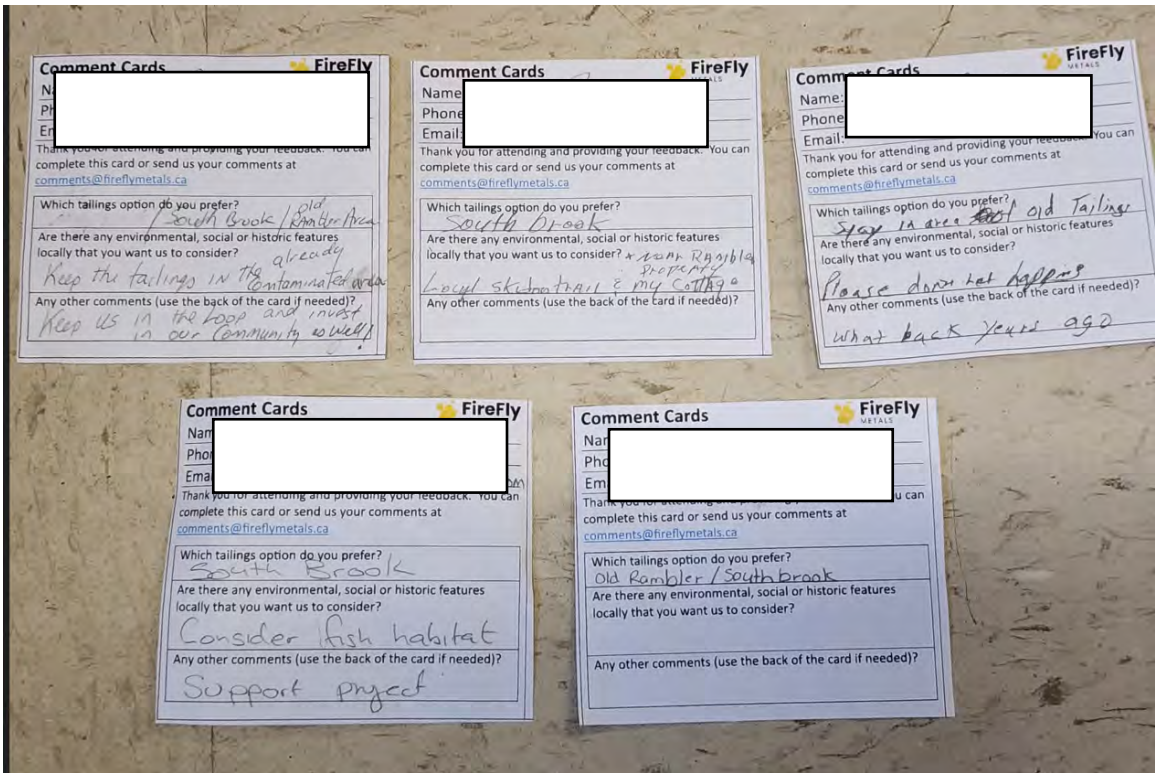
FireFly Metals will be providing updates on the Green Bay Copper-Gold Project, focusing on environmental baseline, permitting and project alternatives. A short, 10 to 15 minute presentation will be provided at the beginning of the open house followed by Q&A and open for discussions afterwards. See you there!

Thursday May 2nd at Ming's Bight Townhall from **6 pm to 8 pm**

Monday May 6th at Baie Vista Inn from **6 pm to 8 pm**

Tuesday May 7th at Baie Vista Inn from **1 pm to 3 pm**

Comments cards from the Ming's Bight Session on May 2024



Comment cards from the Baie Verte Session on May 2024

Images from Public Session and School Events in May 2024

3A.3 The PowerPoint Presentation Shown at the May Public Information Sessions

FireFly METALS

May 2024

Project Update: Environmental ~ Social ~ Governance

Image of entrance to Mine

Agenda

- Sustainability
- Studies and Permits
- Project News

Sustainability

- Pillars of Sustainability= Environment + Social + Governance
- Clear direction built from a sustainable business model and corporate policy.
- Evolving to meet the specific needs of each operation
- Strategy sessions with our employees held in December to customize sustainability goals for the Green Bay Copper-Gold Project

Environment and Governance

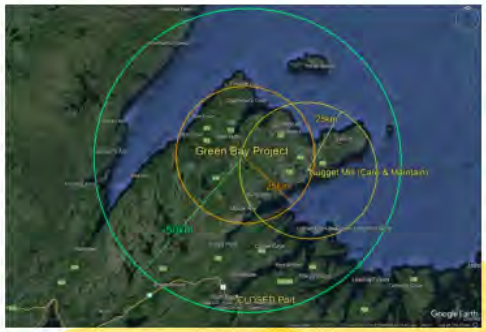
- Mature Health and Safety program onsite, fully trained and equipped Mine Rescue Team, continuing to build a safety culture
- Operational permits in place for the Exploration work programs
- Regulatory reporting is ongoing and in compliance
- Baseline and scoping studies to commence this spring to support the expansion of the Green Bay Copper-Gold Project (the "Project")

Social

- FireFly believes in mutual benefits, with a focus on supporting communities where we do business and actively participating in communities
- Labour, services, materials and equipment sourced locally where possible- keep our business in the local area (e.g. Nobles Distributing, DRS, Home Hardware, Baie Vista Inn, Coop, Great Canadian Dollar Store, etc.)
- Open mind approach and willingness to explore "out of the box" ideas
- Partnerships and future planning to increase benefits and reduce effects of potential expanded operations, increase opportunities for local business and future generations

Communities

- 20+ communities within 50km radius of Project
- Focus on most proximate communities initially (most likely influenced by our activities)
- Introductory meetings in December and January
- Update planned for most proximate communities in early May

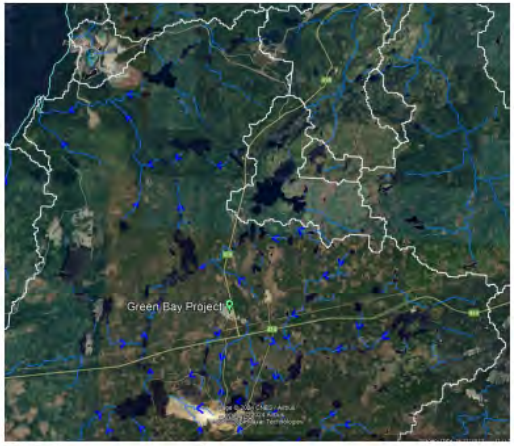


Community Engagement

- Presence in communities:
  - attending social/sporting events;
  - engaged on social media (e.g. Facebook);
  - quarterly newsletters (1st and 2nd Editions); and;
  - giving back to communities
- Hosted two open houses in Baie Verte and Ming's Bight and attended a Chamber of Commerce
- Visiting three local high schools
- Continue to host open houses to provide project updates and get feedback

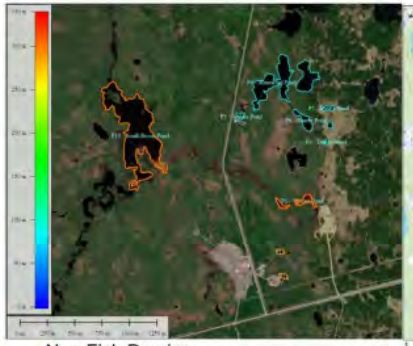
Studies and Permits – Project Expansion

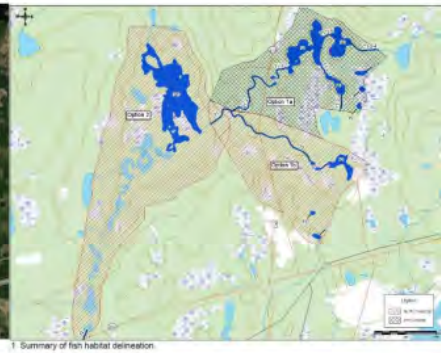
- Expanded baseline studies starting this week:
  - Existing fisheries and surface water data for operations and compliance reporting
  - Expanding studies to include terrestrial (seasonal and endangered species), air and noise, surface water, groundwater, aquatics/fisheries, social, economic, traffic, heritage/archeological, land uses, geotechnical and geochemistry
- Increase understanding of the natural and social environment to make informed decisions on mine design and expansion (watersheds, endangers species, land users)



Local Watersheds

Fish Bearing Water Bodies





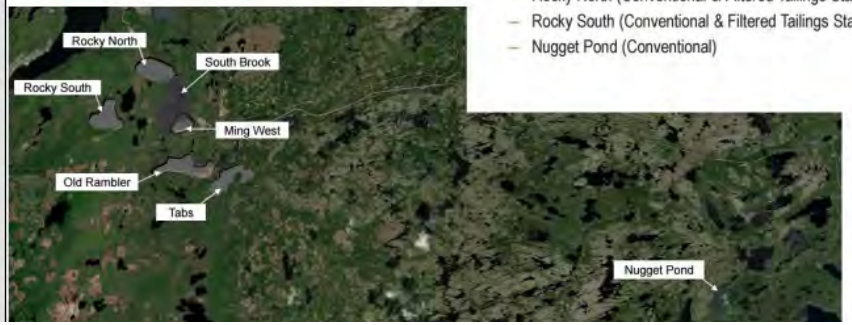
Non-Fish Bearing
Fish Bearing

Studies and Permits – Project Expansion

- Scoping studies underway for mine expansion:
  - Considering a new process plant/mill at the mine site, scoping studies will determine the location, size and production rate
  - Options to construct a tailings management facility (TMF)
  - Additional mine infrastructure and potentially a new portal/shaft
- Location for the expansion is adjacent to the existing mine, using the current disturbed areas for new infrastructure
- Focus on keeping a small disturbance footprint, where possible limit to one watershed and avoid sensitive features, habitats and land uses
- Community feedback on sensitive areas ("Valued Components"), land uses and other comments are important in the decision-making process

Overview
Proposed Locations

- Old Rambler (Conventional & Filtered Tailings Stack)
- Tabs (Conventional & Filtered Tailings Stack)
- Ming West (Conventional & Filtered Tailings Stack)
- South Brook (Conventional)
- Rocky North (Conventional & Filtered Tailings Stack)
- Rocky South (Conventional & Filtered Tailings Stack)
- Nugget Pond (Conventional)



Project News

- Finalized deal on Gold Hunter properties
- Established a port access agreement with Maritime Resources
- Completed half of Phase 1 workplan with excellent results
- Announced additional funding $52M to expand the exploration program to Phase 2 and a third drill rig until end of 2025

FireFly METALS

OUR VISION

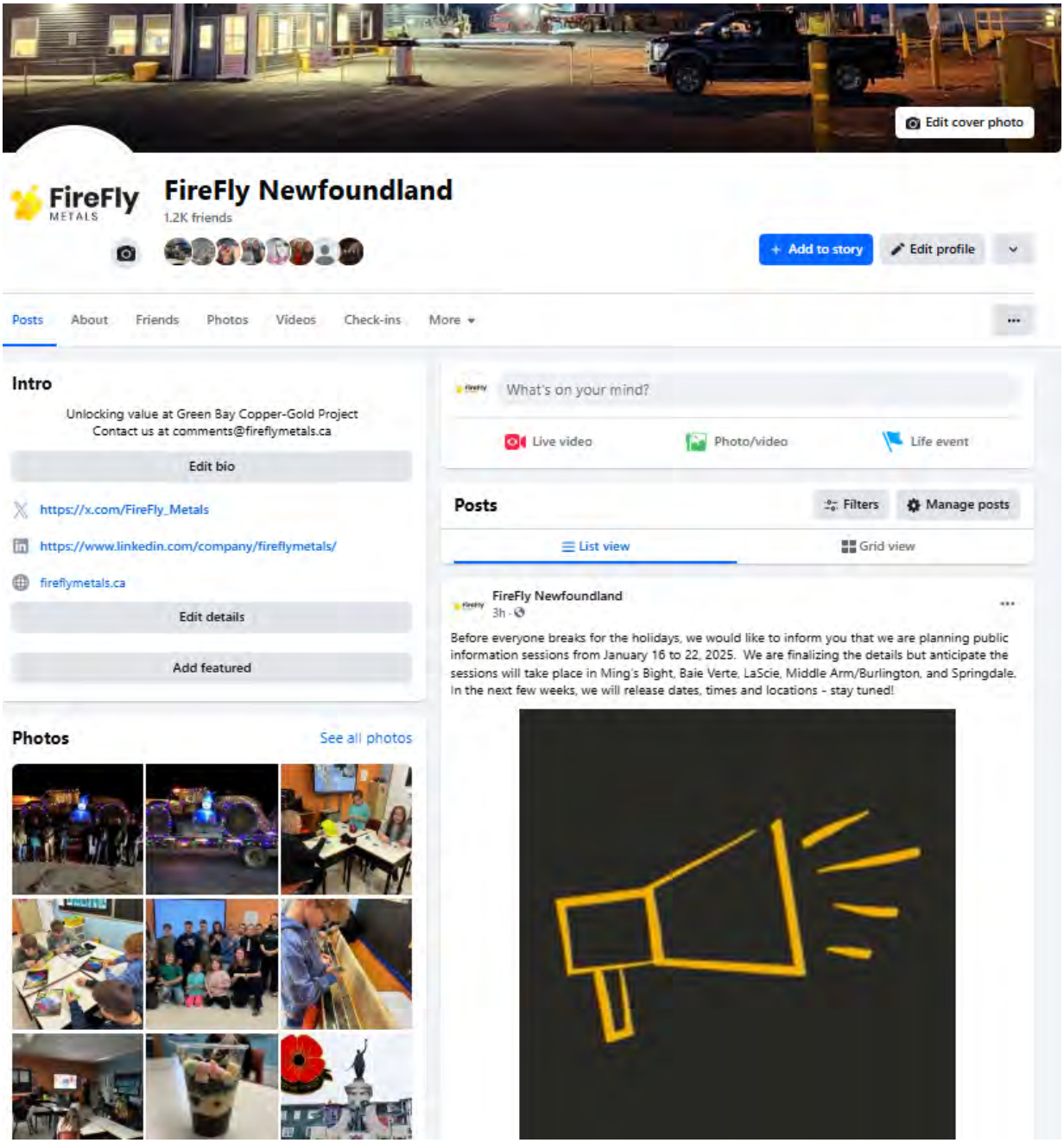
FireFly METALS

FireFly METALS

Thank – you
Comments or Questions?

Website: www.fireflymetals.ca
Comments/Email: comments@fireflymetals.ca

3A.4 December 2024 Facebook Page Following Details



3A.5 January 2025 Public Notice Poster and Images of Sessions

Public Notice

Public Information Sessions on the Proposed
Green Bay Ming Mine Project
South of Ming's Bight, NL (intersection of Highway 418 and 414)

FireFly METALS

Shall be held from January 16 to 24, 2025 at the following locations:

Baie Verte, Baie Vista: two sessions on Thursday **January 16th** from 2pm to 3pm and 6pm to 7pm

La Scie, Fishers Inn: Friday **January 17th** from 6pm to 7pm

Ming's Bight, Community Hall: Monday **January 20th** from 6pm to 7pm

Burlington, Community Hall: Tuesday **January 21st** from 6pm to 7pm

Springdale, Royal Canadian Legion: Wednesday **January 22nd** from 6pm to 7pm

These sessions shall be conducted by FireFly Metals Canada Ltd (the Proponent),

Email: comments@fireflymetals.com and phone: (709) 800-1929 as part of the environmental assessment of the Project.

The purpose of these sessions is to describe all aspects of the proposed Green Bay Ming Mine Project, to describe activities associated with the Project and to provide an opportunity for all interested persons to request information or state their concerns.

ALL ARE WELCOME!


FireFly
METALS
Green Bay
Copper and Gold Project

3A.6 Newsletters

FireFly METALS

December 2023 Quarterly Newsletter

Quarterly Insight into the Green Bay Copper-Gold Project

Project News | *Community Connections* | *Boots on the Ground* | *Health, Safety & Environment* | *Three Month Outlook*

Community Connections

Our CEO, Darren Cooke, has already presented at the Baie Verte Chamber of Commerce on October 19th, and we had a chance to regularly meet with community members at the CopperStop. In early November, we attended the Mineral Resource Review (MRR).

The holiday season is upon us, and we look forward to participating in community events and meeting more of our neighbours.

For more information, go to

www.fireflymetals.com.au

Project News

New Beginnings: FireFly Metals Ltd.

In October 2023, the big news was the acquisition of Rambler Metals and Mining Ltd. properties by AuTECO Minerals Ltd. Let's not stop there, starting fresh with a positive outlook in the region the company has rebranded itself ***FireFly Metals.***

This past year was difficult for families and employees of Rambler Metals and Mining. It was also challenging for contractors and and suppliers that were relying on payment from the company. As the Sale and Investment Solicitation Process (SISP) took over, it was up to the monitors of that process to distribute funds upon its closure. FireFly Metals Ltd. recognized that many suppliers may not be reimbursed through the court process, but ultimately, it was the court's decision and the monitors managing the SISP to make those decisions.

The best way to correct these past mistakes is to avoid repeating them. FireFly Metals Ltd is committed to operating with the best business practices fairly and ethically to rebuild the trust of our employees, contractors and suppliers. You may have heard the drills are turning again at the mine, but this isn't to restart production. Our plans are to conduct exploration drilling underground and develop drifts to explore areas of the deposit that have significant potential to increase the value and extend the life of the mine. These activities are part of what we are

> *"Taking a pause on production to understand the deposit. This is our chance to unlock the value."*

Without production at the mine, we have the mill in "cold idle" and will not be hauling concentrate. We have retained all the employees who were on site and have been able to rehire some workers to assist with Phase 1. FireFly Metals Ltd. is a new company with a bright future, and we appreciate everyone's support as we chart a new course together.

Contact Us:

comments@fireflymetals.ca

Boots on the Ground

With an original 35 workers, we recently rehired 21 workers. The support of local communities, vendors and suppliers made this restart possible.

Phase 1 Plans

By October 19, the company was already diamond drilling at Ming Mine. With an experienced team readily available, Springdale Forest Resources was hired to conduct the diamond drilling at the site.

As of November 27, 2070m of diamond drilling has been completed. Once the core is received on surface, it is logged by our geology team and cut by a core saw for sampling. The core is being sent to Eastern Analytical to understand the metal content. In addition to diamond drilling, we started initial development underground in mid-November. Part of the development included creating another egress point to ensure safe access and existing routes for our underground workers. In total, 700m of development drifts will enable the drill rigs to conduct diamond drilling in undiscovered areas. The Nugget Pond Mill remains on cold idle, but all workers are busy on site.

Our success depends on our people, so we focused on training our team and ensuring they have the skills and tools to complete their jobs safely.

Three Month Outlook

Phase 1 activities are the focus, but lots of other work is happening in the background. We are planning to host community events (meet and greet), expand mine rescue training, and work to update management and operational systems to reflect Firefly Metals Ltd.'s core values. Stay tuned!

Contact Information

Visit our website at www.fireflymetals.com.au or email at comments@fireflymetals.ca

P.O. Box 610, Baie Verte, NL, A0K 1B0

Health, Safety and Environment

Sustainability at Our Core

Mining can leave a positive legacy that future generations can look back on and be proud to have been part of the journey. The Green Bay Copper-Gold Project has the potential to grow in a way that could keep families together and provide opportunities for youth, build onto an existing skilled workforce, inject economic benefits to the region, reclaim landscapes and correct environmental damage due to past operations.

Within the first few weeks, we completed training for our entire team, obtained new safety equipment, and conducted risk assessments and inspections to identify and address safety concerns. Since start-up, we are proud to say that a safety culture has been established at the very beginning to ensure all workers go safe to their loved ones.

Both the mine and mill sites have water treatment systems and discharge treated effluent to the environment. While discharging, water quality sampling is conducted weekly, and the effluent is tested for acute lethality and sublethal toxicity. All results are submitted to the federal and provincial governments.

We are committed to keeping our communities informed of our operations and will work to incorporate sustainability into every aspect of our operation and organization.

FireFly METALS

FireFly METALS

March 2024
Quarterly Newsletter

Quarterly Insight into the Green Bay Copper-Gold Project

Project News | *Community Connections* | *Boots on the Ground*
Health, Safety & Environment | *Three Month Outlook*

Community Connections

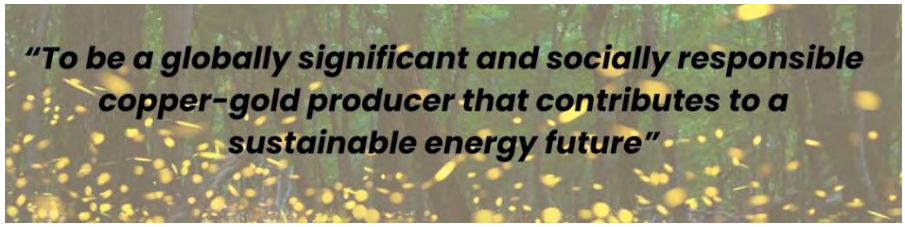
Over the holidays and during the first quarter of 2024, we spent time reaching out to communities in the Baie Verte Peninsula. We hosted two community meet and greets, met mayors, deputy mayors and councillors and attended numerous events. Those meetings were meant to provide facts, share updates, discuss plans, and look for opportunities for mutual benefit.

We must admit that Team FireFly can also represent! The Christmas food drive was a huge success, with everyone chipping in and we aren't too shabby at darts and know how cheer on our local hockey and curling teams!!!

For more information, go to www.fireflymetals.ca

Project News

Learning from history and each Other to create a new Vision and Mission



It's been five months since FireFly Metals Ltd. officially got the keys, and so many changes have already been implemented.

We held strategy sessions to get input from employees regarding all aspects of the operation, and to establish our Mission and create a vision for the organization. Discussions included simple things like recycling and reducing waste to reduce costs and environmental impact to system improvements to make our operations safer and more efficient. We also sought feedback from contractors, suppliers, communities, and regulatory agencies.

Some of the most important take aways from the strategy session is the recognition from long-time employees that change will be needed. That is one of the first steps to make meaningful improvements and take necessary actions to evolve as an organization.

Albert Einstein has been attributed to a quote about repeating mistakes and not learning from the past, and we agree!

Our ears, eyes and minds are open to all feedback and seek opportunities for improvement and make FireFly "shine" in Newfoundland.

We also recognize that change doesn't happen overnight and that not all ideas will benefit the site. Every step and change will be carefully thought out and implemented to ensure the best outcome for everyone.

Contact us:
comments@fireflymetals.ca

Boots on the Ground

With a total of 65 workers onsite, plus contractors, the exploration development and drilling programs are in full swing to achieve goals of the Phase 1 Workplan.

Update: Phase 1 Plan

At the end of March 31, we will have completed nearly 500 m of exploration development and over 11,000m of diamond drilling totalling 20 holes.

To support the exploration program, the company brought in a second diamond drilling rig. Both rigs started drilling on the 805mL on January 20th.

The Drilling campaign is planned to extend the current resource by 350m by intersecting the high-grade copper-gold massive sulphide zones (VMS) of the Ming North and South along with the Cu -rich stringer zone of the Footwall Zone ('FWZ').

Significant results this Quarter Include:

46.4m @ 4.6% Cu,1.2g/t Au, 7.5g/t MUG23_006 (VMS)

17.8m @ 4.4% Cu, 2.2g/t Au, 18.8g/t Ag MUG23_003 (VMS)

Board Lower Footwall Zone

51.0m @ 2.07% Cu, 0.1g/t Au, 2.2g/t Ag MUG24_009 (FWZ)

67.8m @1.53% Cu, 0.1G/t Au, 2.7g/t Ag MUG23_010 (FWZ)

To improve the accuracy of the geology model FireFly partnered with CNA to utilize a LiDAR Drone survey for underground surveying and mapping.

Three Month Outlook

We are not restarting operations, but we may be hiring to support the current exploration workplan, so please keep an eye out for those job postings. (On our website, Facebook Page, or Indeed) Next steps for the Green Bay Copper-Gold Project are engineering and scoping studies to explore possible expansion. We are also looking to update the resources later this year – all positive steps in the right direction.

Contact Information

Visit our website at www.fireflymetals.ca
or email at comments@fireflymetals.ca

P.O. Box 610, Baie Verte, NL, A0K 1B0

Health, Safety and Environment

Plan for the Future

We pride ourselves on the efforts we make to ensure our sites meet or exceed health, safety, and environmental standards. With those experiences, knowledge and input from communities and government, we must begin planning for potential expansion at the mine. The best way to plan is starting from closure and ensuring your design fits into the end land use plans for the region.

We are beginning to plan for potential expansion at the mine site. What does this mean for health, safety , and environmental (HS&E) systems, permitting, and compliance? How will an expanded mine footprint fit the region's land use goals while considering social, economic, and environmental factors? Are we going to build a new process plant and tailings management facility (TMF) at the mine site?

All of these questions require answers to plan for mine expansion properly. This means we have to review historic data, years of regulatory reporting, compliance monitoring and current HS & E systems to develop a full picture of what's available, and with support of the Project team begin to identify information gaps.

Scoping, engineering and environmental studies will be starting this summer 2024 to help answer questions. We intent to meet with communities regularly to provide updates.

FireFly METALS

FireFly METALS

June 2024 Quarterly Newsletter

Quarterly Insight into the Green Bay Copper-Gold Project

Project News | *Community Connections* | *Boots on the Ground* | *Health, Safety & Environment* | *Three Month Outlook*

Community Connections

Our team was out visiting schools, participating in career fairs, attending conferences, and hosting open houses to showcase our plans for the Green Bay Copper-Gold Project at every opportunity.

We hope you've had the chance to come out and hear about FireFly and the next steps for the Project. Not to worry though, there will be plenty more opportunities to get updates. Stay up to date on our FireFly Newfoundland Facebook page or visit our website below page.

For more information, go to www.fireflymetals.com.au

www.fireflymetals.ca

Project News

Your safety is our Priority – Think Smart before you Start!

Although FireFly has been focusing on health and safety since day one, we've made it our mission to do better, dig deeper, assess opportunities and continue to build a safety culture at the Green Bay Project.

There are many safe operating procedures, policies, systems and protective equipment in a workplace, but the only way to ensure a safe workplace is the worker. Education, training, experience, mentors, the right tools and a supportive work environment help ensure a worker has everything they need to work safely.

FireFly has been reviewing all the documents but has been focusing on training, providing mentors, new tools, parts and other aspects of the work environment to ensure our workforce has the confidence and ability to make the right choices, ask for help when needed and work safely every day. Collectively our team is building a positive safety culture.

At the site, we now have a full complement of a mine rescue team, who've been fully trained and practicing drills over the last seven months.

The Joint Health and Safety Committee was established and received updated training. Recently, we completed First Aid Training for the majority of the workforce.

FireFly Metals Canada Ltd. was awarded the 2024 CIM John T Ryan Award for Metal Mine. Recognizing past efforts in safety and motivation for our team to continue to strive for better.

Contact us:

comments@fireflymetals.ca

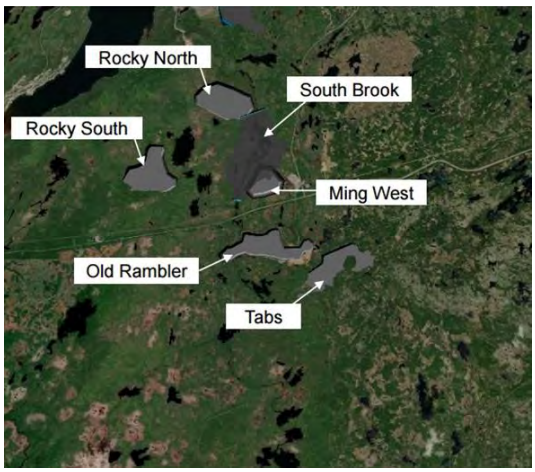
Boots on the Ground

Building our team with 76 employees plus contractors, to support exploration development, diamond drilling and Project Studies.

Expansion Project

At the end of June, we will have completed nearly 1060 m of exploration development and over 22,000m of diamond drilling. Significant results include the discovery that mineralization continues 460m outside the resource! Exciting news and why we are looking at next steps!

FireFly hosted open houses in early May presenting options to expand the Green Bay Copper-Gold Project. We discuss alternatives for mill locations, tailings management facilities, access roads, transport and water taking locations. These alternatives are being assessed



through scoping studies being conducted by engineering firms like EnTech, Ausenco and Knight Piesold. Technical, social (community feedback) and environmental factors are used to guide decisions.

The Project proposes a 4,800 tonne per day mill at the mine site, with a tailings management facility adjacent to the mine called Ming's West (see image above).

Three Month Outlook

While four diamond drill rigs are turning and exploration development is advancing, we will continue to move ahead with engineering and environmental studies.

Our goal is to be able to present a conceptual mine and mill design in the fall to all stakeholders. Once the Project design is confirmed, we will submit our Environmental Assessment (EA) Registration with the Newfoundland Labrador EA Division to commence permitting and approvals of the Project.

Contact Information

Visit our website at www.fireflymetals.ca or email at comments@fireflymetals.ca

P.O. Box 610, Baie Verte, NL, A0K 1B0

Health, Safety and Environment

Baseline Studies

Little Brown Bat, and the Northern Long-eared Bat are found in the Baie Verte Peninsula. Their population has declined by 90% in two years due to the white-nose syndrome, and are now recognized as species at risk in NL and Canada. Did you know a single little brown bat can catch 600 mosquitoes in just one hour!!

All plant and animal species play an important role in the ecosystem. If their populations are reduced, a distribution in the ecosystem occurs. It is important to protect all habitats and critical to protect species at risk.

Stantec Consulting Ltd has been retained by FireFly to complete terrestrial studies (plants and animals). In this image to the right, the biologist is installing an Acoustic Recording Unit (ARU) to capture sounds of bats (and other animals) to determine if bats are present near the mine site. The data collected by the units can help identify quantities and sometimes approximate locations of bat habitat. This baseline data helps FireFly protect habitat by modifying plans to avoid sensitive habitats.

FireFly METALS

FireFly METALS

September 2024 Quarterly Newsletter

Quarterly Insight into the Green Bay Copper-Gold Project

Project News | *Community Connections* | *Boots on the Ground* | *Health, Safety & Environment* | *Three Month Outlook*

Community Connections

In efforts to show appreciation to all employees who continually work safely, there was a weekly barbeque for all employees and contractors on site to highlight the winning of the 2022 National John T. Ryan Safety Award. There was a good time had by all, with the focus on carrying this safety culture into the next phase of the project. Thanks to all for their support!!

For more information, go to www.fireflymetals.com.au

Project News

Thinking about a Future Career? Look No Further and Stay Close to Home!

With forecasts of increased activity and growth, we will continue to hire skilled capable individuals to fill positions that become available. There are many career paths to take in mining, some of which are **shift supervisor, jumbo operator, bolter operator, scoop operator, truck driver, blaster, HEO, electrician, millwright, welder, mechanic, flotation operator, grinding operator, dewatering & sampling, Lab/analytical, metallurgist, crusher operator, office administration, finance, human resources, engineer & environmental.**

At FireFly Metals, we are committed to fostering a culture designed to strengthen career opportunities for a diverse workforce. As our company continues to grow, we commit to increasing our diversity as much as possible. We have policies in place to promote morale fairness and pride ourselves in providing a working environment that is free from harassment and discrimination (regardless of an individual's culture, race, religion, age, gender, sexual orientation, disability etc.).

Firefly Metals explores every opportunity to promote gender and cultural diversity/equality in the workplace. One of the many areas we focus on is women in the workplace and areas where women have typically been under-represented.

With an appreciation for gender differences and gender diversity, we recognize that having strong female leaders brings new perspectives to business challenges, which in turn creates new approaches and solutions to those challenges.

Contact us:

comments@fireflymetals.ca

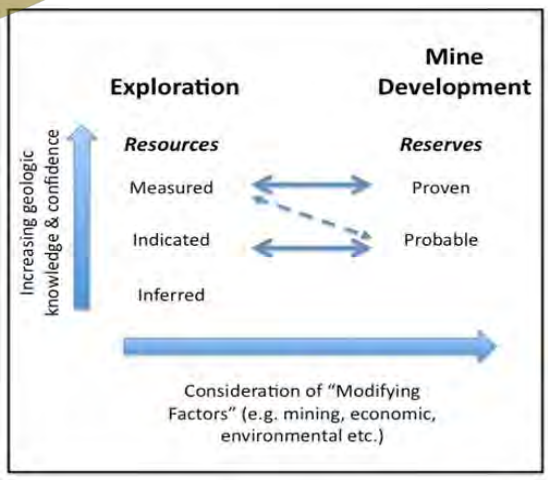
Boots on the Ground

New additions to site. Not only is our fleet growing but so is our Team!

Expansion Project

As you may have heard, we've been busy looking at options to expand our operation at the mill site, including the possible construction of a larger mill and tailings management facility. The mine is currently on care and maintenance. One of the many challenges was the Nugget Pond mill was too small and the trucking distances too far to make it sustainable.

We're currently drilling to increase the resource, the first step needed to build a larger long-term operation. What is a resource? According to the Canadian Institute of Mining (CIM), a Mineral Resource is the *"concentration or occurrence of solid material of economic interest in the earth's crust in form, grade, quality and quality that there are reasonable prospects for eventual extraction" (CIM, 2014).* A Mineral Resource can be subdivided into different groups depending on geological



knowledge and confidence. These groups are Inferred, Indicated and Measured. With additional exploration drilling, you can increase confidence of the copper and gold in the ground. The lower level of confidence is inferred and the highest is measured (see image above). Qualified people, with training, education and years of experience determine what "confidence categories" are applied.

We are expanding the resources at the mine through FireFly's exploration program and building confidence in the mineralization. It can take many years to move from Inferred to Measured and, with further study work, to potentially become an Ore Reserve.

Three Month Outlook

It's hard to believe we are in the last quarter of 2024; this means winter is just around the corner! But the cold and wind won't stop us. We are continuing with our exploration program, building our knowledge of the mineralization.

Even in winter, we are conducting our environmental baseline studies to ensure we have accurate data for all seasons. Once the technical studies confirm the project design, we intend to submit our Environmental Assessment (EA) Registration in early 2025 to begin the EA and permitting process.

Contact Information

Visit our website at www.fireflymetals.ca or email at comments@fireflymetals.ca

P.O. Box 610, Baie Verte, NL, A0K 1B0

Health, Safety and Environment

Baseline Studies

Land and Resource Use Survey: We want to hear from you!!

We will be in the community in early October to discuss the Land and Resource Use Survey. What is it, you ask? Well, it is a valuable tool to help us understand what and where people like to gather plants, hunt, enjoy the outdoors (e.g. snowmobiling, hiking) and do various other activities. No, it is not a way to know your favourite hunting or blueberry picking location (that is your secret!), instead, it will help us plan the mine design. For instance, we may need to build roads, clear areas for buildings and set up piping for fresh-water intake, and if we can, we want to avoid areas important to local communities and residents. Sometimes they can't be avoided, and we want to work with you to understand how to mitigate and reduce those potential effects of the Project.

You can use this QR Code to do the Survey – Thanks for your help!

FireFly METALS

FireFly METALS

December 2024 Quarterly Newsletter

Quarterly Insight into the Green Bay Copper-Gold Project

Project News | *Community Connections* | *Boots on the Ground* | *Health, Safety & Environment* | *Three Month Outlook*

Community Connections

FireFly was out connecting with youth in schools, attending community events, engaging at the Minerals Resource Review in St. John's and even popping up at your local stores. We want to make sure local communities are kept up to date with our current activities and plans. We wouldn't be here without you, so thank you for all your support over the past year. Email us at comments@fireflymetals.ca if you have feedback or questions.

For more information, go to www.fireflymetals.com.au

www.fireflymetals.ca

Project News

Increases Resource and listed on TSX

Since acquiring the Project in October 2023, we have focused on exploration and development underground to increase our confidence and knowledge of the Ming Mine. The efforts paid off in a big way – nothing better than ending the year with an announcement of a 42% increase in resources.

The increase in the Resource has been driven primarily by the successful growth strategy implemented by FireFly. Over 1,400m of underground development has been mined at Green Bay's Ming deposit to position the drill rigs to test the extensions of the high-grade volcanogenic massive sulphide.

The Green Bay Copper-Gold Project currently hosts total mineral resources prepared in accordance with the JORC Code (2012 Edition) and NI 43-101 of 24.4Mt of measured and indicated resources at 1.9% for 460Kt copper equivalent (CuEq) and 34.5Mt of inferred resources at 2% for 690Kt CuEq.

The 2024 Ming Deposit MRE contains a total of 21.5Mt at 1.8% CuEq in the Measured and Indicated Resource categories and 28.3Mt at 2% CuEq in the Inferred Resource category. The 2024 Little Deer MRE contains a total of I2.9Mt at 2.3% CuEq in the Measured and Indicated Resource categories and 6.2Mt at 1.8% CuEq in the Inferred Resource category. Four drill rigs remain underground at the Ming mine to ensure the growth objectives are delivered.

To date, ~40,000m of the planned 130,000m drill program has been completed. The remainder of the underground drill program for 2024-2025 will focus on resource extension, infill drilling studies and discovery drilling.

Contact us:

comments@fireflymetals.ca

Introducing the Green Bay Ming Mine Project

Boots on the Ground

Expansion Project

The news of resource expansion means we need to progress our internal scoping studies and determine the ideal project from an environmental, social, technical and financial perspective.

The proposed Project footprint in Figure 1, illustrates the layout of the Green Bay Ming Mine Project. The location of infrastructure was carefully considered with feedback from communities and comments received during the Land and Resources Use Survey.

We made our best efforts to use already disturbed areas, avoided fish habitat, kept close to the current Ming Mine and included a new access road to Pine Cove port to avoid haul trucks on Highway 418. The Project will continue to be refined and optimized with more opportunities to provide your feedback in the coming months.

Figure 1 : The proposed footprint of the Green Bay Ming Mine Project. It includes a Process Plant (mill and crushing), Tailings Management Facility (TMF), temporary waste rock stockpile, ore stockpile and new accommodations complex for our workforce.

Three Month Outlook

2024 was a spectacular year and the final quarter was busy. The focus continues to be exploration and advancement of the project, with exploration activities underground continuing and additional exploration development required. Our internal studies will continue, and these studies as well as the results from exploration are intended to support future feasibility studies. By the end of Q1 2025, we expect to submit our Environmental Assessment (EA) registration to the NL government to commence the EA and eventual permitting for the expansion Project.

Contact Information

Visit our website at www.fireflymetals.ca
or email at comments@fireflymetals.ca

P.O. Box 610, Baie Verte, NL, A0K 1B0

Health, Safety and Environment

Environmental Assessment

We spent the past year gathering data on fish, wildlife, land use, water quality, groundwater and hearing from communities. All of this information has been used to help design the Project. We have compiled the information into our environmental assessment registration document and it will be submitted in the next couple of months.

Before that, we will host Public Information sessions from January 16 to 22 in the communities of Baie Verte, Ming's Bight, LaScie, Burlington/Middle Arm and Springdale to present the Project and the baseline work completed. Please come join us to hear about the Project.

We hope to see you there, ask questions and yes, we will even have coffee and donuts!

Public Information

Sessions January 16 to 22 2025

Baie Verte, Baie Vista:
Thursday January 16th
2pm to 3pm & 6pm to 7pm

La Scie, Fishers Inn:
Friday January 17th
6pm to 7pm

Ming's Bight, Community Hall
Monday January 20th
6pm to 7pm

Burlington, Community Hall
Tuesday January 21st
6pm to 7pm

Springdale, Royal Can Legion
Wednesday January 22nd
From 6pm to 7pm

FireFly METALS

Appendix 3.B Letters of Support

TOWN OF BAIE VERTE
32 HIGHWAY 410
P.O. BOX 218
BAIE VERTE, NL A0K 1B0
TEL: 709.532.8222 FAX: 709.532.4134
WWW.TOWNOFBAIEVERTE.CA
TOWNOFBAIEVERTE@HOTMAIL.COM

January 30, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
B610 Route #418 Ming's Bight Rd,
Baie Verte, NL Canada A0K 1B0

Email: tleblanc@fireflymetals.ca

Dear Ms. LeBlanc,

The Town of Baie Verte is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Baie Verte is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, as required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Kind Regards,

Amanda Humby
Chief Administrative Officer
Town of Baie Verte

P.O. Box 68, Site 1
Ming's Bight, NL
A0K 3S0
Tel: 709 254 6516 Fax: 709 254 7461
Email: townmingsbight@outlook.com

01/29/2025

Tabatha LeBlanc
Vice President – Environment & Community

FireFly Metals Canada Ltd.

tleblanc@fireflymetals.ca

B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Ming's Bight is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Ming's Bight is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Roxanne Dicks
Town Clerk/Manager

Regards,

Roxanne Dicks
Town Clerk/Manager

Town of La Scie
P.O. Box 130
La Scie, NL
A0K-3M0
Tele: (709) 675-2266
Fax: (709) 675-2168
E-mail: townoflascie@eastlink.ca

January 29th, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL
A0K 1B0

Dear Ms LeBlanc,

The Town of La Scie is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of La Scie is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Chastity Andrews
Town Clerk

TOWN OF SPRINGDALE

(INCORPORATED IN 1961)

February 3, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Springdale is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Springdale is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Mayor Alex Goudie
Town of Springdale

TOWN OF SEAL COVE
P.O. BOX 119
SEAL COVE, NL
A0K 5E0

January 31, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Seal Cove is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Seal Cove is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Patricia Rice
Town Clerk

January 21, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Brent's Cove is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Brent's Cove is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Matilda Courtney, on behalf of
Brent's Cove Community Council

cc. cc list

Town of Fleur De Lys
P.O. Box 9
Fleur De Lys, NL
A0K 2M0
P:709-253-3131 f:709-253-2146
townoffleurdelys@gmail.com

January 20, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Fleur De Lys is pleased that Firefly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site wil provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workfor and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Fleur De Lys is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide th letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Mayor Marion Walsh

Mayor Marion Walsh.

cc.

01, 29, 2025

Tabatha LeBlanc
Vice President – Environment & Community

FireFly Metals Canada Ltd.

tleblanc@fireflymetals.ca

B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Town of Wild Cove, is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

Our Town Council works closely with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed.

The Town of Wild Cove is committed to working with project proponents to facilitate and assist with obtaining municipal permits and approvals, if required, in a timely manner. We are pleased to provide this letter of support of FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Larry Rideout
CHAIRMAN

cc.

Office of the Vice-President – Academic & Applied Research
1 Magee Road, Gander, NL A1V 1W8
t: 709 651.4821

January 31, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

On behalf of the College of the North Atlantic, I am pleased to offer our support for FireFly Metals Canada Ltd.'s investment and expansion at the former Ming Mine site. The Baie Verte region has a rich history in mining, and your commitment to the continued operation and expansion of the Ming Mine will contribute significantly to the region's economic revitalization, especially as local communities face the challenges of recent mine closures.

As an institution dedicated to fostering sustainable development and workforce readiness, the College of the North Atlantic is committed to collaborating with industry partners like FireFly. We work closely with project proponents to support initiatives that are economically, socially, and environmentally sustainable. With a highly skilled and dedicated workforce in our region, we are confident that the Baie Verte Peninsula is well-positioned to support the success of projects such as the Green Bay Ming Mine Project.

In addition to supporting the project, the College is eager to contribute to the development of the future workforce. Our students, including those in the College's new Mining Technician program, have benefited from workplace integrated learning opportunities that allow them to gain hands-on experience in the mining sector, including positions with FireFly Metals. Furthermore, the Office of Applied Research and Innovation has worked closely with FireFly on developing digital twins of underground operations, utilizing a combination of autonomous and manned UAVs. These projects will not only advance innovative technologies but offer valuable learning experiences for our students.

We are proud to be a part of this exciting new chapter in the region's mining legacy and look forward to supporting the continued growth and success of FireFly Metals Canada Ltd.

Sincerely,

Fergus O'Brien
Vice President Academic & Applied Research

BAIE VERTE PENINSULA
CHAMBER OF COMMERCE
INDUSTRY POWERED. COMMUNITY FOCUSED.

January 23, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

The Baie Verte Peninsula Chamber of Commerce is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Lloyd Hayden, Chamber President

Community Business Development Corporation
EMERALD

325 Highway 410, P.O.Box 508, Baie Verte, NL A0K 1B0 t. (709) 532.4690 / (709) 532.8312 f. (709) 532.4669 www.cbdc.ca

January 27, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
B610 Route #418 Ming's Bight Rd
Baie Verte, NL Canada A0K 1B0
tleblanc@fireflymetals.ca

Dear Ms. LeBlanc,

On behalf of Emerald Business Development Corporation (CBDC Emerald), I am pleased to express our support for FireFly Metals Canada Ltd. (FireFly) and your significant investment in the Green Bay Ming Mine Project. The decision to expand operations at the former Ming Mine site represents a pivotal opportunity to bolster the economy of our region, which has long been a cornerstone of mining activity in Newfoundland and Labrador.

The proposed expansion and ongoing operations at the Ming Mine will play a vital role in generating economic benefits and fostering long-term opportunities for the Baie Verte Peninsula. These initiatives are particularly meaningful given the recent challenges posed by the closure of several local mining operations.

At CBDC Emerald, we are committed to fostering projects that are economically, socially, and environmentally sustainable. Our region is home to a skilled and dedicated workforce, along with a network of experienced contractors, who stand ready to support FireFly in achieving the success of the Ming Mine Project. Your endeavors will undoubtedly contribute to the revitalization and prosperity of all communities across the Baie Verte Peninsula.

We are proud to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to collaborating with your team as you continue to build on the rich mining traditions of our region.

Sincerely,

Jennifer Whelan
Executive Director

c File
Neville Robinson – Chairperson

2025-01-31

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Amalgamated Mining Services Ltd. is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Brendan Carter
General Manager

January 31, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Atlantic Explosives Limited is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Brian Wilson CPA
CFO/Corporate Services
Atlantic Explosives Limited
63 Parker Hill Rd.
Upper Musquodoboit, NS
B0N 2M0
Tel: (902) 568-2484
Cell: (902) 449 5022
Email: bwilson@atlanticexplosives.ca

cc. cc list

Tabatha LeBlanc
Vice President – Environment & Community

FireFly Metals Canada Ltd.

tleblanc@fireflymetals.ca

B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

G & C Hardware Ltd is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Cathy Newbury
President

G & C Hardware Ltd
Castle Building Supplies
37-39 Shoe Cove Road
La Scie, NL A0K3M0
709-675-2828
gchardwareltd@gmail.com

GEMTEC Consulting Engineers and Scientists Limited
19 Dundee Avenue
Mount Pearl, NL, Canada
A1N 4R6
709.722.2275
nl@gemtec.ca
www.gemtec.ca

February 4, 2025 File: 103205.003

Via email: tleblanc@fireflymetals.ca

FireFly Metals Canada Ltd.
Route 418, Ming's Bight Road
Baie Verte, NL A0K 1B0

Attention: Tabatha LeBlanc, Vice-President – Environment & Community

Re: Green Bay Ming Mine Project

Dear Ms LeBlanc,

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

David Purdue, P.Eng.
VP Operations, Atlantic

N:\Projects\103200\103205.003\03_Submittals\103205.003_LTR_Letter of Support for Green Bay Ming Mine Project_Rev.0_2025-02-03.docx

My Co-op. My community. It's where I belong!

BAIE VERTE CONSUMERS CO-OP

10 Water St., PO Box 179 Baie Verte, NL A0K 1B0
Tel: [709] 532-8077 • Fax: [709] 532-4660

January 31, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

Baie Verte Consumers' Co-op is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region, which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Lloyd Hayden
General Manager

January 28, 2025

Tabatha LeBlanc
Vice President – Environment & Community

FireFly Metals Canada Ltd.

tleblanc@fireflymetals.ca

B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Artlin Safety & Industrial is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Michael Patey

Owner
Artlin Safety & Industrial
Div.Of Patey's Safety & Industrial ltd.

Eddy's Services Ltd. 1 TCH
South Brook, NL A0J 1S0
(709) 657-2590

January 31, 2025

Tabatha LeBlanc
Vice President-Environment & Community
FireFly Metals Canada Ltd.

B610 Route #418 Ming's Bight Rd.
Baie Verte, NL
Canada
A0K 1B0

Dear Tabatha LeBlanc,

I am writing to express my strong support for Firefly Metals' proposal to put the Ming Mine into production on the Baie Verte Peninsula. This project has the potential to bring significant economic benefits to the area, and I believe it is essential that we support initiatives that promote economic growth and development.

The Ming Mine project will create new job opportunities, stimulate local economic activity, and generate revenue for the provincial government. The economic benefits will extend beyond the immediate area, with the Green Bay Area also expected to benefit from the increased economic activity.

Furthermore, Firefly Metals has demonstrated a commitment to responsible and sustainable mining practices. Their dedication to environmental stewardship and community engagement is essential for ensuring that the project is developed in a way that respects the local environment and community.

I urge you to support Firefly Metals' proposal and facilitate the necessary approvals to bring the Ming Mine into production. This project has the potential to make a significant positive impact on the local economy, and I believe it is crucial that we support initiatives that promote economic growth and development.

Thank you for considering my support for this project.

Sincerely,
Wallace Mckay

Guy J. Bailey Ltd.
325 Highway 410 PO Box 184
Baie Verte, NL A0K-1B0
T: (709) 532-4642 F: (709) 532-4643

January 27, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

Re: Letter of Support for FireFly Metals Canada Ltd.'s Green Bay Ming Mine Project

Guy J. Bailey Ltd. is pleased to see FireFly Metals Canada Ltd. (FireFly) selecting the former Ming Mine site for significant investment and expansion. For over 60 years, Guy J. Bailey Ltd. has been a cornerstone of Newfoundland and Labrador's construction and mining sectors. We take pride in supporting major infrastructure and industrial projects, and your proposed Green Bay Ming Mine Project will bring critical economic benefits and long-term opportunities to the Baie Verte Peninsula.

The region has a rich mining history, and FireFly's initiative will help revitalize our local communities following the challenges brought by the closure of other mining operations. As a highly experienced service contractor, Guy J. Bailey Ltd. is well-equipped to provide the expertise, resources, and solutions needed to ensure the success of your project. Our skilled workforce and established networks are ready to assist in every phase of development, from construction to ongoing operations.

We are proud to provide this letter of support for FireFly Metals Canada Ltd.'s Green Bay Ming Mine Project and look forward to contributing to the continued mining legacy of the Baie Verte Peninsula. FireFly's commitment to sustainable development and community engagement aligns with our own values of supporting growth in Newfoundland and Labrador while fostering strong local partnerships.

If there is any way that Guy J. Bailey Ltd. can support FireFly Metals in this exciting endeavor, we welcome the opportunity to collaborate.

Warm regards,

Scott Bailey, CEO
Guy J. Bailey Ltd.
sbailey@guyjbailey.net

325 Highway 410 PO Box 184
Baie Verte, NL A0K-1B0
T: (709) 532-4642 F: (709) 532-4643

January 27, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

Re: Letter of Support for FireFly Metals Canada Ltd.'s Green Bay Ming Mine Project

Shoreline Aggregates Inc. is pleased that FireFly Metals Canada Ltd. (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. The Baie Verte Peninsula has long been a historic center for mining in Newfoundland and Labrador, and your proposed continued operation and expansion of the Ming Mine site will provide critical economic benefits and long-term opportunities for our region, especially following the recent challenges posed by the closure of several local mining operations.

As a key stakeholder in the region, Shoreline Aggregates works closely with project proponents to support economically, socially, and environmentally sustainable development initiatives. The Baie Verte Peninsula boasts a dedicated and highly skilled workforce and contracting community that is well-equipped to support projects like FireFly's Green Bay Ming Mine. Your efforts align with the region's shared vision of revitalizing our communities and contributing to the sustained growth of Newfoundland and Labrador's mining industry.

We are proud to provide this letter of support for FireFly Metals Canada Ltd.'s Green Bay Ming Mine Project. Shoreline Aggregates looks forward to collaborating with your team and continuing the strong mining traditions of the Baie Verte Peninsula while fostering sustainable development that benefits all communities.

If there is any way Shoreline Aggregates can provide additional support to FireFly, please do not hesitate to reach out.

Warm regards,

Shannon Lewis, Director Business Development
Shoreline Aggregates Inc.
slewis@shorelineaggregates.net

AGAT Laboratories

January 28, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

AGAT Laboratories, is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

AGAT Laboratories supports the expansion of the former Ming Mine site, contingent on the principles of environmental safeguards and meaningful engagement being upheld.

Sincerely,

Alex Coldham

Senior Vice President

Jan 21, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Battlefield Equipment Rental is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Konrad Colbourne
Regional Manager

cc. cc list

Central Office Equipment LIMITED

OFFICE FURNITURE
OFFICE ACCESSORIES
FAX MACHINES
CASH REGISTERS
WEIGHT SCALES
PHOTOCOPIERS
RUBBER STAMPS
COMPUTERS
COMPUTER SOFTWARE
CELLULAR TELEPHONES
MAILING MACHINES
BELL FibreOp

305 AIRPORT BOULEVARD, GANDER, NL A1V 1Y9 PHONE 709-256-2306 FAX 709-256-8167
30 MAIN STREET, CORNER BROOK, NL A2H 1C3 PHONE 709-639-1679 FAX 709-639-1520

January 24, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Central Office Equipment Limited is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion.

Our region has long been a centre for mining in Newfoundland and Labrador. The economic benefits of these historic operations have been quite significant. In more recent times, the closure of several local mining operations, has been challenging to our area. Your proposed continued operation and expansion of the Ming Mine site will renew economic benefits and long-term opportunities for the entire region.

Our Company has been privileged to work closely and engage with project proponents who support economically, socially, and environmentally sustainable development projects. Our region has a resource in its dedicated and experienced workforce and contracting community. That resource is ready and able to help any project, such as FireFly's, succeed which will be a major step in helping revitalize the Baie Verte Peninsula and its many communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Tony Stack
Owner/General Manager

CITY TIRE & AUTO CENTRE LIMITED
SINCE 1977

HEAD OFFICE
1123 Topsail Road, P.O. Box 549
Mount Pearl, NL A1N 2W4
Tel: (709) 364-6808 • Fax: (709) 364-0074
24 Hour: (709) 368-5971
Email: cta@citytire.com • www.citytire.com

Letter of Support

FireFly Metals

January 20th, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

City Tire & Auto Centre Limited is pleased that FireFly Metals Canada Limited (Hereafter referred to as FireFly) has elected to invest and expand the former Ming Mine site. This region has been a historic centre for mining in Newfoundland and Labrador. Continued operation and expansion of this Mine will provide important economic benefits and long-term opportunities to the region and the province, which has experienced challenges with recent closures of several local mining operations.

This region has a dedicated and experienced workforce and contracting community, who are ready and able to help these projects succeed, subsequently revitalizing the Baie Verte Peninsula.

City Tire & Auto is pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing to provide services to the Baie Verte mining industry.

Regards,

Sincerely,

Jordan L. Blackwood, **B.ENG, MBA**
Director of Marketing
City Tire & Auto

Corner Brook Industrial Sales & Service Inc.
8 Broadway
Corner Brook, NL A2H 4C1
Phone: 709-634-4241 Fax: 709-634-4831

Jan. 25, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

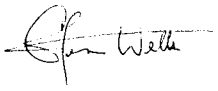
Dear Ms LeBlanc,

Corner Brook Industrial is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,



Glen Wells

Del Equipment Limited

PO Box 4052 130 Pearltown Road Mount Pearl NL A1N 0A2

Phone 709-745-8902 Fax 709-364-9739 Email delequipment@mail.com

January 28, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Del Equipment Limited is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Your region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region and Newfoundland which has experienced challenges with recent closures of several local mining operations.

Newfoundland has a dedicated and experienced workforce and contracting community. We are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions in Newfoundland.

Regards,

Don Lambert

Tabatha LeBlanc
Vice President – Environment & Community

FireFly Metals Canada Ltd.

tleblanc@fireflymetals.ca

B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

DRS SALES AND SERVICES LTD is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Lorne Small

cc.

EASTERN Analytical

403 Little Bay Road
P. O. Box 187
Springdale, NL
Canada A0J 1T0

Tel: (709) 673-3909
Fax: (709) 673-3408
info@easternanalytical.ca
www.easternanalytical.ca

ISO 17025 Accredited Assay Laboratory

January 20, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Eastern Analytical Ltd. is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Heather Elliott

CFO/Vice President

260 Brownlow Avenue
Dartmouth NS B3B 1V9

Cory Morris
Vice President, Atlantic Region
Office: (902) 481-4756
Mobile: (902) 817-5245
Email: cmorris@graybarcanada.com

February 3, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

Graybar Canada is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Cory Morris,

Vice President, Atlantic Region

Main Street
MEDICAL CLINIC

January 20, 2025

Tabatha LeBlanc
Vice President – Environment & Community
Firefly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms. LeBlanc,

On behalf of Dr. Todd Young and the team at Main Street Medical Corporation, I would like to express our enthusiasm regarding Firefly metals Canada's decision to invest in and expand operations at the former Ming Mine Site. This area is rich in mining, making it an ideal location for such an initiative. The continued operation and expansion of the Ming Site will not only generate vital economic benefits but also create long- term opportunities for our region, which has faced challenges due to mining closures.

We are committed to collaborating with project components to foster sustainable development that is economically, socially, and environmentally responsible. Our region boasts a skilled and dedicated workforce, along with a robust contracting community, all of whom I feel are eager to contribute to the success of projects like Firefly's.

We are pleased to extend our support for Firefly's Green Bay Ming Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Warm Regards,

Rita Clarke
Office Manager / Finance Office
Main Street Clinic

Main Street Medical Clinic
PO Box 10 / 165 Main Street
Springdale, NL A0J 1T0
PH: 877-578-4861 FAX: 855-519-2660
officemanager@mainstreetclinic.ca
www.mainstreetclinic.ca

NORTH FRINGE
INDUSTRIAL TECHNOLOGIES INC.

January 31, 2025

FireFly Metals Canada Ltd.

Attention: Tabatha LeBlanc
Vice President – Environment & Community
B610 Route #418 Ming's Bight Rd
Baie Verte, NL A0K 1B0

Email: tleblanc@fireflymetals.ca

Dear Ms LeBlanc,

At North Fringe Industrial Technologies, we understand that a strong mining sector is essential for economic growth, job creation, and community sustainability. As a company built on providing critical pump solutions, repair services, and rental equipment to mines across Canada, we've seen firsthand the impact that well-supported, long-term projects like the Green Bay Ming Mine can have - not just on the industry, but on the surrounding communities that rely on it.

FireFly Metals' commitment to investing in the Ming Mine site is a welcome development for the region, particularly in the wake of recent challenges in Newfoundland and Labrador's mining sector. Continued operations and expansion at this site will not only create economic opportunities but will reinforce the importance of Newfoundland and Labrador's mining industry within Canada's resource economy.

As a supplier that works closely with mining operations across the country, North Fringe is prepared to support FireFly Metals with reliable, high-performance pumping solutions. Our team has a deep understanding of the unique challenges that mines face, from water management to equipment reliability, and we are committed to being a trusted partner in overcoming those challenges.

Mining projects of this scale require strong industry connections and dependable suppliers to succeed. North Fringe is proud to support responsible, sustainable mining that drives economic growth while strengthening the communities it touches. We look forward to working with FireFly Metals and contributing to the success of this project.

Regards,

Kevin Buckler, P.Eng.
Manager, Atlantic Canada
35 Market Drive
Elmsdale NS. B2S 0C8
902-579-7867 | kbuckler@northfringe.com

RIDEOUT TOOL & MACHINE INC.

222 Kenmount Road
St. John's, NL A1B 3R2
Ph. 709-754-2240
TF. 877-898-5360
Fax. 709-739-9514

20 Maple Valley Road
Corner Brook, NL A2H 3C2
Ph. 709-634-3294
TF. 866-634-3294
Fax. 709-634-5346

170 Akerley Blvd.
Dartmouth, NS B3B 1Z5
Ph. 902-468-2060
TF. 877-577-9943
Fax. 902-468-3065

January 31,2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

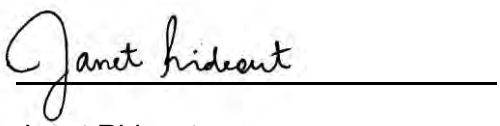
Dear Ms LeBlanc,

Rideout Tool & Machine Inc. is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,



Janet Rideout
Owner / VP Operations

RIDEOUT TOOL & MACHINE INC.
P: 709-754-2240
E: jrideout@rideouttool.com

Springdale Forest Resources Inc.
A Forestry, Drilling and Construction Co.

January 21, 2025

Tabatha LeBlanc
Vice President – Environment & Community
FireFly Metals Canada Ltd.
tleblanc@fireflymetals.ca
B610 Route #418 Ming's Bight Rd, Baie Verte, NL Canada A0K 1B0

Dear Ms LeBlanc,

Springdale Forest Resources is pleased that FireFly Metals Canada Ltd (FireFly) has chosen the former Ming Mine site for substantial investment and expansion. Our region has been a historic centre for mining in Newfoundland and Labrador. Your proposed continued operation and expansion of the Ming Mine site will provide important economic benefits and long-term opportunities to the region which has experienced challenges with recent closures of several local mining operations.

We work closely and engage with project proponents to support economically, socially, and environmentally sustainable development projects. Our region has a dedicated and experienced workforce and contracting community. They are ready and able to help projects, such as FireFly's, succeed which will help revitalize the Baie Verte Peninsula for all communities.

We are pleased to provide this letter of support for FireFly's Green Bay Ming Mine Project and look forward to continuing our mining traditions on the Baie Verte Peninsula.

Regards,

Dennis Young, President

P.O. Box 387 Springdale, NL A0J 1T0
Tel: 709 673 4695 Fax 709 673 4696
info@springdaleforest.com