New Gold
Rainy River Project

Environmental Assessment Compliance Report
Reporting Period January to December 2016

Version 2.0 Dated July 2017

newgold™ Rainy River Project

New Gold RRP Environmental Assessment Compliance Report 2016 Version 2.0 July 2017

Per Provincial Environmental Assessment
Notice of Approval Condition 5
EA 05-09-02 / EAIMS 13102
and
Per Federal Environmental Assessment
Decision Statement Condition 2.3

Version 2.0 Dated July 2017

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Photos:
Title: Northern Harrier on hay bale, Aug 2012
Left: Common snipe eggs in nest, June 2016

Executive Summary

This 2016 Annual Report covers the reporting period from January 1st to December 31st 2016 for the New Gold Inc. Rainy River Project.

The Rainy River Project is an advanced-stage gold project situated in Chapple Township, approximately 65 kilometers northwest of Fort Frances in northwestern Ontario. The property has excellent infrastructure, with year-round road access and power lines in close proximity.

The project contemplates a 21,000 tonne-per-day processing rate from a combination of open pit, underground and stockpiled ore. The project is expected to produce 325,000 ounces of gold annually. New Gold Inc. intends to pursue the opportunity to process higher grade ounces in the project's early years, while stockpiling lower grades for processing towards the end of the mine life, with the goal of increasing cash flow and enhancing project economics.

The 2016 Rainy River Project Environmental Assessment Compliance Report demonstrates New Gold's commitment to environmental performance and compliance. The Environmental Assessment Compliance Report satisfies reporting requirements and compliance with the Ministry of Environment and Climate Change Environmental Assessment Notice of Approval and for the Canadian Environmental Assessment Agency.

This document outlines key areas associated with; Aboriginal and community Consultation, project development, reclamation activities, protection of fish and wildlife and associated habitats, migratory birds and the sites implementation of the Migratory Birds Convention Act, health of Aboriginal peoples, site archaeology, heritage and cultural resources. This document also contains a summary of monitoring and research activities associated with water and air quality and wildlife and aquatic monitoring.

Figure 1: Sandhill crane in hay field, September 2016

Acronyms

CEAA	Canadian Environmental Assessment Agency
CMP	Environmental Assessment Compliance Monitoring Plan
DFO	Department of Fisheries and Oceans
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ECA	Environmental Compliance Approval
LRIA	Lakes and Rivers Improvement Act
MMER	Metal Mining Effluent Regulation
MNDM	Ministry of Northern Development and Mines
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of Environment and Climate Change
MRP	Mine Rock Pond
MSDS	Material Safety Data Sheets
NG	New Gold Inc.
PWQO	Provincial Water Quality Objectives
RRP	Rainy River Project
SAR	Species at Risk
TMA	Tailings Management Area
WMP	Water Management Pond

* Please note this is a select list of commonly used acronyms for this document.

Figure 2: Fraser Greene, Mine Trainer, at Fall Ceremony, October 2016

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Appendix E: Public Consultation Registry

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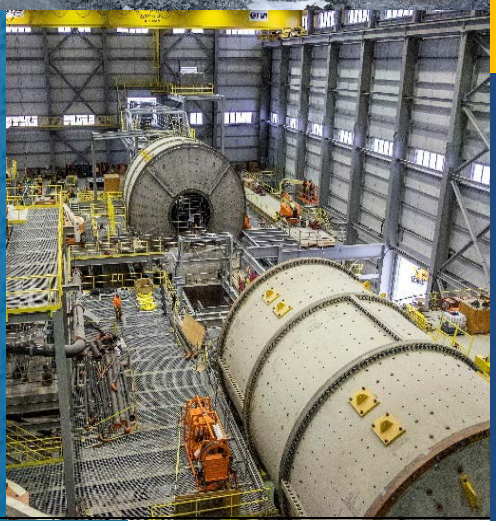
2016 Project Update

The construction of the Rainy River Project continued through 2016 with the continued construction of infrastructure, completion of some scopes of work and commissioning of certain Mill and other facility components.



2016 Project Update Title Photos:
Top: In pit blast, 6th Sept 2016
Middle: Open Pit Development, Dec 2016
Bottom Left: Mill Exterior Construction, Dec 2016
Bottom Right: Mill Interior Construction, Nov 2016

1 2016 Project Update

The Rainy River Project (RRP) site is located in the Township of Chapple, approximately 65 kilometers, one-hour drive by road, northwest of Fort Frances in northwestern Ontario. The RRP is owned by New Gold Inc. (New Gold). The project is an open pit and underground gold mine, currently in the Construction Phase. Construction began on the RRP in 2015 and continued in 2016. New Gold plans to operate and eventually reclaim the open pit, infrastructure and related facilities. Physical works related to the RRP will consist primarily of:

- Open pit
- Underground mine,
- Overburden, mine rock and low grade ore stockpiles,
- Primary crusher and process plant,
- Tailings management area,
- 230 kilovolt transmission line,
- Relocation of a portion of gravel-surfaced Highway 600, and
- Associated infrastructure, buildings and facilities, supported by related pipeline and power infrastructure as required.

Construction of the RRP began in early spring 2015 after the Environmental Assessment (EA) process was completed, the Closure Plan was filed and the environmental approvals necessary for the work proposed were obtained. During 2016 construction continued with the completion and commissioning of various works.

The subsections that follow provide an overview of the activities conducted onsite during 2016.

2016 Project Update

The construction of the Rainy River Project continued through 2016 with the continued construction of infrastructure, completion of some scopes of work and commissioning of certain Mill and other facility components.

1.1 Health and Safety

Health and Safety is a primary focus of the RRP. Table 1 outlines the project statistics from 2015 and 2016.

Table 1: RRP Statistics

Description	2015	2016	Project Total to end of 2016
Lost Time Incidents	0	1	1
Hours Worked on Project	1,265,699	2,899,056	4,164,755
Provided Site Health, Safety and Environmental Orientation	2,500	3,200	5,700

There were two key types of activities related to Health and Safety completed in 2016;

- The Emergency Response Team (ERT) training plans and schedules were developed and implemented. The ERT training continues into 2017. ERT Emergency Response equipment, Figure 3 , was also purchased during 2016.
- Proactive health and safety measures including crew safety talks, field level and project specific risk assessments, safe act observations and interactions. These items continue in 2017.

Figure 3: Members of the New Gold RRP ERT, December 2016

1.2 Construction

2016 marked the second year of construction of the RRP. Several advancements were made in the completion of the operational infrastructure;

- Concrete placement, steelwork erection and cladding completed for the Mill.
- SAG and ball mill shells in place.
- Pre-leach thickener tank and leach tanks completed
- Power line completed and main substation has been energized.
- Installation of mechanical, piping, electrical and instrumentation in processing facilities over 65% complete.
- Primary crusher and conveyor system over 80% complete.

During 2016 various aspects of the construction were completed including:

- Completion of the Pinewood River Pumphouse and pipeline which will provide water to the Mill for commissioning and processing.
- Construction of the East Access Road including public access, and completion of the Highway 600 Realignment.
- Infrastructure such as the Assay Lab, Emergency Vehicle Storage and Plant Site South Pond were completed.

Construction continued in 2016 on the various water management dams, and infrastructure such as the Mill and Truck Shop and Wash. Construction work in the Tailings Management Area, specifically on the dams, tailings and water pipeline corridors and access roads, was also started in 2016.

1.3 Mine Operations

RRP Mine Operations continued expanding the Phase 1 Pit in 2016 to expose the ore zone and build site wide infrastructure with the movement of 20Mt of material.

In 2016, the slopes of the dams for the Tailings Management Area (TMA) and Water Management Pond (WMP) were flattened, which caused an increase in the demand for construction material. The primary Mine Operations production fleet was doubled to meet the updated plan requirements and account for the increased construction material demand.

One of the RRP suppliers completed construction of a site manufactured emulsion (SME) plant to provide long term explosive delivery to the project at reduced costs. The detailed engineering work for the underground mine began in October 2016.

Figure 4 shows the development of the Phase 1 Pit at the end of 2016, outlined in light blue, in comparison to the Final Open Pit footprint outlined in red. The depth of the Phase 1 Pit at the end of 2016 was to the 310 bench, which indicates that the floor of the pit was 310 m above sea level.

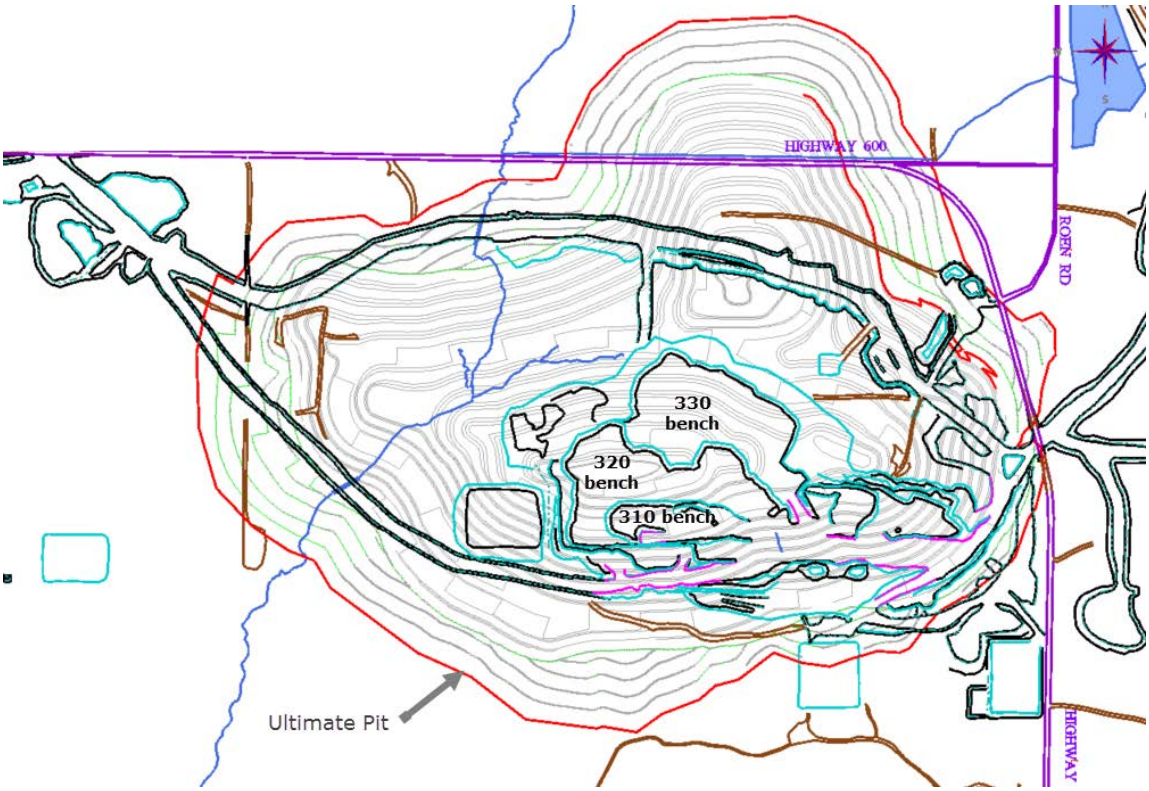


Figure 4: Development of the Phase 1 Pit, December 2016

Selected 2016 Mine Operations activities are summarized below:

- Stockpiled a portion of the low grade (LG) ore required for Mill commissioning. More material will be required for the full Mill commissioning and stockpiling will continue in 2017.
- Added the following pieces of equipment to the Mine Operations Load and Haul Fleet:
  - ten haul trucks (830E),
  - one large front loading shovel excavator (PC8000), and
  - one smaller backhoe configuration excavator (PC3000).
- Two DR461i production drills were added to the Mine Operations Drill Fleet.
- Construction of the SME plant for explosives was completed.
- The Haul Road was completed and rock delivery to the TMA and WMP started. The TMA was started in 2016. TMA and WMP construction continues to run separately from the general Mine Operations.
- In 2016, Mine Operations also continued rock delivery to construction projects across site such as primary crusher pad.

1.4 Human Resources

During 2016, New Gold RRP hired 252 new employees which brought the total number of operations employees to 418 by the end of the year. Of the operations employees, approximately 80% were from the local Districts and 30% were of Indigenous descent. Besides the operations employees, there were also 700 contract employees working on site by the end of 2016.

RRP worked with government agencies and Indigenous communities in implementing two training programs; haul truck operator and mineral process operators. Eight individuals successfully graduated the haul truck operator training program and 13 individuals graduated from the mineral process operator program. All of the successful graduates were offered employment with the RRP and have gained invaluable career skills. Training activities conducted in 2016 included:

- Development of a site wide Training Module in SAP, the accounting and training tracking program used by RRP.
- Planned and executed 2 Trainee Programs,
    - The Aboriginal Mill Operator Trainee Program, and,
    - The Aboriginal Haul Truck Trainee Program.

To ensure ongoing engagement in regards to human resources, RRP also worked with local employment and training agencies and hosted 16 career fairs in 2016.

Figure 5: Mineral Processing Training Program Graduates, December 2016

1.5 Community

During 2016, the Community Team and other site teams, held various community engagement activities with neighbours, Indigenous partners, municipalities and interested members of the public. With the ongoing construction of the RRP, opportunities to engage the community and increase knowledge of mining activities included career fairs, site tours and PDAC Mining Matters Program. Please refer to Appendix E Public Consultation Registry for details around public consultation in 2016.

The following outlines the Community activities completed in 2016;

- 16 Career Fairs / Employment Open Houses held in Indigenous and non-Indigenous Communities.
- Public presentations were completed at various venues including; a project update at the Emo Legion to the general public, Fort France Chamber of Commerce Men's Breakfast Club and many workshops.
- Spring, Summer and Fall newsletters were distributed throughout the entire Rainy River District and parts of the Kenora District.
- Coach bus tours of the project area were provided to the neighbours and the general public. Approximately 250 individuals total participated in the tours in 2016. Site tours were also provided to various Indigenous communities including; Onigaming First Nation, Naotkamegwanning First Nation, Big Island First Nation, Big Grassy River First Nation, Rainy River First Nations and Naicatchewenin First Nation.
- Numerous visits to various Indigenous communities were done in 2016 including Onigaming First Nation, Naotkamegwanning First Nation, Big Island First Nation, Big Grassy River First Nation, Rainy River First Nations and Naicatchewenin First Nation.
- On-site ceremonies were held in the Spring and the Fall. There was also a water ceremony held at the Pumphouse and a ceremony prior to the opening of the Plant Site Administration Building.
- The PDAC Mining Matters Program was held in four local schools; day programs were held at the Rainy River High School, Robert Moone School, Fort Frances High School and Sturgeon Creek Elementary School in Chapple. There was also an evening program held at the Donald Young School in Emo.

Figure 6: Spring Ceremony, May 2016

Environmental Highlights

A summary of the Environmental Approvals related to the RRP received by New Gold during 2016 has been provided in this section as well as the ongoing licenses that RRP maintains as part of the construction and commissioning activities.

Regulatory Update Title Photos:
Left: Daryl Archie Tree Planting, May 2016
Top Middle: Forget-Me-Not, July 2016
Bottom Middle: Yellow Lady Slipper, July 2016
Right: Garnet Cornell and Nathan Baird, March 2016

2 Environmental Highlights

Rainy River Resources Ltd. (Rainy River Resources), a predecessor to New Gold, submitted a Project Description to the Canadian Environmental Assessment Agency (CEAA) pursuant to the *Canadian Environmental Assessment Act, 2012*, that was approved on August 31, 2012. On December 18, 2012, Rainy River Resources was informed that a Standard Assessment would be required for the RRP and final Environmental Impact Statement Guidelines were issued by the CEAA. In parallel, Rainy River Resources volunteered to be subject to an individual EA for the RRP under the Ontario *Environmental Assessment Act*. The Proposed Terms of Reference, as amended, were approved by the Ontario Minister of the Environment on May 15, 2013.

On January 17, 2014, New Gold submitted documentation intended to fulfill the EA requirements as defined by the Provincially-approved Terms of Reference and Federal Environmental Impact Statement Guidelines:

> *Rainy River Project, Township of Chapple, Final Environmental Assessment Report (Environmental Impact Statement), Version 2*. Prepared for Rainy River Resources Ltd. by AMEC Environment & Infrastructure.

A positive Federal EA Decision Statement was issued on January 12, 2015 and a favourable Provincial EA Notice of Approval was released on January 29, 2015.

A number of environmental approval applications were submitted in advance of completion of the EA process. After EA approval and on completion of the necessary regulatory review and consultation, the initial environmental approvals required to start construction were issued by, or in the case of the Closure Plan, filed with by the regulatory authorities.

2.1 Regulatory Update

In January 2015 both a Federal Environmental Assessment Decision Statement and a Provincial Environmental Assessment Notice of Approval were provided to New Gold for the Rainy River Project.

Environmental Highlights

A summary of the Environmental Approvals related to the RRP attained by New Gold during 2016 has been provided in this section as well as the ongoing licenses that RRP maintains as part of the construction and commissioning activities.

Throughout 2015 and 2016 earthworks construction of dams, water diversion systems, road construction, commissioning and mine operations were advanced based on various permits and approvals granted by both Federal and Provincial Governments.

Table 2 provides a summary of the environmental approvals related to the RRP operated by New Gold.

Sections 2.2 to 2.8 summarize the New Gold RRP 2016 development of each Federal EA condition. Detailed information on each Federal EA condition and the New Gold RRP 2016 activities regarding those conditions can be found in Appendix A.

Detail and status of the New Gold RRP 2016 development of Provincial EA conditions can be found in Appendix B, Provincial EA Notice of Approval Registry, and Section 3.4 Notice of Approval Registry.

2.2 General Conditions (Federal Condition 2)

During the second year of construction the RRP has made some minor modifications to the design of the project to allow for temporary facilities associated with construction and permitting delays. However, these modifications have been designed to meet the conditions outlined in the Decision Statement as well as other applicable Provincial and Federal permit approvals. Where necessary, applications for new permits have been made.

In October 2016 the Canadian Environmental Assessment Agency had the opportunity to visit the project and spend three days on site. This allowed for calibration and knowledge development by the CEAA mandate and interpretation of the Decision Statement, allowing New Gold RRP to not only achieve requirements outlined in the Decision Statement but to find opportunities to enhance these requirements.

Consultation and engagement methods were significant discussion items throughout the EA process and in the negotiation of Impact Benefit and Participation Agreements. Active consultation and engagement with local communities continued through 2016.

2.3 Fish and Fish Habitat (Federal Condition 3)

Construction of the Rainy River Project required that two natural water courses be diverted in order to accommodate the construction of water treatment facilities for pit dewatering, the Mill and associated plant site infrastructure and the open pit. While no actual water course diversion took place in 2015 or 2016, construction of compensation ponds and earthworks associated with diversions did take place under approval from the Ministry of Natural Resources and Forestry (MNRF) and the Department of Fisheries and Oceans Canada (DFO). By the end of 2016, New Gold RRP had constructed four ponds and approximately ten kilometers of man-made creek channel that have incorporated appropriate fish habitat for the water flow and fish species within the project area.

In late November 2016, New Gold RRP began to commission the water systems. As part of the projects DFO authorization a five year Fisheries Monitoring Plan will be implemented to ensure that all habitat is functioning as designed and that fish have moved into these systems.

In October 2016 New Gold RRP conducted the RRP Fish Tissue Monitoring Program, with fish collection conducted from September 19th to 24th. Fish communities and catchability for walleye and northern pike were generally consistent with the results of previous sampling efforts.

The report found that the RRP has not had any influence on the concentrations of metals in muscle and liver tissues of the sentinel fish species. The 2016 report was finalized March 2017.

Installation of culverts on the project as well as planning for the advancement of the Open Pit in early 2017 required that fish salvage programs be conducted once again this year. Under various fisheries licenses issued by the MNRF, New Gold RRP retained professional services to assist in the relocation of approximately 16,976 fish (primarily minnow and small bodied species) from the West Creek and from the Pinewood River System at the Pumphouse intake. A total of 30 fish (15 Walleye and 15 Northern Pike) were captured for detailed study purposes.

Further information regarding the Fish and Fish Habitat Federal Conditions for the Rainy River Project can be found in Appendix A Federal Condition 3 of this Report.

2.4 Migratory Birds (Federal Condition 4)

During the 2016 breeding bird window, the RRP Environmental Team completed 233 bird sweeps to ensure construction and mining operations would not have an impact on nesting birds. There was one incidental take of Migratory Birds or bird nests on site during 2016; one robin nest, resulting in a loss of eggs.

Extensive training and information sharing regarding migratory birds and species at risk occurred on site and the Environmental Department feels that the participation from onsite contractors and New Gold Employees greatly contributed to the success of the RRP monitoring programs.

Two years after the installation of barn swallow nesting boxes, barn swallows have started utilizing one of the nesting structures during the 2016 nesting period. Monitoring of the nesting boxes will be ongoing throughout the life of the project.

Further information regarding migratory bird protection and monitoring can be found in Appendix A Federal Condition 4 of this report.

2.5 Health of Aboriginal Peoples (Federal Condition 5)

New Gold RRP initiated quarterly Environmental Monitoring Boards in 2016 to engage community members in environmental aspects of the project and address any community concerns.

Air quality monitoring was completed in 2016 per environmental approval requirements. Two air quality stations were installed in May 2015 and the Ambient Air Quality Monitoring Program was accepted by the MOECC in November 2016.

Three exceedances were reported in 2016 that were related to traffic on a public road and forest fires in the region. Aboriginal groups were not notified of these exceedance. In late 2016, RRP initiated a notification system to advise Aboriginal groups of exceedances and going forward Aboriginal groups will be notified.

Fugitive dust was mitigated by the following strategies in 2016; applying water and calcium chloride to roads and parking lots and use of water suppression devices on rock crushing and screening operations. Visual monitoring was done to assess if the strategies were affective and notified the appropriate parties if further measures needed to be taken.

In 2016, a fish assessment was undertaken in the Pinewood River downstream of the RRP as a continuation of a fish tissue study started in 2015. Northern Pike and Walleye were monitored for key contaminants. The data indicated that the RRP did not have any influence on the concentrations of metals in muscle and liver tissues of the above fish species.

No new information was obtained or new impacts predicted during 2016 related to the RRP, that could affect the health of Aboriginal people. Further information regarding the Fish and Fish Habitat Federal Conditions for the Rainy River Project can be found in Appendix A Federal Condition 5 of this report.

2.6 Current Use of Lands and Resources for Traditional Purposes (Federal Condition 6)

As construction was on-going in 2016, access to lands was limited due to health and safety considerations for the public and team members working on site.

Indigenous people were invited to participate in a deer tissue sampling program. The Deer Tissue Monitoring Program was initiated in the Fall of 2016. There were presentations to First Nation Communities before the program started. Results will be communicated in 2017. In 2017 New Gold RRP plans to invite Aboriginal community members to continue to participate in the deer tissue sampling program and a controlled hunt on-site, depending on safe and favourable site conditions.

New Gold RRP remains open to discussing closure objectives in relation to the results of the Traditional Knowledge / Traditional Land Use (TK / TLU) study however no specific comments received in 2016.

More information including supporting documentation can be found in Appendix A Federal Condition 6 of this report.

2.7 Aboriginal Archaeological, Heritage and Cultural Resources (Federal Condition 7)

All archaeological work for Stages 1-3 have been completed at the Rainy River Project Site. Stage 4 excavation at the Campbell 1 site is complete; the preliminary report was completed and submitted in 2016. The final artifact analysis is due in December 2017 and is being completed by Woodland Heritage Services.

There are three remaining sites that require Stage 4 excavation. These sites will be will not be impacted by construction activities and will be avoided on an interim basis. These sites will only be excavated once construction activities are complete. A preliminary report has also been submitted for these sites. No other heritage or cultural work was necessary in 2016 and there were no unanticipated discoveries.

Figure 7: Deer in aspen trees, October 2016

More information including supporting documentation can be found in Appendix A Federal Condition 7 of this report.

2.8 Species at Risk and Wildlife Monitoring (Federal Condition 8)

Wildlife monitoring is a high priority for New Gold RRP and the importance of protecting reporting and monitoring all wildlife is impressed upon all visitors and workers.

New Gold RRP has gone to great lengths to protect and preserve Whip-poor-will and Bobolink species and habitats by purchasing and maintaining over 1400 hectares of compensation land called Overall Benefit Land (OB Land). The OB Land encompasses approximately 1400 hectares and benefits a number of species. New Gold expects everyone on the RRP to report any and all wildlife they encounter. The RRP GIS team has developed an easy to use tracking system that allows data entry to plot and track the wildlife reports in real time. This system allows monitoring and enables the RRP Environmental team to mitigate any high risk areas and watch for any changes in populations.

A Deer Tissue Monitoring Program was developed in 2016 to track the levels of metals and other contaminates within the local Deer population. 2016 allowed the gathering of baseline data for this program with 37 samples collected from almost within the site to as far away as Thunder Bay. The program will be expanded in 2017 to include beaver and cattle samples.

More information including supporting documentation can be found in Appendix A Federal Condition 8 of this report.

Figure 8: Canadian Geese and Highway 600 Realignment Bridge, April 2016

Table 2: Environmental Approvals and Permits

Agency	Type	Number	Description	Comments
Ontario Ministry of Environment and Climate Change	Permit to Take Water	0040-9VUL6B	Tailings Management Area Construction	
		1386-9VTP2H	Aggregate Sources (OC3, OC4, Roen)	
		2133-9VUPVZ	Construction Minor Takings	
		3638-9VTNRM	Tait Quarry	Expires May 8, 2017. Renewal application with MOECC.
		7631-9VULMS	Mine Dewatering	
		8776-9W2QN3	Pinewood River	
	Environmental Compliance Approval	5781-9VJQ2J	Construction Phase / Tait Quarry	
		5178-9TUPD9	Industrial Sewage	
		8567-9ZXG8U	Air / Noise	Superseded
		0412-A2LR4V	Air / Noise	Amended
Ontario Ministry of Natural Resources and Forestry	Work Permit / Letter of Authority (*Lakes and Rivers Improvement Act / Public Lands Act*)	FF-2015-01	Temporary Culverts C2, C6, C8	
		FF-2015-02 FF-2015-02 Amendment A FF-2015-02 Amendment B	West Creek Diversion	
		FF-2015-03 FF-2015-03 Amendment A FF-2015-03 Amendment B	Clark Creek Diversion	
		FF-2015-04 (replaced with below) FF-2015-04A FF-2015-04B FF-2015-04C	TMA	
		FF-2015-05	Mine Rock Pond	
		FF-2015-07	Pinewood River Intake / Outfall	
		FF-2015-08	Culvert C15	
		FF-2016-02 FF-2016-02A	Culvert Crossing CPL15	
		FF-11-2015/16	Highway 600 Crossing	
		FF2-2015/16	East Access Road Construction	
		FF6-2016/2016	East Access Road Construction (amendment)	
		FF-11-2015/16	Pinewood River - bridge crossing	

Agency	Type	Number	Description	Comments
	Endangered Species Act Permit	FF-C-001-14	Permit Under 17(2)(c)	
	Aggregate Resources Licence	625851	Tait Quarry	
Ontario Ministry of Natural Resources and Forestry	Forestry Resource Licence	Overlapping Agreement with Resolute Forest Products	Crown Forest Resources	
		552762		2013-2014
		553037, 553038 553039		2014-2015
		553212, 553213, 553214, 553223, 553224, 553225, 553226, 553227, 553271, 553272, 553145		2015-2016
		553386, 553481,553514, 553517,553531 553482, 553500,553532, 553541 553501, 553533, 553534, 553535	Crown Forest Resources	2016-2017
	Licence to Harvest	B12008, B12009	Licence to Harvest on Private Land	2014-2015
		B12011, B12013, B12014, B12032, B12033, B12039, B12040, B12052, B12053		2015-2016
		B12057, B12071, B12072, B12077, B12078, B12083, B12086		2016-2017
	Authority to Haul	215455	Authority to Haul	2013-2014
		216269, 216277, 216278, 216279, 216280		2014-2015
		216310, 216366, 216367, 216557, 216880, 216881, 216822, 216823, 216833, 216836, 216838, 216882, 216883, 216884, 216885, 216886, 217018, 217019, 217020, 217021		2015-2016
		217396, 217645, 217718, 217762, 217763 217646, 217682, 217663, 217717, 217719, 217683, 217766, 217760, 217771, 217781 217767, 217772, 217387, 217712	Authority to Haul	2016-2017
	Land Use Permit	1134-1003160	Hwy 600 re-alignment Ref# 434-FF Claim # 4200494	
		1134-1003161	Wood Storage - West of Tait Ref# 435-FF Claim # 4200493	
		1134-1003162	Wood Storage - West of Tait Ref# 436-FF Claim # 4200492	

Agency	Type	Number	Description	Comments
Ontario Ministry of Natural Resources and Forestry	Land Use Permit	1134-1003163	East Access Road Ref# 437-FF Claim # 3016838	
		1134-1003164	East Access Road Ref# 438-FF Claim # 3016858	
		1134-1003167	Electrical Transmission Line - Multi-Site - Menary Twp. Ref # 442-FF	Expires July 31, 2025
	Other Permits	1079341	Fish Collection Permit - Culvert C3, C7, C8	Permit for 2015
		1080070	Fish Collection Permit - Fish Salvage	Permit for 2015
		1083746	Fish Collection Permit – Clark, West Creek, Marr, Loslo	Permit for 2016
		1081093	Authorization for wildlife interference	Permit for 2015
		1079145	Authorization for wildlife interference	Permit for 2015
		1081168	Wildlife Scientific Collectors Authorization - Turtle Relocation	Permit for 2016
CEAA	Federal Decision Statement issued under Section 54 of Canadian Environmental Assessment Act, 2012	Federal EA	90+ Federal EA Commitments	
	MMER	Reporting Procedures for MMER		
MOECC	Environmental Assessment Act Section 9 Notice of Approval to proceed with the Undertaking	Provincial EA	60 Provincial Commitments	
CEAA and MOECC	Final EA Report Commitments Registry	EA Commitments	205 Commitments	
Ontario Ministry of Northern Development and Mines	Closure Plan	-	Contains Closure Plan Commitments Registry Filed by Ministry of Northern Development and Mines (February 23, 2015)	

Agency	Type	Number	Description	Comments
Ontario Ministry of Transportation	Entrance Permit	13+ approvals		
	Encroachment Permit	14+ approvals		
	Land Use	11+ approvals		
Fisheries and Oceans Canada	Authorization	15-HCAA-00039	Section 35(2)	
	Letter of Advice	KE-12-0963	Road Crossings	
Transport Canada	Letter	15-0045	Linear Structure	
	Letter	15-0046	Blasting Zone	
	Clearance	ATS-15-16-00026521	Transmission Line - Aeronautic Obstruction Clearance	No lighting or marking required
	Letter	16-2664	Linear Structure	Renewal.
Canadian Nuclear Safety Commission	Nuclear Radiation Licence	15954-1-19.0	Nuclear Radiation Device License	
Ontario Energy Board	Electricity Wholesaler Licence	EW-2014-0371		
Municipality	Occupancy Permit	N16-08	Admin Building – Process Plant Site	

Figure 9: Assembly Pad Inspection, July 2016

Annual Environmental Assessment Compliance Report Requirements

Provided in the appendices, this section provides a summary of the Compliance Requirements. Information on each of the specific compliance requirements can be found in detail in Appendices A, B, C and D of this report.

Annual Environmental Assessment Compliance Report Requirements Title Photos:

Top: Spill Training, Dec 2016

Bottom Left: Spring Ceremony, May 2016

3 Annual Environmental Assessment Compliance Report Requirements

3.1 Regulatory Background

Condition 2.3 of the Federal EA Decision Statement required that:

- The Proponent shall submit to the Agency an annual report on the implementation of the conditions set out in this Decision Statement with a supporting analysis for each of the conditions for the preceding calendar year on or before March 31, starting from the commencement of any activities in connection with the carrying out of the Designated Project. Each annual report shall describe how the Proponent has considered and incorporated the factors outlined in condition 2.1 in the implementation of the conditions set out in this Decisions Statement.

Condition 2.5 requires that the report be available on the Proponent website within 30 days of submission to the CEAA. This posting will be completed by 31st March 2017.

Condition 6 of the Provincial Notice of Approval also indicated a requirement for an annual EA compliance report:

- Condition 6.1: The Proponent shall prepare an annual Compliance Report which describes its compliance with the conditions of approval set out in this Notice of Approval, and which describes the results of the Proponent's Environmental Assessment Compliance Monitoring Program required by Condition 5 of this Notice of Approval.
- Condition 6.2: The first annual Compliance Report shall be submitted to the Director, for the public record, within one year from the Start of Construction and shall cover all activities of the previous 12-month period.

Per an e-mail communication between Mr. Kyle Stanfield, New Gold RRP and Ms Sasha McLeod of the Ministry of Environment and Climate Change on March 2, 2015, the timing of the Provincial EA Compliance Report was

Annual EA Compliance Report Requirements

Provided in the appendices, this section provides a summary of the Compliance Requirements. Information on each of the specific compliance requirements can be found in detail in Appendices A, B, C and D of this report.

This report is intended to meet both Federal and Provincial annual EA compliance reporting requirements.

aligned with the Federal requirement, and will be due on March 31st each year.

This report is intended to meet both the Federal and Provincial, annual EA compliance report requirements.

3.2 Report Content Requirements

In accordance with the Federal EA Decision Statement and the Provincial EA Notice of Approval, along with the Compliance Monitoring Program submitted by New Gold RRP in fulfillment of Condition 5 of the Provincial EA Notice of Approval, this Annual EA Compliance Report contains the following:

- Federal Decision Statement Registry (Appendix A);
- Provincial Notice of Approval Registry (Appendix B);
- Commitments Registry (Appendix C); and
- Follow Up Monitoring Program (FMP) Registry (Appendix D).
- Public Consultation Registry (Appendix E)

3.3 Federal Decision Statement Registry

The Federal Decision Statement included a number of conditions that were to be tracked and as appropriated completed on an ongoing basis. The Federal Decision Statement Registry updated to December 31, 2016 is attached in Appendix A. This comprehensive table provides a summary and feedback on how the first year of the Construction Phase met the conditions of the Decision Statement, recognizing that 2015 was not a full year of activities.

3.4 Notice of Approval Registry

Per the Provincial Compliance Management, New Gold RRP committed to maintaining a Notice of Approval Registry that tabulates the conditions of the Notice of Approval and on-going status. The Notice of Approval Registry is to be updated on a regular basis, and no less frequently than annually as part of the project follow up reporting. The updated Provincial Notice of Approval Registry valid to December 31, 2016, is appended to this report in Appendix B.

3.5 Commitments Registry

New Gold RRP made a large number of commitments which were disseminated through the associated EA documentation. New Gold RRP intends to fulfil these commitments as summarized in the Commitments Registry. The registry is intended as a living document and will be amended as needed, to include other mitigation measures / commitments as identified going forward. The registry will be updated on a regular basis, and no less frequently than annually as part of the project follow up reporting. The updated Commitments Registry which tracks completion of EA commitments to December 31, 2016, is provided in Appendix C.

3.6 Follow Up Monitoring Plan Registry

The RRP EA Report / Environmental Impact Statement, Section 13 describes the RRP monitoring plan and environmental management. In accordance with the Code of Practice for Preparing and Reviewing EAs in Ontario, 2014, monitoring is:

> *Used to verify the expected environmental effects of the undertaking and to determine if any additional impact management measures, or adjustments to any measures, are required. The monitoring framework should consider all phases of the proposed undertaking (for example, planning, detailed design, tendering, construction, operation, closure, decommissioning). This framework must include compliance monitoring and, where appropriate, effects monitoring*.

In accordance with *Canadian Environmental Assessment Act, 2012* the purpose of the FMP is to:

> *Verify the accuracy of the environmental assessment of a designated project; and Determine the effectiveness of any mitigation measures.*

The FMP applies to the construction, operation, active closure and decommissioning (active closure), and post-closure phases of the RRP, as appropriate. As of December 31, 2016 there was limited follow up monitoring required related to the EA. Additional reporting has been completed as required by the environmental approvals received to date; these reports have been issued to the appropriate regulatory authorities. Appendix D contains a copy of the FMP registry, current to December 31, 2016.

3.7 Public Consultation Registry

New Gold has committed to providing a public consultation table as part of the Provincial Compliance Monitoring Program (Version 2 February 11, 2015). 2016 public consultation on the RRP has been attached in Appendix E.

Figure 10: Transmission Line, May 2016

Conclusion

This report has been prepared by New Gold Inc. Rainy River Project with the information available at the time of preparation, the assumptions, conditions and qualifications set forth and with generally accepted industry standards.

Conclusion Title Photo:
Bottom: Blue heron rookery approximately 30km south of the RRP, May 2016

4 Conclusion

This Environmental Compliance Report was prepared by New Gold Inc. Rainy River Project. The quality of information and conclusions are based on:

i) information available at the time of preparation, and
ii) the assumptions, conditions and qualifications set forth in this document.

This report has been prepared in accordance with generally accepted industry standards. No other warranty, expressed or implied, is made. If you require further information, please contact Darrell Martindale, RRP Environmental Manager at (807) 707-3497.

Darrell Martindale
Environmental Manager
New Gold
Rainy River Project

End Page Photo:
Fox family in field, Aug 2014

Conclusion

This report has been prepared by New Gold Inc. Rainy River Project with the information available at the time of preparation, the assumptions, conditions and qualifications set forth and with generally accepted industry standards.

Appendix A
Annual Compliance Report
Federal Condition Requirements

2016 Rainy River Project Annual Report

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Federal Condition 2: General Conditions

During the second year of construction the RRP has made some minor modifications to the design of the project to allow for temporary facilities associated with construction and permitting delays. However, these modifications have been designed to meet the conditions outlined in the Decision Statement as well as other applicable Provincial and Federal permit approvals. Where necessary, applications for new permits have been made.

In October 2016, the Canadian Environmental Assessment Agency had the opportunity to visit the project and spend three days on site. This allowed for calibration and knowledge development by the CEAA mandate and interpretation of the Decision Statement, allowing New Gold RRP to not only achieve requirements outlined in the Decision Statement but to find opportunities to enhance these requirements.

Consultation and engagement methods were significant discussion items throughout the EA process and in the negotiation of Impact Benefit and Participation Agreements. Active consultation and engagement with local communities continued through 2016.

Figure 1: Loslo Creek, March 2016

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Condition 2.1

The Proponent shall, throughout all phases of the Designated Project, inform its actions in meeting the conditions set in this Decision Statement by the best available information and knowledge, based on validated methods and models, undertaken by qualified individuals and apply the best available economically and technologically feasible mitigation measures.

Status: Ongoing

Supporting Analysis:

During the second year of construction the RRP has made some minor modifications to the design of the project to allow for temporary facilities associated with construction and permitting delays. However, these modifications have been designed to meet the conditions outlined in the Decision Statement as well as other applicable Provincial and Federal permit approvals. Where necessary, applications for new permits have been made.

In October 2016, the Canadian Environmental Assessment Agency had the opportunity to visit the project and spend three days on site. This allowed for calibration and knowledge development by the CEAA mandate and interpretation of the Decision Statement, allowing New Gold RRP to not only achieve requirements outlined in the Decision Statement but to find opportunities to enhance these requirements.

Condition 2.2

Where consultation is a requirement of the conditions set out in this Decision Statement, the Proponent shall first consult Aboriginal groups on the most appropriate manner in which to engage in consultation with them.

Status: Ongoing

Supporting Analysis:

Consultation and engagement methods were significant discussion items throughout the EA process and in the negotiation of Impact Benefit and Participation Agreements. Active consultation and engagement with local communities continued through 2016.

Condition 2.3

The Proponent shall submit to the Agency an annual report on the implementation of the conditions set out in this Decision Statement with a supporting analysis for each of the conditions for the preceding calendar year on or before March 31, starting from the commencement of any activities in connection with the carrying out of the Designated Project. Each annual report shall describe how the Proponent has considered and incorporated the factors outlined in condition 2.1 in the implementation of the conditions set out in this Decision Statement.

Status: Completed

Supporting Analysis:

The annual report was submitted to the Agency on 31st March 2017. A digital copy can be found on the New Gold Website at http://www.newgold.com/projects/rainyriver/rainyriver-project. The public is also welcome to visit the New Gold office in Emo Ontario to review copies of the document.

Condition 2.4

The Proponent shall, in consideration of the annual report for condition 2.3, provide documentation to the Agency indicating the results of any monitoring for conditions 3.8, 4.6, 5.2, 5.3, 5.4, 6.4, and 8.4. The documentation shall demonstrate whether the mitigation measures have proven effective and whether the predictions made during the environmental assessment were accurate. The documentation shall also detail any corrective actions taken by the Proponent should the mitigation measures prove not to be effective.

Status: Ongoing

Supporting Analysis:

2016 was a year of construction, therefore, some of the monitoring was not yet necessary. For the monitoring work that was done Appendix A Conditions 3.8.2, 3.8.4, 4.6, 5.2, 5.4, and 8.4 specifically, the detail and results are provided in the individual sections.

Figure 2: Site landscape, March 2016

Figures

Figure 1: Loslo Creek. March 2016 1
Figure 2: Site Landscape, March 2016 3

Supporting Documentation

Reference made to other conditions however no supporting documentation is required for this condition.

newgold™ Rainy River Project

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Federal Condition 3: Fish and Fish Habitat

Construction of the Rainy River Project required that two natural water courses be diverted in order to accommodate the construction of water treatment facilities for pit dewatering, the Mill and associated plant site infrastructure and the open pit. While no actual water course diversion took place in 2015 or 2016, construction of compensation ponds and earthworks associated with diversions did take place under approval from the Ministry of Natural Resources and Forestry (MNRF) and the Department of Fisheries and Oceans Canada (DFO). By the end of 2016, New Gold RRP had constructed four ponds and approximately ten kilometers of man-made creek channel that have incorporated appropriate fish habitat for the water flow and fish species within the project area.

In late November 2016, New Gold RRP began to commission the water systems. As part of the projects DFO authorization a five year Fisheries Monitoring Plan will be implemented to ensure that all habitat is functioning as designed and that fish have moved into these systems.

In October 2016 New Gold RRP conducted the RRP Fish Tissue Monitoring Program, with fish collection conducted from September 19th to 24th. Fish communities and catchability for walleye and northern pike were generally consistent with the results of previous sampling efforts.

The report found that the RRP has not had any influence on the concentrations of metals in muscle and liver tissues of the sentinel fish species. The 2016 report was finalized March 2017.

Installation of culverts on the project as well as planning for the advancement of the Open Pit in early 2017 required that fish salvage programs be conducted once again this year. Under various fisheries licenses issued by the MNRF, New Gold RRP retained professional services to assist in the relocation of approximately 16,976 fish (primarily minnow and small bodied species) from the West Creek and from the Pinewood River System at the Pumphouse intake. A total of 30 fish (15 Walleye and 15 Northern Pike) were captured for detailed study purposes.

Condition 3.1

The Proponent shall minimize changes caused by the Designated Project to water levels and water flows in the Pinewood River, the Minor Creek System, and the Modified Minor Creek System in such a way as to protect fish and fish habitat, by implementing mitigation measures including, but not limited to:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis 3.1.1 to 3.1.4

Condition 3.1.1

Recycling of water, for ore processing, from the tailings management area and ponds constructed for water management;

Status: Not applicable at this time

Supporting Analysis:

During the 2016 Construction Phase New Gold RRP did not complete the Water Management Facility or start construction on the Tailings Management Facility. As construction advances in 2017 these facilities will be implemented along with the Mill. At this time water will be recycled from the open pit and the tailings management pond to assist in the milling of ore. The mine infrastructure was designed in a way that encourages recycling water and reduces the need to draw water from natural sources therefore minimizing potential impacts on the Pinewood River and associated water systems.

Condition 3.1.2

Optimizing the timing, position and quantity of final effluent discharge between the final effluent discharge points;

Status: Ongoing

Supporting Analysis:

There have been no significant Project-related changes, as 2016 was a year of construction and changes to watershed areas/capture of watershed areas during the year were negligible. There were no significant effluent discharges from the site during 2016 related to ore processing and tailings.

During the planning and permitting stages of the project New Gold RRP has received a number of Permits to Take Water from the Ministry of Environment and Climate Change (MOECC) which regulate the volume of water the project is permitted to take and to discharge including effluent from temporary

sediment ponds. All discharge points have been obtained through the Environment Canada Metal Mining Effluent Notification Process. Condition 3.8.2 details the 2016 Effluent Quality and Table 1 below details the Field Discharge Points (FDP).

Condition 3.1.3

Filling the open pit during the decommissioning and abandonment phases in a manner which meets the flow requirements in the Pinewood River while allowing the pit to be filled as expeditiously as possible to reduce any adverse environmental effects

Status: Not applicable at this time

Supporting Analysis:

This condition will come into effect during pit closure planned for 2031.

Condition 3.1.4

Not taking water from the Pinewood River when flows are below the minimum threshold set by Ontario.

Status: Ongoing

Supporting Analysis:

During 2016 water was taken from the Pinewood River on five occasions to commission the pipeline. Water removal from the Pinewood River is permitted by the MOECC. In the spring of 2017 the Water Management Pond will be completed and taking water from the Pinewood River will occur when thresholds are appropriate.

Figure 1: Darters in West Creek, October 2016

Table 1: Field Discharge Points (FDP) Details

	FDP 1 / PRF 1	FDP 2 / PRF 2	FDP 3 / PRF 3	FDP 4 / PRF 4	FDP 5 / PRF 5	FDP 6 / PRF 6	FDP 7 / PRF 7	FDP 8 / PRF 8	FDP 9 / PRF 9
FDP full name	Preliminary Phase Mine Rock Pond	In Pit Sump 3	In Pit Sump 4	Sediment Pond 1	Process Plant Overburden Pile	Process Plant Site	Plant Site South Pond	Plant Site North Pond	Overburden and West Mine Rock Stockpile Temp Ponds
FDP short name	PPMRP	Sump 3	Sump 4	Sed Pond 1	MRP Stockpile	Temp Sed Pond	South Pond	North Pond	Sumps 1 & 2
Effluent Type (as defined in MMER)	Mine water effluent	mine water effluent	mine water effluent	treatment pond effluent	treatment pond effluent	treatment pond effluent	treatment pond effluent	treatment pond effluent	treatment pond effluent
FDP start deposit date (YYYY-MM-DD)	hasn't been constructed	12/7/2015	4/29/2016	hasn't been constructed	6/6/2016	9/17/2015	6/9/2016	7/20/2016	9/4/2016
FDP flow rate capacity (m3/day)	TBD	55,000	55,000	46,797	55,000	19,771	19,771	19,771	10,490
Location Latitude x Longitude (DD°MM'SS" N x DD°MM'SS" W)	48°49'42" x 94°00'01"	48°49'56" x 94°01'20"	48°49'53" x 94°00'38"	48°50'54" x 94°02'22"	48°49'47.3" x 93°59'35"	48°50'44.8" x 93°59'59.8"	48°50'30.5" x 94°00'14.7"	48°51'00" x 94°00'12.3"	48°49'45" x 94°02'11"
FDP description	temporary treatment pond for runoff	temporary mine water treatment	temporary mine water treatment	treatment for runoff	temporary treatment for runoff	temporary treatment for runoff	treatment for runoff	treatment for runoff	treatment for runoff

	FDP 1 / PRF 1	FDP 2 / PRF 2	FDP 3 / PRF 3	FDP 4 / PRF 4	FDP 5 / PRF 5	FDP 6 / PRF 6	FDP 7 / PRF 7	FDP 8 / PRF 8	FDP 9 / PRF 9
Name of Receiving Environment	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Clark Creek	West Creek	West Creek	West Creek	Pinewood River
Reference Area(s)	for FDP 1 / pour PRF 1	for FDP 2 / pour PRF 2	for FDP 3 / pour PRF 3	for FDP 4 / pour PRF 4	for FDP 5 / pour PRF 5	for FDP 6 / pour PRF 6	for FDP 7 / pour PRF 7	for FDP 8 / pour PRF 8	for FDP 9 / pour PRF 9
Reference Area Full Name	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Pinewood River	Pinewood River
Location Latitude x Longitude (DD°MM'SS" N x DD°MM'SS" W)	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"	48°49'06.1" x 93°56'24.4"
Description	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location	Upstream of project location
Exposure Area(s)	for FDP 1 / pour PRF 1	for FDP 2 / pour PRF 2	for FDP 3 / pour PRF 3	for FDP 4 / pour PRF 4	for FDP 5 / pour PRF 5	for FDP 6 / pour PRF 6	for FDP 7 / pour PRF 7	for FDP 8 / pour PRF 8	for FDP 9 / pour PRF 9
Exposure Area Full Name	Clark Creek	Pinewood River	Pinewood River	Pinewood River	Clark Creek	West Creek	West Creek	West Creek	Pinewood River
Location Latitude x Longitude (DD°MM'SS" N x DD°MM'SS" W)	48°49'39" x 94°00'29.7"	48°49'41.9" x 94°02'45.6"	48°49'37.8" x 94°00'49.5"	48°49'41.66" x 94°02'20.87"	48°49'39.8" x 94°00'02"	48°50'24.9" x 94°01'05"	48°50'24.9" x 94°01'05.5"	48°50'55.18" x 94°00'22.4"	48°49'43" x 94°02'19"
Description	Diversion channel at old Hwy 600	South of open pit	South of open pit	South west of property location	Diversion channel at old Hwy 600	North of open pit	North of open pit	North of open pit	South west of open pit

Condition 3.2

The Proponent shall, for all effluent, comply with the Metal Mining Effluent Regulations, the Fisheries Act and any site-specific water quality requirements set by Ontario. To ensure compliance, the Proponent shall implement, at a minimum, the following mitigation measures:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis 3.2.1 to 3.2.5

Condition 3.2.1

Treat effluent prior to discharge to the environment;

Status: Ongoing

Supporting Analysis:

Currently effluent discharges to the environment are from temporary seepage collection systems and pit dewatering systems that have been constructed in 2015 and 2016. Effluent is generated from storm water runoff and contact water associated with blasting bedrock for the development of infrastructure foundations and Open Pit.

Treatment consists of flocculent addition to reduce total suspended solids and dry ice to reduce un-ionized ammonia levels. An example of the documentation used to record water treatment prior to discharge is shown in SD 3.2.1a. In October 2016 New Gold RRP purchased and installed a portable water treatment plant (BakerCorp 10K Vessel Unit) which is used to reduce ammonia concentrations during Open Pit dewatering. The Notice of Modification and letter of approval is shown in SD 3.2.1b.

Water quality objectives and sampling requirements for the Rainy River Project are outlined in the MMER and the MOECC Environmental Compliance Approvals for Construction and Operations.

Condition 3.2.2

Treat tailings slurry to break down cyanide and precipitate heavy metals;

Status: Not applicable at this time

Supporting Analysis:

In 2016 there was no mill processing that would generate tailings. In 2017 tailings will be generated and treated in accordance with the Metal Mining Effluent Regulation and the Environmental Compliance Approval for the Rainy River Project.

Condition 3.2.3

Collect site contact water and seepage in ditches and divert to either the tailings management area or water management facilities for release via final discharge points;

Status: Ongoing

Supporting Analysis:

Site contact water generated from blasting and construction activities is collected in a temporary water management facility on the Plant Site and Open pit where it is treated, sampled and discharged in accordance with approvals and legislation from Environment Canada, Department of Fisheries and Oceans and the Ministry of Environment and Climate Change. During 2017 the Water Management Pond (WMP), Tailings Management Area (TMA), tailings pipeline and Mine Rock Pond will be constructed. These features will be designed to have seepage collection systems or drainage ditches and water from these collection systems will be either put back into the TMA or the water will first be recycled in mill processing prior to discharge into the TMA.

Figure 2: Plant Site Polishing Pond southeast corner looking north, November 2016

Figure 3: Plant Site Sediment Pond west edge looking east, November 2016

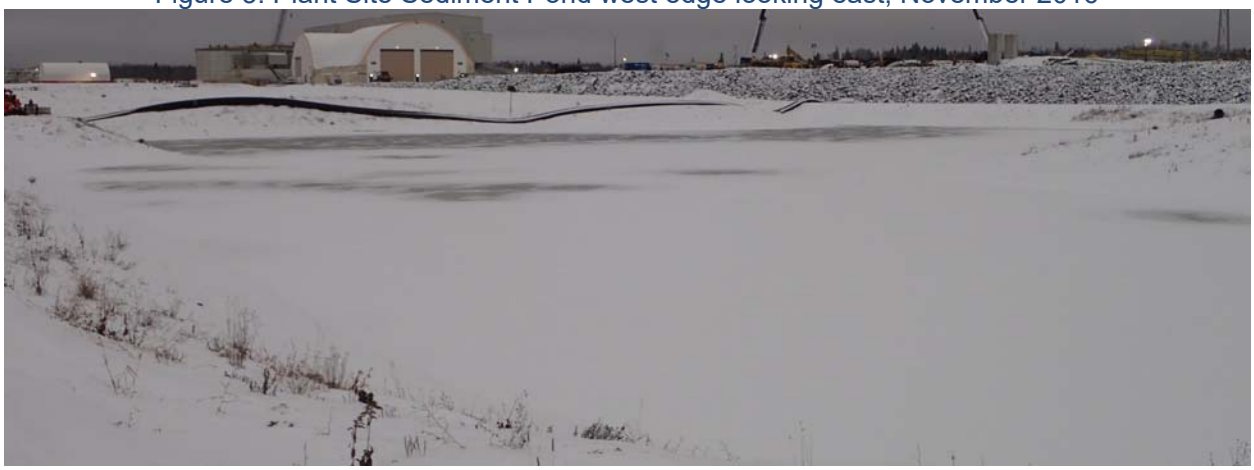

Figure 4: Plant Site South Pond southwest corner looking north, November 2016

Figure 5: Plant Site South Pond northwest corner looking southeast, November 2016

Condition 3.2.4

Install and operate a water quality control structure in the constructed wetland to prevent the release of final effluent discharge not compliant with the Regulations or requirements; and

Status: Not applicable at this time

Supporting Analysis:

Construction of the constructed wetland is scheduled for 2017 and will include a water quality control structure.

Condition 3.2.5

Install secondary containment on pipelines that cross the West Creek Diversion Channel to prevent accidental discharge of effluent.

Status: Ongoing

Supporting Analysis:

Pipeline installation commenced in the fall of 2016 and New Gold RRP has made a design modification to not only install secondary containment on pipelines that cross the West Creek Diversion Channel but also where the pipeline crosses West Creek. Currently the work is underway with completion in early 2017 and consists of sleeves made from 36” high density polyethylene (HDPE).

Condition 3.3

The Proponent shall control acid rock drainage and metal leaching so that all effluent and passive outflow from the Project Site comply with the Metal Mining Effluent Regulations, any site-specific water quality requirements set by Ontario, and the Fisheries Act, as applicable at any time. To ensure compliance, the Proponent shall implement, at a minimum, the following mitigation measures:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis 3.3.1 to 3.3.8

Condition 3.3.1

Line the former Clark Creek channel (under the east mine rock stockpile) with non-potentially acid generating material;

Status: Not applicable at this time

Supporting Analysis:

During 2016 the East Mine Rock Stockpile had not progressed to the former Clark Creek Channel. Imprinting over the former channel is scheduled for 2017 at which time the channel will be lined with nonacid generating rock.

Condition 3.3.2

Sort waste rock into potentially acid generating and non-potentially acid generating rock stockpiles through the development and implementation of a detailed mine rock segregation program using criteria for determining potentially acid generating material set by Ontario;

Status: Ongoing

Supporting Analysis:

Blasting and rock excavation from the Rainy River Open Pit Mine began in October 2015 and continued throughout 2016. Construction activities and infrastructure development require and consume all the Non-acid Generating (NAG) waste rock produced and therefore no stockpile for NAG rock was started in 2016. PAG Rock has been avoided where possible during this stage of mine development.

No assumed PAG material has been used in the construction of permanent features required for operation of the Rainy River Mine, except where approved, such as within the TMA. Where PAG has been encountered it has been used in the Open Pit for building temporary ramps, haul roads and platforms for the production shovels working in overburden material. Some PAG has also been placed on the upstream side of the TMA where it will remain below the water table.

Representative samples are taken from each production drill hole and analyzed in order to sort waste rock into NAG and PAG categories. Analyses is completed prior to the removal of blasted material. Additional testing and evaluation of the waste rock program was started in 2016 under the recommendations of geo-scientists and a thorough review by New Gold's Independent Tailings Review Board (ITRB).

The RRP has now tested and evaluated over 20,000 rock samples to strengthen the waste rock program. RRP continues to manage waste rock categorization on a 2 NPR threshold, instead of the 1.65 NPR threshold submitted for permitting to add an extra level of safety until the metal leaching and acid generating potential of the rock could be well understood. Work is continuing to be done to

improve our understanding of the Waste Rock. All material leaving the open pit has placement data associated with it as per regulations.

Some material was excavated prior to geochemical results being available and was used for temporary access at or adjacent to the Plant Site and has been assumed to be PAG material. To supplement the test work completed to date for the assumed PAG material, a test program will be conducted during 2017, where required, to support the characterization of the placed material that is assumed to be PAG. The testing will be consistent with the Geochemical Monitoring Plan. Based on the results of the testing, the PAG material will be removed and placed within PAG management areas.

Condition 3.3.3

Design and construct the perimeter ditching around the east mine rock stockpile and low grade ore stockpile to accommodate a 100-year flood event;

Status: Ongoing

Supporting Analysis:

During 2015 and 2016 a minimal amount of overburden removed from construction of foundations on the plant site was placed in the west portion of the east mine rock stockpile and temporary perimeter ditching and settling pond were constructed to capture runoff. All water is treated in accordance with the Construction Environmental Compliance Approval issued by Ministry of Environment and Climate Change as well as regulations under the Metal Mining Effluent Regulation. Water is discharged to an approved Environment Canada discharge location which drains into Clark Creek.

As the project advances in 2017 most waste rock will continue to be sent to the TMA. When rock is no longer required for the construction of the dams, development of the East Mine Rock Stockpile will start.

In 2017 the Mine Rock Pond will be built and will be in place prior to the expansion of the East Mine Rock Stockpile. In 2017 the temporary drainage collection system will need to be upgraded to accommodate a 100-year flood event.

Condition 3.3.4

Use potentially acid generating material only for the purpose of constructing the tailing management dam, where saturated conditions can be maintained. Potentially acid generating material must not be used for any other construction purpose;

Status: Ongoing

Supporting Analysis:

In late 2016, some PAG rock was placed on the upstream side of the Tailings Management Pond. Waste rock has been characterized for its NAG and PAG characteristics and its placement during construction has been documented. Where waste rock was excavated prior to geochemical knowledge, as discussed in Condition 3.3.2, supplemental test work will be completed in 2017 to determine the NAG and PAG characteristics. Based on the results of the supplemental testing , the PAG material will be removed and placed within the PAG management areas.

Condition 3.3.5

Place an engineered cover over the east mine rock stockpile and any remaining ore stockpiles at or before the decommissioning phase. The cover should be designed to prevent infiltration of water and to limit infiltration of air during the decommissioning and abandonment phases;

Status: Not applicable at this time

Supporting Analysis:

Work to be completed in accordance with this condition at mine closure.

Condition 3.3.6

Cover the tailings with water and maintain the tailings in a perpetually saturated state during the decommissioning and abandonment phases;

Status: Not applicable at this time

Supporting Analysis:

This condition is not relevant to this phase of the project and will be implemented at mine closure.

Condition 3.3.7

Fill the open pit, in accordance with condition 3.1.3 and 3.1.4, as rapidly as practicable during the decommissioning and abandonment phases, using all available means, including directing drainage from the east mine rock stockpile into the pit; and

Status: Not applicable at this time

Supporting Analysis:

This condition is not relevant to this phase of the project. Open pit decommissioning is currently planned for 2031.

Condition 3.3.8

Control water quality in the open pit lake during the abandonment phase.

Status: Not applicable at this time

Supporting Analysis:

This condition is not relevant to the construction phase and will be implemented during open pit decommissioning.

Condition 3.4

The Proponent shall design and construct new road watercourse crossings for the realignment of Highway 600 to allow for fish passage in accordance with the Environmental Guide for Fish and Fish Habitat.

Status: Completed

Supporting Analysis:

During the realignment of Highway 600 there was one water crossing required in a fish bearing watercourse located at the Pinewood River. In the Fall of 2015 a clear span bridge was installed over the Pinewood River. There was no in water work required for the installation therefore no alterations to the original river channel that would impact or alter fish habitat or passage.

Condition 3.5

The Proponent shall design and construct new road watercourse crossings for the realignment of Highway 600 to meet the Highway Drainage Design Standards of the Ministry of Transportation of Ontario.

Status: Completed

Supporting Analysis:

During the design phase of the Highway 600 realignment routine meetings were held between New Gold Inc. (formally Rainy River Resources) and the Ministry of Transportation of Ontario (MTO). The road and its associated crossings have been designed and constructed to meet MTO standards and was completed under the MTO Construction Administration and Inspection Task Manual (CAITM) protocol. Highway 600 was turned over to the MTO in 2016.

Condition 3.6

The Proponent shall design and construct water intakes meeting standards set out in the Freshwater Intake End-of-Pipe Fish Screen Guideline of the Department of Fisheries and Oceans Canada (DFO).

Status: Ongoing

Supporting Analysis:

In March of 2016 the Pinewood River Pumphouse and Intake were completed. This facility provides water to the Water Management Pond to utilize in mill processing in the event that there is not enough fresh water in the sites recycling process.

The pump intake enters the Pinewood River and is isolated by chain link fence that is installed below the high-water mark of the Pinewood River shown in Figure 6.

In order to meet DFO guidelines and continue to allow successful suction of water a fish screen was installed over the chain link fence running from the base of the Pinewood River to above the high water mark shown in Figure 7.

Due to low water flow in the Pinewood River commissioning the pumps was delayed until late summer at which time a fish salvage was completed to ensure that no fish had been trapped between the screen and the

Figure 6: Pinewood River where river flows into intake, August 2016

pipe intake. Following a 24-hour trap set less than 20 minnows were caught and visual observations indicated no schools of minnows.

During periods of low flow, the screen will be periodically monitored to ensure that it remains secure and free of debris.

Figure 7: Pinewood River Intake showing fish screen, August 2016

Condition 3.7

The Proponent shall both offset any residual serious harm to fish in accordance with subsection 35(2) of the Fisheries Act and associated regulations, and compensate for the loss of fish habitat resulting from the deposition of a deleterious substance into a tailings impoundment area in accordance with the Metal Mining Effluent Regulations, by recreating fish habitat in the West Creek Diversion Channel, West Creek Pond, Stockpile Pond Diversion Channel, Stockpile Pond, Clark Creek Diversion Channel, Clark Creek Pond, and Teeple Road Pond.

Status: Ongoing

Supporting Analysis:

Fish habitat compensation was designed by qualified experts and was reviewed by the Ministry of Natural Resources and Forestry and the Department of Fisheries and Oceans Canada (DFO) during the permit approval phase. In 2015 all structures excluding the Clark Creek Pond and Teeple Pond were excavated and some of the features were constructed.

Work continued in 2016 which included the successful commissioning of the Clark and Teeple Pond diversions in November. It is New Golds intent to have all ponds and diversions commissioned by the Spring of 2017 pending approvals from MNRF and the company will proceed with implementing a five year monitoring plan to assess fish habitat and fish reintroduction as required in the authorization obtained from DFO.

The Fish Habitat Compensation Structures on the RRP include water control dams, ponds and diversions. Table 2 details the status of the Fish Habitat Compensation Structures.

Table 2: Status Update on Fish Habitat Compensation Structures

Structure	Construction Status	New Gold RRP Commissioning Date	Government Approval Status
Stockpile Pond Dam	90% Complete	Spring 2017	Pending MNRF Permit approval
Stockpile Pond	Complete	Spring 2017	Pending MNRF Permit approval
Stockpile Diversion	Complete	December 2016	Pending MNRF Construction Review
West Creek Dam	90% Complete	Spring 2017	Pending MNRF Permit approval
West Creek Pond	Complete	Spring 2017	Pending MNRF Permit approval
West Creek Diversion	90% Complete	Spring 2017	Pending MNRF Permit approval
Clark Pond Dam	Complete	Spring 2017	Pending MNRF Permit approval
Clark Creek Pond	Complete	Spring 2017	Pending MNRF Permit approval
Clark Creek Diversion	Complete	November 2016	Pending MNRF Construction Review
Teeple Road Dam	Complete	Spring 2017	Pending MNRF Construction Review
Teeple Road Pond	Complete	Spring 2017	Pending MNRF Construction Review
Teeple Road Diversion	Complete	November 2016	Pending MNRF Construction Review

Condition 3.8

The Proponent shall monitor water quality and quantity, and fish and fish habitat, to determine the effectiveness of the mitigation measures under conditions 3.1, 3.2, 3.3 and 3.7. In doing so, the Proponent shall monitor, at a minimum:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis 3.8.1 to 3.8.6

Condition 3.8.1

Water levels and flows, with respect to minimum flow thresholds for the Pinewood River set by Ontario, during periods of water taking as authorized pursuant to the Ontario Water Resources Act;

Status: Ongoing

Supporting Analysis:

During 2015 a Flow Monitoring Station was installed in the Pinewood River to track elevations and flow rates of water in the Pinewood River System. A Flow Monitoring Station belonging to the Ministry of Environment and Climate Change (MOECC) is also located downstream of the project on the Pinewood River. New Gold is able to access this data. During 2015 no water was taken directly from the Pinewood River, however in 2016 commissioning of the Pinewood River Pumphouse will occur and water will be drawn from the river based on data collected from the station to ensure operation in accordance with the projects Permit to Take Water issued by MOECC on August 31, 2015.

Furthermore, the project has 5 additional Permits to Take Water for the Open Pit, Tailings Management Facility, Construction Workings and Aggregate. All water takings are monitored using calibrated flow meters and data obtained from these takings is submitted annually via the MOECC online reporting protocol. Water taking data is recorded in accordance with the New Gold Site Procedure for Tracking Water Related to PTTW and ECA developed on July 12, 2015. The procedure has been attached as SD 3.8.1a).

This monitoring will be required for the life of the mine. Under PTTW #8776-9W2QN2 Industrial Water Supply for the Pinewood River New Gold was required to develop and submit to MOECC a Biological Monitoring Plan that addresses methods for monitoring and identifying fish kills and fish stranding and a contingency plan to address adverse effects. This monitoring plan will be finalized for submission in early 2016 and will commence in 2016 following the installation and commissioning of the Pumphouse.

Figure 9: Pinewood River Pumphouse Entry, November 2016

Figure 8: Pinewood River Pumphouse Pipe System, November 2016

Condition 3.8.2

Effluent quality as per the requirements set out in the Metal Mining Effluent Regulations;

Status: Ongoing

Supporting Analysis:

During 2016 effluent discharges to the environment as defined by the Metal Mining Effluent Regulation (MMER) were related to temporary seepage collection systems and pit dewatering systems that have been constructed in 2015 and 2016. Effluent was generated from storm water runoff and contact water associated with blasting bedrock for the development of infrastructure foundations and open pit development.

Treatment consists of flocculent addition to reduce total suspended solids and dry ice to reduce un-ionized ammonia levels. In October 2016 New Gold acquired and installed a portable water treatment plant (BakerCorp 10K Vessel Unit) which is used to reduce ammonia concentrations during Open Pit dewatering. All water was treated and tested in accordance with applicable permits and legislation from Environment Canada (EC), Ministry of Environment and Climate Change (MOECC) and Fisheries and Oceans Canada (DFO).

During the 2016 construction and pit development period there were 75 effluent discharges from construction and pit dewatering sediment ponds designed to capture contact water and provide adequate treatment for Total Suspended Solids (TSS) and Un-ionized Ammonia prior to discharge to the environment.

Figure 10: Sampling Plant Site Polishing Pond, May 2016

These discharges occurred between January and December. All discharge water met the water quality objectives outlined in the Environment Canada Metal Mining Effluent Regulation (MMER) and the Ministry of Environment and Climate Change (MOECC) Construction Environmental Compliance Approval, with the exception of the following:

- A total suspended solids exceedance from In Pit Sump 3 on April 15, 2016. Further information can be found in SD 3.8.2b.
- A total suspended solids exceedance from the Plant Site Temporary Sediment Ponds (Polishing Pond) on April 27, 2016. Further information can be found in SD 3.8.2c.
- An un-ionized ammonia exceedance from In Pit Sump 3 on May 9, 2016. Further information can be found in SD 3.8.2d.
- An un-ionized ammonia exceedance in Pit Sump 4 on May 30, 2016.
- A total suspended solids exceedance from South Runoff Pond on June 30, 2016. Further information can be found in SD 3.8.2e.
- An un-ionized ammonia exceedance from In Pit Sump 4 on June 30, 2016. Further information can be found in SD 3.8.2f.
- A sediment release with TSS exceedance from Loslo Creek on July 18, 2016 SAC Reference 8428-AB-PHUR in SD 3.8.2g.
- An un-ionized ammonia exceedance from In Pit Sump 4 on July 20, 2016. Further information can be found in SD 3.8.2h.
- An un-ionized ammonia exceedance and a total suspended solids release from In Pit Sump 3 on July 27, 2016. Further information can be found in SD 3.8.2i.
- A total suspended solids exceedance from Overburden/West Mine Rock Stockpile Temporary Sediment Pond 2 on October 8, 2016. Further information can be found in SD 3.8.2j.
- A total suspended solids exceedance from Plant Site Temporary Sediment Ponds (Polishing Pond) on November 23, 2016. Further information can be found in SD 3.8.2k.
- An acute lethality exceedance from In Pit Sump 4 on December 28 to 30, 2016. Further information can be found in SD 3.8.2l, SD 3.8.2m, and SD 3.8.2n.

Figure 11: Field Filtering Samples, May 2016

Additional information related to all 75 of the discharges including water quality results and discharge locations can be found in SD 3.8.2a.

In 2017 tailings from ore reclaiming will be treated in the Tailings Management Facility. Water quality objectives and sampling requirements for the Rainy River Project are outlined in the MMER and the MOECC Environmental Compliance Approvals for Construction and Operations.

Further information and results related to surface water sampling and effluent sampling, treatment and discharge can be found in SD 3.8.2o.

Condition 3.8.3

The effectiveness of recreated fish habitat. The monitoring shall be designed in accordance with any authorizations pursuant to subsection 35(2) of the Fisheries Act and associated regulations and/or the Metal Mining Effluent Regulations;

Status: Ongoing

Supporting Analysis:

Fish habitat compensation was designed by qualified experts and was reviewed by the Ministry of Natural Resources and Forestry and the Department of Fisheries and Oceans Canada (DFO) during the permit approval phase.

On the project site New Gold RRP has recreated four new ponds that will act as refuge areas for fish during the winter season. These ponds have been sized accordingly to handle hydraulic flow. Each of the ponds contains a water control dam to hold water in the pond and force the water into diversion channels that connect between the systems. The ponds are designed with several deep pools that will act as over wintering pools for minnows. During the warmer seasons fish will thrive by seeking shelter and shade amongst the anchored tree clusters and rock boulder structures that have been installed.

In the diversion systems the design team recreated channels stabilized with biodegradable erosion blankets, native seed and native shrubs. All diversion channels have low flow channels excavated in the center, a sequence of rock riffles, and pools which will slow water velocity and allow refuge areas for fish. Amongst the riffle and pool sequences are rock boulder clusters that will provide shade and protection.

In April 2016 New Gold RRP was pleased to have the opportunity to tour a representative from DFO around the project site to assess the quality of the design and the constructed works. There were several positive comments received as well as some excellent guidance regarding stabilization and fish passage in culverts which New Gold proceeded to implement during the summer.

As 2016 concluded, New Gold RRP completed construction reports of the fish habitat features to be presented to the MNRF and DFO as part of regulatory reporting in the early part of 2017, for further review and evaluation.

Condition 3.8.4

The effectiveness of the potentially acid generating and non-potentially acid generating rock segregation program through ongoing geochemical verification of the waste rock during any period that waste rock is generated;

Status: Ongoing

Supporting Analysis:

Throughout 2016, over 20,000 waste rock samples were tested and categorized. The results have significantly improved our understanding of waste rock categorization. The increased sampling has confirmed that the categorization of waste rock has been effective. The program is being evaluated on an ongoing basis.

Condition 3.8.5

Water quality in the open pit, pursuant to any requirements set by Ontario in the Mine Closure Plan for the Designated Project; and

Status: Not applicable at this time

Supporting Analysis:

This condition is currently not relevant as the project is in its construction phase.

Condition 3.8.6

The maintenance of a perpetually saturated state of the tailings, for 25 years from the start of the decommissioning phase of the Designated Project.

Status: Not applicable at this time

Supporting Analysis:

This condition is currently not relevant as the project is in its construction phase.

Figures

Figure 1: Darters in West Creek, October 2016 3
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Figure 3: Plant Site Sediment Pond west edge looking east, November 2016 8
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Supporting Documentation

SD 3.2.1a: Water Discharge Form Example
SD 3.2.1b: BakerCorp Notice of Modification
SD 3.8.1a: ENV-PRD-002-15 Site Procedure for Tracking Water Related to PTTW and ECA
SD 3.8.2a: 2016 Effluent Quality
SD 3.8.2b: 2016.04.15 Sump 3 ECA Sediment Release
SD 3.8.2c: 2016.04.27 PPSP Report
SD 3.8.2d: 2016.05.09 Sumps 3&4 ECA Un-ionized Ammonia Release
SD 3.8.2e: 2016.06.30 South Pond ECA Sediment Release
SD 3.8.2f: 2016.06.30 Sump 4 ECA Un-Ionized Ammonia Release
SD 3.8.2g: 2016.06.18 Loslo Creek TSS Exceedance
SD 3.8.2h: 2016.07.20 Sump 4 ECA Un-Ionized Ammonia Release
SD 3.8.2i: 2016.07.27 SAC 5722-ACGJF8 Sump 3 ECA Un-ionized Ammonia and TSS Release
SD 3.8.2j: 2016.10.08 West Mine Rock Stockpile Sump 2 Exceedance
SD 3.8.2k: 2016.11.23 PSPP TSS Exceedance
SD 3.8.2l: 2017.01.06 SAC 7425-AHBTWL Sump 4 Acute Tox
SD 3.8.2m: 2017.01.20 SAC 7425-AHBTWL Sump 4 Acute Tox Update
SD 3.8.2n: 2017.02.02 SAC 7425-AHBTWL Sump 4 Acute Tox
SD 3.8.2o: 2016 ECA Monthly Reports

Sigfusson Northern

Water Discharge Release Form

Date: NOV, 18th/16 (treatment)

Time: 10:50 am (treatment)
12:00 pm (treatment)

Location: Sump 3

I Garnet Cornell 21-Nov-16 discharge *(please print) hereby authorize the discharge of water*

from above location into the environment as the water quality tests have been approved.

Treatment added: Dry-ice

Amount: 30,000lbs
22 Tub's

<Original signed by>

Approval Signature

Nick Sederquest

Sigfusson Representative

<Original signed by>

Sigfusson Rep. Signature

newgold™ Rainy River Project

October 31, 2016

Mr. Ray Boivin
Ministry of the Environment and Climate Change
Kenora Area Office
808 Robertson Street,
Kenora, ON P9N 1X9

Dear Ray

RE; NOTICE OF MODIFICATION TO SEWAGE WORKS RAINY RIVER PROJECT ECA NO. 5781-9VJQ2J – INSTALLATION OF TEMPORARY AMMONIA TREATMENT FACILITY

As the New Gold Rainy River Project (RRP) advances through the construction phase and Open Pit mine development, the project has been challenged with treating ammonia levels in four temporary treatment sumps in or near the open pit. Currently the project uses CO_2 (dry-ice) treatment to reduce un-ionized ammonia. This method of treatment has caused issues with water quality from the sumps as previously communicated with the Ministry of Environment and Climate Change (MOECC), the Canadian Environmental Assessment Agency (CEAA), and the Spills Action Center. In August 2016 the RRP engaged in discussions with MOECC regarding the challenges of treating ammonia within these temporary systems. Under request by the MOECC, the RRP committed to obtaining an alternate treatment source. At this time the RRP has purchased and plans to install a portable filter system (the system) from BakerCorp. The unit has been purchased and is planned to arrive to the RRP the week of October 31, 2016. BakerCorp has indicated that the system will take two weeks to install and ensure proper function.

The system will be used to remove ammonia from the water being pumped out of the Open Pit. The water will be pumped into the system, where Sumps 1, 2, 3, and 4 will be used as storage for various stages. The system consists of two separate devices; the 8" 304 Stainless Steel 12-Bag Filter System and the D-Kleen Water 10K Vessel Filter System. The 12-Bag filter system will reduce total suspended solids. D-Kleen Water 10K Vessel Filter System (with the appropriate media) will remove total ammonia.

The system will be constructed to allow for Open Pit water to run directly into the treatment and allow discharge to a sump. The system will operate in Series Mode where unfiltered water is first passed through one unit then flows into the second unit and discharged to the opposite corner of a sump. In this mode, the primary unit will require backwashing then returned to service as a polisher. The secondary polishing unit is alternated as the primary unit until requiring backwash. This is the most efficient operating mode for the equipment.

Treated water will only be discharged from sumps once water quality has met standards in the ECA and Metal Mining Effluent Regulations (CEAA). A detailed description of the modification is attached which includes a sketch outlining the current operation of the system and the proposed modification and detailed drawings of the system itself.

Zeolite will be used as the filter media in the system. The MDS is attached. The used zeolite will be removed and disposed of within the overburden stockpile located South of the Plant Site. This stockpile drains to the two sediment ponds within the ultimate footprint of the Mine Rock Pond.

The zeolite is inert, however the used zeolite is loaded with ammonia. The two sediment ponds and the Mine Rock Pond are intended to collect drainage from the East Mine Rock Stockpile that will contain ammonia blasting residuals. The collection of any residual ammonia drainage from the used zeolite (likely negligible) should be consistent with existing permits. Once the Mine Rock Pond is fully constructed it will be the runoff treatment facility for the East Mine Rock Stockpile.

In addition to the removal of ammonia using zeolite, dry-ice treatment may still be used to reduce the un-ionized ammonia content before discharge. Water quality from the system will be monitored daily until confirmation of function is confirmed.

At this time the RRP is requesting a modification to sewage works under ECA No. 5781-9VJQ2J. Once you have had the opportunity to review this information if you have any further questions or comments please contact the undersigned or Darrell Martindale, New Gold Environmental Manager (Darrell.martindale@newgold.com)

Thank you.
<Original signed by>

Garnet Cornell
Environmental Technician
New Gold Rainy River Project
(807) 482-0931
Garnet.Cornell@newgold.com

CC; Darrell Martindale (New Gold), Canadian Environmental Assessment Registry, Drew Stajkowski (MOECC Thunder Bay)

Attached:

- 1. Notice of Modification to Sewage Works Application
- 2. Sketch of Current Operation vs Proposed Operation
- 3. Bakercorp 10K Portable Filter System Instructions – Installation and Operation Manual
- 4. Bakercorp Portable 10K Filtration System Brochure
- 5. Bakercorp Technical Information Manual
- 6. Bakercorp MSDS for Natural Zeolite (Issued July 7, 2011)
- 7. Bakercorp Z-100 Filter Media Physical Properties Description

Ministry of the Environment and Climate Change
Northern Region
Kenora Area Office
808 Robertson Street
Kenora, ON P9N 1X9
Fax: (807) 468-2735
Telephone: (807) 468-2718

Ministère de l'Environnement et de l'Action en matière de changement climatique
Direction régionale du Nord
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808 rue Robertson
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Ontario

November 8, 2016

Mr. G. Cornell
Environmental Technician
New Gold Inc.
5967 Hwy 11/71, P. O. Box 5
Emo, Ontario
P0W 1E0

sent via e-mail only

Dear Mr. Cornell:

Re: Notice of Modification to Sewage Works per ECA 5781-9VJQ2J

Please consider this letter as written acceptance of the Notice of Modification to Sewage Works received by the Ministry of the Environment and Climate Change on October 31, 2016. The modification is the temporary installation of a portable ammonia treatment facility for the purpose of reducing un-ionized ammonia in construction phase effluents. Written acceptance is provided under the authority of condition 14(8) of Environmental Compliance Approval 5781-9VJQ2J.

Note that this written acceptance does not negate any of the conditions contained in Environmental Compliance Approval 5781-9VJQ2J. The approval remains fully in effect.

Please contact Senior Environmental Officer Ray Boivin at 807-468-2728 if you would like to discuss the contents of this letter or the requirements of Ontario's environmental legislation.

Yours truly,

<Original signed by>

Glen Niznowski
District Manager (A), Thunder Bay/Kenora

/RB

newgold™ Rainy River Project		ENV-PRCD-002 Site Procedure for Tracking Water Related to PTTW and ECA	
Author: Manager Environment Approved July 12	**Approver**: Construction Director Approved July 12	**Revision Number**: V1.0	**Creation Date**: July 12, 2015 **Date Last Modified**: July 12, 2015 **Review Frequency: 1 Year**

Purpose

The purpose of this procedure is to clarify requirements relating to the taking of water for any use and to support the implementation of environmental regulatory approvals aimed at protecting stream flow and water quality including the Pinewood River. Management of water takings and discharge is required by legislation to protect water resources and a flow threshold has been set for the Pinewood River which must be maintained.

Any pumping of water must be tracked consistent with regulatory approvals and while this procedure is intended to support the implementation of those approvals it is the responsibility of the organization doing the pumping to ensure regulatory approvals are followed.

This procedure applies to all surface and groundwater pumping on the Project site.

Regulatory Requirements

Applicable legislation and permit conditions must be followed. These include but are not limited to;

- PTTW 3638-9VTNRM, PTTW 1386-9VTP2H, PTTW2133-9VUPVZ and PTTW 0040-9VUL6B;
- Environmental Compliance Approval 5781-9VJQ2J
- Ontario Water Resources Act including O.Reg 387/04; and
- Management of water used for dust suppression and other industrial uses (RRP_Water Use Management_Ver1_(Jun022015)_toGov);

Consistent with relevant section of the permit, no water taken under the authority of a PTTW may be discharged directly to the natural environment without prior treatment in accordance with an OWRA, R.S.O. 1990, Section 53, Industrial Sewage Works Approval, with the exception of the following:

a) Water taken for dust suppression and other industrial uses, provided the plan for management of water for dust suppression and other industrial uses is followed; and with the exception of PTTW 3638-9VTNRM

b) Non-contact water from by-pass pumping when standard sediment and erosion control practices are used. Which water takings are bypass pumping are defined in Table 1 and Mapped in Figure 3.1 for PTTW2133-9VUPVZ.

For the ECA and consistent with section 7.5; surface water runoff or seepage must not be discharged directly to the natural environment, from worksites, but instead directed to the contact water management system for further treatment if the concentration of parameters exceeds those authorized for discharge [e.g., 15 mg/l TSS and 0.1 mg/l unionized ammonia (monthly average)], unless the water is taken for dust suppression, industrial use or during site preparation, or is discharged using standard sediment and erosion control practices.

All water taken or discharged must be recorded by an annually calibrated flow measuring device with an accuracy of plus or minus 15 percent of the actual flow.

Procedure;

Pumping of any water on site must follow this procedure. The only exceptions are for water used for domestic use, potable water and fire suppression. The procedure has the following required steps;

1. Request for pumping approval submitted to New Gold together with calibration records
    a. Determine if pumping is (Environmental Compliance Approval) ECA or Permit to Take Water (PTTW) related
    b. Provide Details of pumping plans and environmental controls
    c. Provide information for flow metering and associated calibration records
2. Track water taking/pumping
3. Limitations and restrictions on cumulative consumptive takings

Step 1: Request for pumping approval submitted to New Gold together with calibration records

Prior to ANY pumping of surface or ground water on site a request must be made through the contracts department and ultimately to the environmental department using the form included with this procedure (Pump/Flow Meter Site Authorization Form; Permit to Take Water). The purpose of the form is a onetime process to support communication of Permit requirements and provide New Gold with documentation regarding the proposed pumping including volume, rate, duration and the calibration records of flow measuring devices.

Step 1 must be completed prior to completion of pumping. In the event of an emergency this process can be bypassed with authorization of the Environment Manager or designate provided the information is still captured e.g., flow rates, volumes etc and provided after the event.

Step 1a: Determination of PTTW, ECA related pumping or pumping from groundwater

Step 1a is required to identify the approved permit and legislation allowing for the proposed pumping. The information determined in Step 1a is to be recorded on Part A of the form.

All approved water takings by a PTTW are listed in Table 1 and must follow the corresponding PTTW approval. If the required pumping is not listed in Table 1 then the pumping is related to an ECA and must follow the ECA approval particularly sections 7.5 and 9.6. However, water takings in Table 1 may also be subject to the ECA which are highlighted in blue in Table 1 and in this case both PTTW and ECA conditions apply.

Table 1 provides a summary of approved water takings consistent with the approved Permits To Take Water. There are 4 categories as colour coded in Table 1;

- To ECA approved water treatment
- Bypass with sediment and erosion control
- Bypass to enhanced sediment and erosion control (but not ECA)
- Consumptive taking

All PTTW related pumping fits into one of these categories. A description is to be provided of the pump e.g., for dewatering a work area associated with excavation water that will be pumped to a vegetative area with applicable sediment and erosion control.

If groundwater pumping is permitted through a PTTW a similar process must be followed as for PTTW approved takings for surface water. In the absence of a PTTW for groundwater pumping then water tracking is required consistent with surface water for PTTW takings to ensure 50 m^3/day is not exceeded.

Pumping of all other surface water is related to the ECA as approved under section 7.5 and must be done with standard sediment erosion control practices or taken for dust suppression/industrial uses. Standard sediment and erosion control practices include those listed in OPSS 805, or as identified in sediment and erosion control plans for the site and/or specific works e.g., any LRIA approvals. Takings for dust suppression must follow the Management of water used for dust suppression and other industrial uses plan (RRP_Water Use Management_Ver1_(Jun022015)_toGov).

There are 8 approved final treated water discharge locations based on the ECA which is excluded from this procedure. No discharge from these locations may occur without authorization from the New Gold site environmental department. Once these treatment works are completed all water related to those works must go through the treatment works.

Step 1b Provide Details of pumping plans and environmental controls

The details of pumping and environmental controls required depend on the type of pumping and the enabling permit. The information determined from step 1b is to be recorded in Part B of the form.

For a PTTW the source of water taking, discharge location and a maximum volume, rate and duration of pumping has been defined in the PTTW. Therefore this information is required to ensure awareness of the permit requirement. The permit approves a maximum for each of these data fields which cannot be exceeded. Table 1 lists the approved pumping limits, sources and discharge points which can be used to populate Part B of the form.

For ECA related pumping there are no limits on the volume, duration or rate of pumping however, standard sediment and erosion control measures must be applied as identified above, these measures are to be identified on the form.

For dust suppression reference must be made to conformance with the following plan: RRP_Water Use Management_Ver1_(Jun022015)_toGov including specific control measures as applicable.

Step 1c Provide information for flow metering and associated calibration records

To ensure pumping records and volumes are accurate measuring pumping is required for any pumping. The measuring of water pumping must conform to one or more of the following criteria;

1. a flow measuring device(s) to an accuracy of ± 15% of the actual flow rate. The flow measuring device shall be calibrated at least once per year over the range of flow going through the meter
2. water truck with certified volume and the number of loads, volume and rate of taking is recorded

3. other method as approved by New Gold through MOECC – this can be proposed to New Gold for New Gold submission to MOECC.

Therefore in Part C of the form the proposed method of flow metering and the associated calibration/certification method must be provided along with the supporting documentation e.g., calibration records. A method of unique identification of the flow meter must be provided such that this can be tracked during field inspections/audits. In the event of water for dust suppression this may be a tank identifier or water truck identifier.

Step 2: Track water taking/pumping

The tracking of water takings or discharge requires the following must be recorded for each day water is taken/discharged: date, volume of water, and the rate of water pumped/discharged as measured using the flow metering device as proposed in step 1c. This tracking must be completed by the person/organization responsible for the pumping.

In the event no water is pumped this needs to be recorded also as 'no takings/discharge' or equivalent. A separate record must be submitted for each source as determined in Table 1 for PTTW pumping, for each groundwater well or ECA discharge.

To support collation and submission of water tracking data to New Gold a form is provided with this procedure and available in excel format to track water taking.

Completion and submission of water taking data is the responsibility of the contractor/the organization responsible for operating the pumps. Tracking sheets must be emailed to rainyriver.enviro@newgold.com at least weekly and by 0700 on Wednesdays for the previous week. The submission must be in electronic (excel) format and not hand written notes.

A record of water taking must be maintained by the person/organization conducting the pumping on site and available for inspection. The environment department will compile the submissions for completion of annual reporting.

Step 3: Limitations and restrictions on cumulative consumptive takings

A limit of either 15 or 20 % of Pinewood River flows, depending on the time of year, has been established for consumptive water taking. Consumptive taking (indicated in green in Table 1) is considered the impoundment of water that would otherwise drain to the Pinewood River and excludes bypass pumping. Impoundment of water relates to the Water Management Pond, the Tailings Management Area and the Mine Rock Pond and not ponds related to fish habitat works.

The summer low flow in the Pinewood typically doesn't drop below 150 L/s, equivalent to a maximum taking of 1,950 m3/ day taking at 15 %. In the event pumping authorization is given for consumptive use through this procedure that may cumulatively exceeds this volume, or exceeds the maximum consumptive take from the Pinewood River at any time, pumping limitations put in place by the site environmental team.

Table 1; Summary of Permitted Water Takings			Maximum Water Taking		
PTTW Permit	**Source**	**Type of Taking**	**Litres/min**	**Litres/day**	**Duration**
3638-9VTNRM	Tait Quarry dug out pond	To wet pond	3270	4700000	365
1386-9VTP2H	Outcrop 3 Quarry	By pass pump and retain	910	1300000	365
1386-9VTP2H	Outcrop 4 Quarry		770	1100000	365
1386-9VTP2H	Roen Road Pit	By pass pump	3000	4300000	365
2133-9VUPVZ	Loslo Creek (C6)	By pass pump	13,792	19,860,000	90
2133-9VUPVZ	Loslo Creek Water discharge pond dam (WDPD)	To terminal constructed wetland sediment pond	14,200	20,448,000	90
2133-9VUPVZ	Loslo Creek (CWPD1)		14,961	21,544,000	90
2133-9VUPVZ	Loslo Creek (CWPD2)		15,074	21,706,000	90
2133-9VUPVZ	Loslo Creek (CWPD3)		15,525	22,355,000	90
2133-9VUPVZ	Loslo Creek (CWPD4)	By pass pump	17,765	22,581,000	90
2133-9VUPVZ	Marr Creek Temporary Sediment Pond Dam (TSPD)	To temporary west stockpile pond	4,790	6,897,000	90
2133-9VUPVZ	Marr Creek culvert (C5)	By pass pump	2,564	3,692,000	90
2133-9VUPVZ	Marr Creek culvert (C9)	By pass pump	3,790	5,457,000	90
2133-9VUPVZ	West Creek Stockpile Dam (SPD)	By pass to temporary SPD channel excavation	4,395	6,329,000	90
2133-9VUPVZ	West Creek Stockpile Diversion (SPDC)	By pass pump or to sediment pond 1	2,212	3,185,000	90
2133-9VUPVZ	West Creek Pond Dam (WCPD)	By pass pump	9,551	13,754,000	90
2133-9VUPVZ	West Creek Culvert (C1)	By pass pump	11,524	16,594,000	90
2133-9VUPVZ	West Creek Culvert (C2)	By pass pump	21,033	30,287,000	90
2133-9VUPVZ	West Creek Culvert (C3)	By pass pump	4,776	6,877,000	90
2133-9VUPVZ	West Creek Culvert (C4)	By pass pump	775	1,116,000	90
2133-9VUPVZ	West Creek Culvert (C7)	By pass pump	2,310	3,327,000	90
2133-9VUPVZ	Clark Creek Diversion (CCDC)	Bypass to teeple pond	5,396	7,770,000	90
2133-9VUPVZ	Clark Creek Teeple Pond Dam (TPD)	By pass pump	1,113	1,603,000	90
2133-9VUPVZ	Clark Creek Pond Dam (CCPD)	Bypass to teeple pond	5,396	7,770,000	90
2133-9VUPVZ	Clark Creek Mine Rock Pond Diversion Dam (MRPDD)		5,410	7,790,000	90
2133-9VUPVZ	Clark Creek Culvert (C8)	By pass pump	5,705	8,216,000	90
2133-9VUPVZ	Sediment Pond #1 (SP1) Plant site	By pass pump	32,498	46,797,000	180
2133-9VUPVZ	Sediment Pond #2 (SP2) Plant Site	By pass pump	7,285	10,490,000	90
2133-9VUPVZ	Plant site Sumps PS1, PS2 and PS3	To plant site sed pond 1	13,730	19,771,000	180
0040-9VUL6B	WMP Dam	To WMP excavated settling pond	19,050	22,854,000	365
0040-9VUL6B	Loslo Creek (TMA Construction)	Bypass of Loslo Creek, or to WMP	20,010	24,015,000	365
0040-9VUL6B	TMA West Dam	To WMP excavated settling pond	7,590	9,102,000	365
0040-9VUL6B	Loslo Creek (TMA South Dam)	Pump to construction diversion dam pond and then WMP	17,770	21,327,000	365
0040-9VUL6B	TMA North Dam	To WMP	3,420	4,100,000	365
0040-9VUL6B	WMP Control Outlet	To WMP	2,290	2,743,000	365
0040-9VUL6B	WMP Emergency Spillway	Pump to TMA construction diversion dam pond	310	376,000	365
0040-9VUL6B	TMA Emergency Spillway	Pump water to TMA basin	440	531,000	365
0040-9VUL6B	Borrow Area A (WMP)	To WMP excavated settling pond	7,210	8,650,000	365
0040-9VUL6B	Borrow Area B (TMA)	To WMP	12,670	15,204,000	365

Pump/Flow Meter Site Authorization Form; Permit to Take Water

Part A; Purpose for pumping – indicate those that apply					
☐ PTTW taking	☐ ECA pumping		☐ Other:		
PTTW to ECA approved water treatment			PTTW Bypass with enhanced protection measures		
PTTW bypass with sediment and erosion control			PTTW Consumptive Taking		
ECA pumping (section 7.5 of ECA approval)			Other		
Description of pumping purpose					

Part B; Details of Pumping			
PTTW/ECA Permit Number			
Estimate daily volume (litres/day) (PTTW only)		Estimated rate (l/min) (PTTW only)	
Maximum pumping capacity (litres/min) (PTTW only)			
Proposed duration (number of days water will be taken)			
Source(s) (for PTTW see Table 1)			
Discharge location (see table 1 for PTTW)			
Discharge location sediment and erosion controls			

Part C; Flow Metering and Calibration Information	
Proposed flow rate and volume measuring method	
Calibration Record Details (attach record)	
Calibration date	
Unique identifier of flow meter	

Part D; Approvals	Name	Signature
Contractor / Requestor		
Area Manager		
Environmental Manager		
Assigned Approval ID		

Rainy River Project Water Taking and Discharge Record Form	**DATE**
Contractor:	**Flow measuring device/truck ID:**
Person Reporting:	**Permit #:**
Source of taking and description;	
Discharge Location:	

PTTW to ECA approved water treatment		PTTW Bypass with enhanced protection measures	
PTTW bypass with sediment and erosion control		PTTW consumptive Taking	
ECA pumping (section 7.5 of ECA approval)		Other (specify);	

	For flow pumping			**For water truck dust suppression**				**All**
Day of month	**Pump flow rate**	**Duration**		**Size of truck**	**Duration to fill truck**	**Number of loads**		**Daily Total**
	L/min	**minutes**		**Litres**	**minutes**	**n**		**Litres**
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
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31								

	ALL TAKINGS TO BE REPORTING IN LITRES PER MINUTE; 1 US gallon = 3.785 litres
	RECORD MUST BE MADE DAILY; IF NO TAKINGS OCCUR - WRITE 'NO TAKINGS'
	SEPARATE FORM FOR EACH WATER SOURCE OR POINT OF TAKING
	NOTIFY NEW GOLD IMMEDIATELY IF ANY COMPLAINTS ARE RECEIVED FOR WATER TAKING
	SEND REPORT AT LEAST WEEKLY BY 0700 WEDNESDAY To: RainyRiver.Enviro@newgold.com

420000 422500 425000 427500 430000

5412500

5410000

SUMP
SUMP
SUMP
SUMP
WATER TREATMENT PLANT
WATER MANAGEMENT POND
TAILINGS MANAGEMENT AREA
TMA CONSTRUCTION DIVERSION DAM AND DITCH
Marr Road
EXPLOSIVES FACILITIES
OUTCROP 4 QUARRY
TRANSMISSION LINE
EAST ACCESS ROAD
C6
C5
C4
WATER DISCHARGE POND
WDPD
OUTLET CHANNEL
C9
SP1
SEDIMENT POND #1
WEST CREEK DIVERSION CHANNEL
ROEN ROAD PIT
C7
WCPD
PS1
STOCKPILE POND DIVERSION CHANNEL
CLARK CREEK
CONSTRUCTED WETLAND
CWPD1
CWPD2
CWPD3
CWPD4
OVERBURDEN STOCKPILE
WEST CREEK POND
C1
SPDC
SPD
STOCKPILE POND DAM
PS2
PROCESS PLANT
C3
CRUSHED ORE STOCKPILE
PS3
OUTCROP 3 QUARRY
CLARK CREEK POND
CCPD
C8
CCDC
CLARK CREEK POND DAM
CLARK CREEK DIVERSION CHANNEL
LOSLO CREEK
WEST MINE ROCK STOCKPILE
OPEN PIT
LOW GRADE ORE STOCKPILE
TPD
TEEPLE POND
TEEPLE POND DAM
TEEPLE POND DIVERSION CHANNEL
SEDIMENT POND #2
SP2
TSPD
WEST STOCKPILE TEMPORARY SEDIMENT POND
C2
PIT PROTECTION BERM
EAST MINE ROCK STOCKPILE
MINE ROCK POND
MRPDD
WATER MANAGEMENT PIPELINE
PINEWOOD RIVER

P:\EM\Projects\2011\TC111504 Rainy River\GIS\PTTW_Construction_Works\MXD\Water_Management_Plan_5.mxd

LEGEND

Water Taking Locations (27 locations; labelled with ID)

- Bypass Pump (not to scale)
- Sump (not to scale)
- Final Compliance Point
- Excavated Pond
- Near Surface Bedrock Ridge (approximate outline)

- Initial Water Diversion Route
- Later Water Diversion Route
- Ultimate Water Collection Ditch
- Quarry

Existing Watercourse/Waterbody

- Permanent Watercourse
- Intermittent Watercourse

0 1 2 4 6 8 Kilometres

NOTES:
- Ultimate footprint site plan layout is shown as a faded backdrop for reference purposes.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

newgold™ Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Water Management Plan Construction Phase

PROJECT N°: TC111504 | **FIGURE: 3-1**

SCALE: 1:30,000 | DATE: February 2015

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Station	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge2	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge3	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge4	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge5	In Pit Sump 3 Discharge	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge6	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge7	In Pit Sump 4 Discharge	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge8	In Pit Sump 3 Discharge9	In Pit Sump 4 Discharge10	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge11	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge12	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge
2	Discharge Coordinates (UTM	15U 426637E 5410794N	15U 426637E 5410794N	15U 426637E 5410794N	15U 426637E 5410794N	15U 426637E 5410794N	15U 424982E 5409309N	15U 426637E 5410794N	15U 426637E 5410794N	15U 425836E 5409205N	15U 426637E 5410794N	15U 424982E 5409309N	15U 425836E 5409205N	15U 426637E 5410794N	15U 426637E 5410794N	15U 427118E 5409012N	15U 426327E 5410357N
3	Date Sampled	17-Mar-16	17-Mar-16	24-Mar-16	04-Apr-16	12-Apr-16	15-Apr-16	19-Apr-16	29-Apr-16	29-Apr-16	02-May-16	09-May-16	30-May-16	03-Jun-16	04-Jun-16	06-Jun-16	09-Jun-16
4	pH_Field	7.4	7.4	8	7.12	7.59	7.48	8.38	7.77	8	8.03	8.49	8.64	8.63	9.06	8.82	8.48
5	Temp_Field	1	1	20	2.51	3.27	6.5	10.29	8.86	4.81	14.54	16.3	19.64	18.27	16.36	18.8	17.8
6	DO_Field	11.6	11.6		12.5	12.5	11.4	9.6	10.75	10.01	9.29	9.4	28.46	11.78	10.95	11.08	9.08
7	Conductivity	598	597	6.3	476	484	674	460	478	833	486	702	756	426	449	375	408
8	Hardness	295	292	257	252	237	283	246	240	340	248	313	327	222	219	189	213
9	pH_Lab	7.65	7.66	8.00	8.05	8.16	7.98	8.30	8.38	8.11	8.39	8.14	8.26	8.41	8.43	8.39	8.38
10	TSS	9.0	12.5	11.0	13.5	9.5	41.5	30.5	7.5	9.5	16.5	3.5	3.5	10.5	25.5	13	3.5
11	Alkalinity (Total as CaCO3)	250	246	228	228	228	243	228	235	324	237	239	279	199	210	156	166
12	Total Ammonia-N	0.304	0.296	0.208	0.102	0.112	4.26	0.114	0.085	9.03	0.075	3.98	3.65	0.064	0.092	0.004	0.012
13	Ammonia - U	0.001	0.001	**0.01**		**0.001**	0.018	0.005	**0.001**	**0.001**	0.002	0.339	0.526	0.008	0.024	0.001	**0.001**
14	Chloride (Cl)	3.26	3.37	7.15	3.54	2.89	25.8	4.39	4.46	33.9	4.28	46.8	37.4	4.72	4.63	2.08	9.62
15	Nitrate (N)	4.12	4.12	2.04	1.10	0.890	6.87	0.835	0.815	7.90	0.785	6.88	3.22	0.950	1.05	0.01	0.815
16	Nitrite (N)	0.085	0.093	0.027	0.012												
17	Orthophosphate (P)	**0.003**	**0.003**	**0.003**	**0.003**												
18	Sulfate (SO4)	52.3	52.2	39.5	29.5	27.8	45.3	25.8	26.7	46.6	26.2	58.2	51.5	32.2	32.5	39.2	46.6
19	Cyanide, Free																
20	Total Cyanide (CN)																
21	T. Aluminum (Al)	0.343	0.335	0.273	0.588	1.08	0.0015	1.48	0.165	0.0610	0.395	0.0805	0.08	0.534	0.585	0.373	0.404
22	T. Antimony (Sb)	0.00073	0.0007	0.00040	0.00025	0.00025	0.00757	0.00031	0.00027	0.0125	0.00028	0.00966	0.0114	0.00031	0.00030	0.00015	0.00049
23	T. Arsenic (As)	0.0011	0.00106	0.0009	0.0009	0.0011	0.0032	0.0015	0.0012	0.0024	0.0014	0.0042	0.0034	0.0016	0.0016	0.0012	0.0012
24	T. Barium (Ba)	0.0515	0.051	0.0460	0.0464	0.0525	0.0518	0.0574	0.0472	0.0471	0.0489	0.0643	0.0399	0.0455	0.0468	0.0387	0.0512
25	T. Beryllium (Be)	0.00002	0.00001	0.00001	0.00002	0.00003	**0.00001**	0.00005	**0.00001**	**0.00001**	0.00002	**0.00001**	0.00001	0.00002	0.00003	0.00002	0.00002
26	T. Bismuth (Bi)	**<0.00002**	**<0.00002**	**0.00002**	0.00002	0.00002	**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	0.00002	**0.00002**
27	T. Boron (B)	0.108	0.105	0.0760	0.0510	0.0480	0.0750	0.0505	0.0490	0.116	0.0545	0.0905	0.104	0.0665	0.0760	0.052	0.0690
28	T. Cadmium (Cd)	0.00002	0.000018	0.000020	0.000020	0.000020	0.000015	0.000025	0.000010	0.000005	0.000010	0.000005	0.000005	0.000010	0.000015	0.00001	0.000010
29	T. Calcium (Ca)	70.6	68.6	67.2	60.5	65.4	68.5	65.9	60.7	67.3	64.6	59.3	64.9	54.3	55.4	36.3	45.9
30	T. Chromium (Cr)	0.00075	0.0007	0.0002	0.0011	0.0016	**0.0001**	0.0025	0.0004	0.0002	0.0007	0.0002	0.0002	0.0010	0.0011	0.0008	0.0009
31	T. Cobalt (Co)	0.00059	0.000556	0.00064	0.00065	0.00075	0.00100	0.00085	0.00038	0.00085	0.00041	0.00069	0.00046	0.00034	0.00034	0.00016	0.00021
32	T. Copper (Cu)	0.0022	0.0021	0.0035	0.0045	0.0042	0.0059	0.0046	0.0030	0.0017	0.0032	0.0010	0.001	0.0030	0.0031	0.0021	0.0037
33	T. Iron (Fe)	0.315	0.3	0.31	0.51	0.77	**0.01**	1.24	0.15	0.07	0.36	0.06	0.11	0.53	0.53	0.28	0.28
34	T. Lead (Pb)	0.00265	0.00106	**0.00001**	0.00033	0.00047	0.00002	0.00058	0.00011	0.00006	0.00031	0.00004	0.00002	0.00022	0.00024	0.00011	0.00018
35	T. Lithium (Li)	0.018	0.0175	0.0158	0.0146	0.0138	0.0276	0.0162	0.0138	0.0544	0.0138	0.0294	0.0334	0.0144	0.0150	0.0172	0.0194
36	T. Magnesium (Mg)	27.2	25.6	26.2	23.7	24.2	30.5	24.3	23.7	43.3	23.7	40.4	41.1	26.3	25.1	22.9	26.6
37	T. Manganese (Mn)	0.108	0.104	0.130	0.113	0.108	0.0798	0.102	0.0665	0.0285	0.0741	0.0033	0.008	0.0238	0.0298	0.0057	0.0059

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
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3	Date Sampled	17-Mar-16	17-Mar-16	24-Mar-16	04-Apr-16	12-Apr-16	15-Apr-16	19-Apr-16	29-Apr-16	29-Apr-16	02-May-16	09-May-16	30-May-16	03-Jun-16	04-Jun-16	06-Jun-16	09-Jun-16
38	T. Mercury (Hg)	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	0.000004	**0.000002**	**0.000002**	**0.000002**	0.000002	0.000002	**0.000002**	**0.000002**	0.000002	**0.000002**
39	T. Molybdenum (Mo)	0.00788	0.00764	0.00550	0.00342	0.00322	0.0178	0.00370	0.00374	0.0123	0.00378	0.0191	0.0113	0.00462	0.00514	0.00766	0.00740
40	T. Nickel (Ni)	0.00166	0.00152	0.0023	0.0025	0.0028	0.0047	0.0033	0.0018	0.0041	0.0020	0.0032	0.0028	0.0017	0.0018	0.0016	0.0019
41	T. Phosphorus (P)	0.0106	0.0092														
42	T. Potassium (K)	4.12	3.87	3.81	3.81	4.05	7.81	4.30	3.81	10.7	3.95	9.80	7.97	4.35	4.38	2.34	4.68
43	T. Selenium (Se)	0.002	0.0015	0.0012	0.0008	0.0008	0.0022	0.0008	0.0008	0.0012	0.0008	0.0014	0.0006	0.0008	0.0008	0.0018	0.0018
44	T. Silver (Ag)	<0.000002	<0.00002	**0.00001**	**0.00001**	**0.00001**	0.00003	0.00001	**0.00001**	0.00001	**0.00001**	0.00002	0.00001	**0.00001**	0.00005	0.00001	0.00001
45	T. Sodium (Na)			9.14	6.10	6.10	21.0	6.66	6.52	30.4	6.44	28.1	25.4	7.90	7.70	6.14	8.02
46	T. Strontium (Sr)	0.230	0.222	0.206	0.169	0.169	0.385	0.169	0.162	0.446	0.166	0.507	0.418	0.167	0.182	0.13	0.141
47	T. Tellurium (Te)			0.00004	0.00004	0.00004	0.00002	0.00004	0.00003	0.00010	0.00004	0.00008	0.00005	0.00003	0.00002	0.00001	0.00002
48	T. Thallium (Tl)	0.000014	0.000014	0.000012	0.000020	0.000028	0.000012	0.000028	0.000010	0.000012	0.000012	0.000024	0.000012	0.000010	0.000014	0.000016	0.000008
49	T. Tin (Sn)	0.00004	0.00004	0.00006	0.00006	0.00006	**0.00002**	0.00008	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00004	0.00002	**0.00002**
50	T. Titanium (Ti)	0.016	0.0149	0.00995	0.0257			0.0618				0.00260	0.00295	0.0198	0.0240	0.0145	0.0156
51	T. Tungsten (W)	0.00006	0.00005	0.00005	0.00005	0.00005	0.00032	0.00006	0.00006	0.00047	0.00007	0.00045	0.00048	0.00007	0.00007	0.00003	0.00009
52	T. Uranium (U)	0.005	0.00482	0.00388	0.00336	0.00329	0.00249	0.00352	0.00328	0.00156	0.00338	0.00278	0.00236	0.00538	0.00551	0.00382	0.00559
53	T. Vanadium (V)	0.00166	0.00156	0.00135	0.00245	0.00350	0.00050	0.00490	0.00155	0.00090	0.00220	0.00110	0.0013	0.00280	0.00290	0.0025	0.00255
54	T. Zinc (Zn)	0.106	0.1000	0.0805	0.0220	0.0135	0.0755	0.0100	0.0040	0.0020	0.0040	0.0035	0.002	0.0045	0.0070	0.003	0.0085
55	T. Zirconium (Zr)	0.00055	0.0006	0.00044	0.00102	0.00130	0.00010	0.00148	0.00030	0.00016	0.00062	0.00016	0.00016	0.00060	0.00082	0.0005	0.00054
56	D. Aluminum (Al)	0.002	0.002	0.002	0.002	0.001	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.004	0.003	0.003	0.006
57	D. Antimony (Sb)	0.00077	0.00072	0.00040	0.00025	0.00022	0.00720	0.00026	0.00030	0.0134	0.00028	0.0103	0.0125	0.00031	0.00030	0.00016	0.00049
58	D. Arsenic (As)	0.00105	0.00105	0.00077	0.00084	0.00093	0.00318	0.00124	0.00131	0.00257	0.00136	0.00413	0.00339	0.00137	0.00138	0.0011	0.00109
59	D. Barium (Ba)	0.0505	0.05	0.0425	0.0427	0.0455	0.0491	0.0462	0.0453	0.0442	0.0462	0.0636	0.0399	0.0412	0.0419	0.0383	0.0457
60	D. Beryllium (Be)	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	0.00001	**0.00001**
61	D. Bismuth (Bi)	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	0.00002	**0.00002**
62	D. Boron (B)	0.125	0.12	0.0785	0.0525	0.0450	0.0715	0.0485	0.0465	0.108	0.0480	0.0990	0.101	0.0615	0.0660	0.047	0.0650
63	D. Cadmium (Cd)	**0.000015**	0.000015	0.000015	0.000015	0.000010	0.000015	0.000005	0.000005	0.000005	0.000005	0.000010	0.000005	**0.000005**	**0.000005**	0.000005	**0.000005**
64	D. Calcium (Ca)	72	70.5	62.5	62.8	58.2	64.1	60.4	59.4	68.6	61.3	58.3	64.7	47.0	46.1	36.4	44.9
65	D. Chromium (Cr)	0.0001	0.0002	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	0.0001	0.0001	**0.0001**	0.0002	0.0002
66	D. Cobalt (Co)	0.00045	0.00045	0.00051	0.00044	0.00040	0.00096	0.00034	0.00030	0.00079	0.00029	0.00064	0.0004	0.00013	0.00014	0.00004	0.00009
67	D. Copper (Cu)	0.0016	0.0016	0.0027	0.0028	0.0032	0.0057	0.0028	0.0027	0.0014	0.0026	0.0010	0.0008	0.0020	0.0016	0.0015	0.0027
68	D. Iron (Fe)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	0.02	**0.01**	**0.01**	0.01	**0.01**
69	D. Lead (Pb)	**0.00166**	0.00049	**0.00001**	**0.00001**	0.00004	0.00002	**0.00001**	0.00004	0.00001	0.00007	0.00001	0.00001	**0.00001**	**0.00001**	0.00001	0.00001
70	D. Lithium (Li)	0.0202	0.0194	0.0172	0.0138	0.0128	0.0254	0.0144	0.0142	0.0564	0.0146	0.0300	0.0346	0.0146	0.0144	0.0168	0.0192
71	D. Magnesium (Mg)	28	28.1	24.5	23.1	22.3	29.9	23.2	22.3	40.9	23.1	40.6	40.1	25.4	25.3	23.7	24.6
72	D. Manganese (Mn)	0.0992	0.0987	0.114	0.102	0.0958	0.0782	0.0768	0.0594	0.0184	0.0579	0.0014	0.0051	0.0049	0.0089	0.0002	0.0007
73	D. Mercury (Hg)	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	0.000002	0.000002	**0.000002**	**0.000002**	0.000002	**0.000002**
74	D. Molybdenum (Mo)	0.00786	0.00774	0.00472	0.00332	0.00314	0.0167	0.00366	0.00358	0.0123	0.00354	0.0192	0.0117	0.00502	0.00496	0.00764	0.00708
75	D. Nickel (Ni)	0.0014	0.0014	0.0017	0.0019	0.0018	0.0045	0.0017	0.0017	0.0039	0.0015	0.0032	0.0026	0.0012	0.0012	0.001	0.0015
76	D. Potassium (K)	3.99	4.03	3.78	3.78	3.72	7.32	3.81	3.66	10.7	3.78	9.50	7.5	3.99	4.08	2.37	4.38
77	D. Selenium (Se)	0.002	0.0018	0.0014	0.0010	0.0010	0.0024	0.0010	0.0010	0.0016	0.0010	0.0016	0.0008	0.0008	0.0008	0.0022	0.0022
78	D. Silver (Ag)	0.00001	0.00001	**0.00001**	**0.00001**	**0.00001**	0.00003	**0.00001**	**0.00001**	0.00001	**0.00001**	0.00002	0.00001	**0.00001**	**0.00001**	0.00001	**0.00001**
79	D. Sodium (Na)	9.02	9.2	8.96	6.44	5.48	19.8	6.28	6.24	30.6	6.40	28.4	25.7	8.00	8.14	6.02	7.30
80	D. Strontium (Sr)	0.218	0.219	0.191	0.180	0.163	0.356	0.159	0.151	0.435	0.151	0.508	0.458	0.161	0.160	0.12	0.131
81	D. Tellurium (Te)	0.00003	0.00002	**0.00001**	0.00002	0.00002	0.00003	**0.00001**	0.00001	0.00003	0.00001	0.00003	0.00002	0.00001	**0.00001**	0.00001	**0.00001**
82	D. Thallium (Tl)	0.00001	0.000008	0.000006	0.000010	0.000008	0.000014	0.000006	0.000012	0.000012	0.000006	0.000022	0.00001	**0.000002**	0.000004	0.000004	0.000006
83	D. Tin (Sn)	0.00002	**0.00002**	**0.00002**	0.00002	**0.00002**	0.00004	**0.00002**	**0.00002**	0.00002	**0.00002**	0.00006	0.00012	0.00004	0.00004	0.00004	**0.00002**
84	D. Titanium (Ti)	0.00005	0.00005	0.00010	0.00015			0.00015				0.00005	0.0001	0.00010	0.00020	0.00015	0.00025
85	D. Tungsten (W)	0.00007	0.00006	0.00009	0.00004	0.00004	0.00034	0.00005	0.00006	0.00047	0.00007	0.00048	0.00049	0.00008	0.00007	0.00002	0.00008
86	D. Uranium (U)	0.005	0.00486	0.00360	0.00320	0.00312	0.00256	0.00324	0.00318	0.00151	0.00335	0.00280	0.00237	0.00515	0.00508	0.00393	0.00519
87	D. Vanadium (V)	0.0011	0.00140	0.00060	0.00065	0.00070	0.00055	0.00090	0.00095	0.00065	0.00100	0.00090	0.0011	0.00110	0.00135	0.00135	0.00130
88	D. Zinc (Zn)	0.2580	0.273	0.0765	0.0170	0.0130	0.0730	0.0090	0.0040	0.0035	0.0085	0.0045	0.002	0.0070	0.121	0.002	0.0075
89	D. Zirconium (Zr)	0.00008	0.0001	0.00010	0.00012	0.00010	0.00010	0.00010	0.00010	0.00008	0.00008	0.00004	0.00006	0.00006	0.00006	0.00004	0.00008

	A	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	Station	In Pit Sump 3 Discharge13	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge14	In Pit Sump 4 Discharge15	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge16	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge17	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)18	In Pit Sump 3 Discharge19	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge20	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge21	Process Plant and Crusher Area Temporary Sediment Ponds (North Runoff Pond) Discharge	In Pit Sump 4 Discharge22	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge23	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)24	In Pit Sump 3 Discharge25	In Pit Sump 4 Discharge26	In Pit Sump 4 Discharge27
2	Discharge Coordinates (UTM	15U 424982E 5409309N	15U 426327E 5410357N	15U 425836E 5409205N	15U 426327E 5410357N	15U 426637E 5410794N	15U 427118E 5409012N	15U 424982E 5409309N	15U 426327E 5410357N	15U 426327E 5410357N	15U 426388E 5411267N	15U 425836E 5409205N	15U 426327E 5410357N	15U 427118E 5409012N	15U 424982E 5409309N	15U 425836E 5409205N	15U 425836E 5409205N
3	Date Sampled	27-Jun-16	30-Jun-16	30-Jun-16	04-Jul-16	05-Jul-16	05-Jul-16	15-Jul-16	18-Jul-16	18-Jul-16	20-Jul-16	20-Jul-16	21-Jul-16	25-Jul-16	27-Jul-16	14-Aug-16	14-Aug-16
4	pH_Field	8.52	8.91	8.56	7.87	7.81	8.06	8.39	7.15	7.57	8.32	8.69	8.59	8.65	8.08	6.91	6.93
5	Temp_Field	21.01	20.46	20.9	22.39	22.76	24.32	21	21.64	21.73	25.78	26.85	23.47	25.77	24.06	21.44	21.52
6	DO_Field	8.97	10.03	8.81	7.74	10.93	8.32	9.39	8.72	5.87	8.92	8.92	9.3	8.78	8.77	8.78	8.1
7	Conductivity	498	353	641	356	412	397	584	355	366	416	573	361	423	853	889	895
8	Hardness	212	175	269	183	218	226	247	180	177	182	261	188	207	298	333	329
9	pH_Lab	8.34	8.13	8.19	8.61	8.27	8.53	8.21	8.24	8.39	8.38	8.27	8.48	8.43	8.22	7.71	7.74
10	TSS	13.5	32.5	4.5	7.0	4.5	4	7.0	16.0	12.0	12.5	4.5	8.5	6.5	36.0	5.0	5.5
11	Alkalinity (Total as CaCO3)	164	144	221	147	178	153	168	132	128	74.6	182	145	127	241	275	272
12	Total Ammonia-N	0.104	0.276	1.59	0.018	0.124	0.07	0.188	**0.002**	**0.002**	0.010	1.49	0.026	0.014	10.3	7.47	7.52
13	Ammonia - U	0.013	0.069	0.211	**0.001**	0.004	0.004	0.018	**0.001**	**0.001**	**0.001**	0.359	0.004	0.001	0.616	0.027	0.028
14	Chloride (Cl)	32.9	6.90	38.5	7.20	5.21	5.84	31.4	7.87	9.02	4.85	25.1	1.70	0.28	5.32	38.3	33.2
15	Nitrate (N)	1.25	1.58	2.37	1.38	3.19	0.005	1.52	2.28	3.18	4.85	3.41	1.7	0.25	0.245	9.41	8.12
16	Nitrite (N)																
17	Orthophosphate (P)																
18	Sulfate (SO4)	56.3	37.3	78.2	41.7	36.6	69.4	87.1	33.7	43.0	106	82.6	40.3	0.84	71.4	107	89.9
19	Cyanide, Free																
20	Total Cyanide (CN)																
21	T. Aluminum (Al)	0.250	0.584	0.105		0.0520	0.059	0.173	0.491	0.256	0.181	0.0910	0.324	0.102	0.491	0.152	0.131
22	T. Antimony (Sb)	0.00388	0.00039	0.00732	0.00033	0.00034	0.00019	0.00642	0.00030	0.00036	0.00042	0.00720	0.00036	0.00023	0.0135	0.0175	0.0179
23	T. Arsenic (As)	0.0027	0.0017	0.0027	0.0013	0.0014	0.0013	0.0028	0.0014	0.0013	0.0011	0.0031	0.0013	0.0016	0.0030	0.0027	0.0026
24	T. Barium (Ba)	0.0465	0.0492	0.0415		0.0419	0.04	0.0540	0.0446	0.0441	0.0436	0.0368	0.0458	0.0418	0.0570	0.0470	0.0461
25	T. Beryllium (Be)	0.00001	0.00003	**0.00001**		**0.00001**	0.00001	**0.00001**	0.00002	0.00001	**0.00001**	**0.00001**	0.00001	0.00001	0.00002	**0.00001**	**0.00001**
26	T. Bismuth (Bi)	**0.00002**	0.00016	**0.00002**		**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**
27	T. Boron (B)	0.0835	0.0750	0.0980		0.0975	0.0395	0.0940	0.0740	0.0880	0.122	0.0775	0.0840	0.0445	0.159	0.140	0.136
28	T. Cadmium (Cd)	0.000010	0.000025	0.000015	0.000010	**0.000005**	0.000005	0.000015	0.000015	0.000015	0.000010	0.000020	0.000010	0.000005	0.000010	0.000010	0.000005
29	T. Calcium (Ca)	39.5	45.3	60.1	43.0	44.7	46.6	52.0	42.7	43.1	37.4	59.4	45.3	44.7	67.8	71.0	72.6
30	T. Chromium (Cr)	0.0007	0.0014	0.0003		0.0002	0.0003	0.0004	0.0010	0.0006	0.0006	**0.0001**	0.0007	0.0003	0.0010	**0.0001**	**0.0001**
31	T. Cobalt (Co)	0.00026	0.00048	0.00038	0.00018	0.00018	0.00007	0.00030	0.00034	0.00026	0.00016	0.00034	0.00024	0.00013	0.00108	0.00063	0.00061
32	T. Copper (Cu)	0.0013	0.0046	0.0014	0.0046	0.0019	0.0029	0.0011	0.0046	0.0044	0.0013	0.0028	0.0122	0.0022	0.0028	0.0014	0.0013
33	T. Iron (Fe)	0.29	0.62	0.13		0.06	0.07	0.19	0.52	0.25	0.15	0.09	0.27	0.1	0.58	0.20	0.17
34	T. Lead (Pb)	0.00019	0.00036	0.00012	0.00011	0.00003	0.00007	0.00013	0.00030	0.00023	0.00049	0.00005	0.00040	0.00008	0.00032	0.00010	0.00009
35	T. Lithium (Li)	0.0252	0.0150	0.0256		0.0114	0.0138	0.0250	0.0132	0.0142	0.0212	0.0200	0.0162	0.0142	0.0426	0.0398	0.0392
36	T. Magnesium (Mg)	30.6	24.0	36.7	21.8	23.3	25.2	31.2	18.4	18.4	23.1	28.0	19.9	25.4	41.7	36.8	36.7
37	T. Manganese (Mn)	0.0091	0.0183	0.0179		0.0065	0.0017	0.0123	0.0223	0.0105	0.0062	0.0121	0.0108	0.0029	0.0123	0.0112	0.0102

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2	Discharge Coordinates (UTM	15U 424982E 5409309N	15U 426327E 5410357N	15U 425836E 5409205N	15U 426327E 5410357N	15U 426637E 5410794N	15U 427118E 5409012N	15U 424982E 5409309N	15U 426327E 5410357N	15U 426327E 5410357N	15U 426388E 5411267N	15U 425836E 5409205N	15U 426327E 5410357N	15U 427118E 5409012N	15U 424982E 5409309N	15U 425836E 5409205N	15U 425836E 5409205N
3	Date Sampled	27-Jun-16	30-Jun-16	30-Jun-16	04-Jul-16	05-Jul-16	05-Jul-16	15-Jul-16	18-Jul-16	18-Jul-16	20-Jul-16	20-Jul-16	21-Jul-16	25-Jul-16	27-Jul-16	14-Aug-16	14-Aug-16
38	T. Mercury (Hg)	0.000002	**0.000002**	**0.000002**	0.000002			**0.000002**	**0.000002**	0.000002	**0.000002**	0.000028	0.000002	0.000002	**0.000002**	**0.000002**	**0.000002**
39	T. Molybdenum (Mo)	0.0144	0.00726	0.0158		0.00624	0.00806	0.0170	0.00568	0.00692	0.0106	0.0137	0.00620	0.00876	0.0163	0.0166	0.0168
40	T. Nickel (Ni)	0.0009	0.0025	0.0017	0.0020	0.0011	0.0013	0.0014	0.0022	0.0018	0.0007	0.0025	0.0023	0.0013	0.0041	0.0028	0.0027
41	T. Phosphorus (P)																
42	T. Potassium (K)	5.67	4.72	7.94		4.17	2.45	7.19	3.94	4.15	4.01	6.97	4.58	2.79	11.6	11.0	10.6
43	T. Selenium (Se)	0.0006	0.0018	0.0008		0.0008	0.0022	0.0010	0.0012	0.0014	0.0028	0.0012	0.0010	0.0024	0.0016	0.0012	0.0010
44	T. Silver (Ag)	**0.00001**	**0.00001**	**0.00001**		**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00003	**0.00001**	**0.00001**
45	T. Sodium (Na)	18.9	7.68	25.3		9.18	6.46	22.3	5.80	6.94	13.1	19.2	5.68	7.64	45.7	38.0	36.3
46	T. Strontium (Sr)	0.285	0.131	0.383		0.173	0.146	0.340	0.131	0.132	0.179	0.315	0.163	0.147	0.582	0.608	0.626
47	T. Tellurium (Te)	0.00004	0.00003	0.00005		**0.00001**	0.00002	0.00006	0.00003	0.00005	0.00002	0.00005	0.00004	0.00002	0.00007	0.00004	0.00005
48	T. Thallium (Tl)	0.000006	0.000024	0.000020		0.000012	0.000006	0.000010	0.000012	0.000010	0.000006	0.000020	0.000014	0.000008	0.000024	0.000024	0.000024
49	T. Tin (Sn)	0.00004	0.00004	**0.00002**		0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	**0.00002**	0.00004	0.00002	0.00004	0.00002	0.00002
50	T. Titanium (Ti)		0.0215	0.00345		0.00170	0.00205	0.00630	0.0182	0.00955	0.00645	0.00325	0.00725	0.00365	0.0207	0.00640	0.00500
51	T. Tungsten (W)	0.00023	0.00008	0.00049		0.00006	0.00002	0.00053	0.00007	0.00007	0.00003	0.00065	0.00008	0.00003	0.00060	0.00058	0.00058
52	T. Uranium (U)	0.00260	0.00476	0.00296		0.00838	0.0038	0.00317	0.00401	0.00500	0.00768	0.00261	0.00464	0.0037	0.00182	0.00183	0.00185
53	T. Vanadium (V)	0.00255	0.00375	0.00185		0.00140	0.00165	0.00195	0.00290	0.00230	0.00145	0.00155	0.00230	0.0025	0.00270	0.00150	0.00140
54	T. Zinc (Zn)	0.0040	0.0090	0.0010	0.0070	0.0010	0.003	0.0025	0.0060	0.0055	0.0015	0.0020	0.0145	0.0015	0.0040	0.0075	0.0070
55	T. Zirconium (Zr)	0.00034	0.00068	0.00020		0.00064	0.00012	0.00026	0.00068	0.00046	0.00038	0.00024	0.00040	0.0002	0.00056	0.00026	0.00024
56	D. Aluminum (Al)	0.022	0.005	0.006		0.002	0.002	0.003	0.006	0.006	0.023	0.004	0.007	0.004	0.003	**0.001**	**0.001**
57	D. Antimony (Sb)	0.00382	0.00041	0.00752	0.00034	0.00026	0.00015	0.00663	0.00031	0.00035	0.00042	0.00738	0.00034	0.00024	0.0136	0.0167	0.0169
58	D. Arsenic (As)	0.00258	0.00111	0.00244	0.00119	0.00135	0.00126	0.00267	0.00120	0.00116	0.00099	0.00312	0.00121	0.0015	0.00275	0.00272	0.00278
59	D. Barium (Ba)	0.0463	0.0389	0.0394		0.0383	0.0376	0.0493	0.0383	0.0388	0.0420	0.0388	0.0459	0.0415	0.0514	0.0456	0.0459
60	D. Beryllium (Be)	**0.00001**	**0.00001**	**0.00001**		**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**
61	D. Bismuth (Bi)	**0.00002**	**0.00002**	**0.00002**		**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**
62	D. Boron (B)	0.0775	0.0630	0.0845		0.0935	0.034	0.0910	0.0705	0.0845	0.128	0.0780	0.0730	0.035	0.122	0.120	0.123
63	D. Cadmium (Cd)	0.000015	**0.000005**	0.000005	**0.000005**	**0.000005**	0.000005	0.000010	0.000005	0.000010	0.000005	0.000020	0.000005	0.000005	0.000005	0.000010	0.000005
64	D. Calcium (Ca)	37.6	38.9	54.1	40.7	47.4	46.3	49.7	41.8	40.8	36.2	58.7	43.3	42.7	58.0	72.5	72.2
65	D. Chromium (Cr)	0.0002	0.0001	**0.0001**		**0.0001**	0.0001	**0.0001**	0.0001	0.0002	0.0002	**0.0001**	**0.0001**	0.0001	**0.0001**	**0.0001**	**0.0001**
66	D. Cobalt (Co)	0.00016	0.00013	0.00020	0.00011	0.00015	0.00004	0.00014	0.00013	0.00014	0.00008	0.00032	0.00013	0.00007	0.00080	0.00053	0.00052
67	D. Copper (Cu)	0.0014	0.0029	0.0007	0.0039	0.0016	0.0015	0.0006	0.0038	0.0039	0.0009	0.0018	0.0052	0.0019	0.0019	0.0009	0.0011
68	D. Iron (Fe)	0.02	**0.01**	**0.01**		**0.01**	0.01	**0.01**	0.02	**0.01**	**0.01**	**0.01**	**0.01**	0.01	**0.01**	**0.01**	**0.01**
69	D. Lead (Pb)	0.00014	**0.00001**	**0.00001**	**0.00001**	0.00002	0.00001	**0.00001**	0.00001	0.00001	0.00014	**0.00001**	0.00002	0.00002	0.00003	**0.00001**	0.00002
70	D. Lithium (Li)	0.0246	0.0148	0.0256		0.0124	0.0134	0.0260	0.0126	0.0140	0.0234	0.0214	0.0156	0.013	0.0384	0.0378	0.0382
71	D. Magnesium (Mg)	28.8	18.9	32.4	19.7	24.2	26.7	29.8	18.4	18.3	22.4	27.8	19.4	24.4	37.1	37.0	36.1
72	D. Manganese (Mn)	0.0033	0.0011	0.0011		0.0001	0.0001	**0.0001**	0.0065	0.0023	0.0005	0.0023	0.0026	0.0006	0.0012	0.0059	0.0054
73	D. Mercury (Hg)	**0.000002**	**0.000002**	**0.000002**	**0.000002**			**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	0.000004	0.000002	**0.000002**	**0.000002**	**0.000002**
74	D. Molybdenum (Mo)	0.0142	0.00732	0.0156		0.00648	0.00788	0.0170	0.00534	0.00648	0.0103	0.0135	0.00598	0.0084	0.0152	0.0150	0.0152
75	D. Nickel (Ni)	0.0009	0.0012	0.0013	0.0017	0.0010	0.0011	0.0010	0.0016	0.0015	0.0005	0.0024	0.0019	0.0012	0.0032	0.0029	0.0029
76	D. Potassium (K)	5.61	3.91	7.61		4.31	2.45	6.80	3.97	4.34	3.88	7.24	4.48	2.6	10.9	11.6	11.2
77	D. Selenium (Se)	0.0006	0.0018	0.0008		0.0008	0.0022	0.0010	0.0014	0.0016	0.0032	0.0012	0.0012	0.0024	0.0014	0.0012	0.0012
78	D. Silver (Ag)	**0.00001**	**0.00001**	**0.00001**		**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00002	**0.00001**	**0.00001**
79	D. Sodium (Na)	20.5	6.72	23.5		9.06	6.36	21.6	6.18	7.28	13.5	20.6	6.00	7.18	43.9	38.9	39.2
80	D. Strontium (Sr)	0.289	0.122	0.385		0.176	0.142	0.337	0.126	0.128	0.178	0.316	0.159	0.139	0.532	0.558	0.564
81	D. Tellurium (Te)	0.00001	**0.00001**	0.00002		**0.00001**	0.00001	0.00003	0.00002	**0.00001**	0.00001	0.00002	0.00002	0.00002	0.00003	0.00006	0.00005
82	D. Thallium (Tl)	0.000006	0.000004	0.000016		0.000008	0.000002	0.000008	0.000006	0.000006	0.000004	0.000016	0.000010	0.000006	0.000020	0.000022	0.000022
83	D. Tin (Sn)	0.00012	**0.00002**	**0.00002**		**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00006	0.00004	**0.00002**	**0.00002**
84	D. Titanium (Ti)		0.00015	0.00010		**0.00005**	0.00015	0.00010	0.00030	0.00020	0.00010	0.00010	0.00025	0.00015	0.00005	**0.00005**	0.00010
85	D. Tungsten (W)	0.00025	0.00009	0.00054		0.00005	0.00002	0.00057	0.00007	0.00008	0.00003	0.00061	0.00008	0.00003	0.00071	0.00057	0.00058
86	D. Uranium (U)	0.00260	0.00444	0.00275		0.00867	0.00401	0.00314	0.00392	0.00470	0.00751	0.00264	0.00436	0.00386	0.00184	0.00170	0.00172
87	D. Vanadium (V)	0.00210	0.00160	0.00135		0.00125	0.00135	0.00135	0.00150	0.00180	0.00095	0.00130	0.00165	0.00215	0.00100	0.00105	0.00100
88	D. Zinc (Zn)	0.132	0.0035	0.0085	0.0035	0.0005	0.001	**0.0005**	0.0070	0.0695	0.0025	0.0020	0.0075	0.0015	0.0025	0.0080	0.0085
89	D. Zirconium (Zr)	0.00008	0.00008	0.00004		0.00004	0.00004	0.00004	0.00012	0.00008	0.00002	0.00004	0.00012	0.00006	0.00002	0.00004	0.00004

	A	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW
1	Station	In Pit Sump 4 Discharge28	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge29	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge30	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)31	In Pit Sump 4 Discharge32	In Pit Sump 4 Discharge33	In Pit Sump 4 Discharge34	In Pit Sump 3 Discharge35	In Pit Sump 3 Discharge36	In Pit Sump 3 Discharge37	WMP Area Excavated Settling Pond Discharge	WMP Area Excavated Settling Pond Discharge38	WMP Area Excavated Settling Pond Discharge39	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge40	In Pit Sump 4 Discharge41
2	Discharge Coordinates (UTM	15U 425836E 5409205N	15U 426637E 5410794N	15U 426637E 5410794N	15U 427118E 5409012N	15U 425836E 5409205N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 420510E 5412400N	15U 420510E 5412400N	15U 420510E 5412400N	15U 423937E 5408984N	15U 423937E 5408984N	15U 425836E 5409205N
3	Date Sampled	14-Aug-16	22-Aug-16	23-Aug-16	24-Aug-16	24-Aug-16	24-Aug-16	24-Aug-16	28-Aug-16	28-Aug-16	29-Aug-16	30-Aug-16	30-Aug-16	30-Aug-16	04-Sep-16	04-Sep-16	05-Sep-16
4	pH_Field	6.79	8.22	7.98	8.95	7.73	7.58	7.56	7.18	7.47	7.67	8.04	8.45	7.86	7.35	7.36	7.81
5	Temp_Field	21.54	21.36	22.29	23.11	22.06	22.08	22.08	19	19.49	19.21	18.26	19.61	19.59	20.39	20.07	19.8
6	DO_Field	14.08	8.59	9.47	8.62	8.81	8.62	8.63	9.2	9.1	8.99	6.79	8.82	6.63	9.09	9.95	8.97
7	Conductivity	898	461	463	428	902	903	904	800	802	789	598	427	500	674	668	939
8	Hardness	333	208	207	202	385	413	383	296	308	302	311	216	259	281	275	371
9	pH_Lab	7.63	8.36	8.37	8.54	7.89	7.87	7.81	7.82	7.87	8.09	8.32	8.51	8.12	7.86	7.89	8
10	TSS	11.0	10.0	12.0	6.5	6.5	11.0	3.5	4.5	5	24.5	3.5	12	5	0.5	1.5	4
11	Alkalinity (Total as CaCO3)	279	159	163	117	311	313	313	259	256	252	257	185	234	252	257	273
12	Total Ammonia-N	7.48	0.020	0.032	0.008	5.32	5.28	5.31	6.18	6.04	5.94	0.284	0.1	0.084	2.84	2.89	4.95
13	Ammonia - U	0.020	0.001	0.001	0.001	0.128	0.091	0.087	0.034	0.067	0.102	**0.01**	**0.01**	**0.002**	0.026	0.026	0.122
14	Chloride (Cl)	37.5	6.82	6.65	7.23	32.6	31.6	34.4	29	29	28.6	3.9	4.21	4.49	13.9	16.3	53.9
15	Nitrate (N)	9.25	6.78	6.54	0.005	6.72	6.56	7.14	8.31	8.32	8.19	0.01	0.045	0.005	4.41	5.24	8.19
16	Nitrite (N)								0.245	0.238	0.23				0.266	0.322	0.434
17	Orthophosphate (P)																
18	Sulfate (SO4)	105	37.9	36.1	100	112	109	118	102	102	100	86.5	49.9	42.6	59.7	73	123
19	Cyanide, Free				0.001	0.002	0.002	0.002									
20	Total Cyanide (CN)				0.001	0.003	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004
21	T. Aluminum (Al)	0.184	0.0680	0.146	0.0935	0.148	0.242	0.0960	0.225	0.207	0.38				0.082	0.0815	0.164
22	T. Antimony (Sb)	0.0180	0.00023	0.00025	0.00027	0.0185	0.0188	0.0188	0.0156	0.0155	0.0155	0.00025	0.00035	0.00025	0.0121	0.0117	0.0181
23	T. Arsenic (As)	0.0027	0.0013	0.0014	0.002	0.0028	0.0029	0.0027	0.0016	0.0016	0.0016	0.0025	0.002	0.0026	0.0018	0.0018	0.0024
24	T. Barium (Ba)	0.0470	0.0423	0.0440	0.0427	0.0439	0.0461	0.0443	0.0555	0.0532	0.0578				0.0432	0.0421	0.0356
25	T. Beryllium (Be)	0.00001	**0.00001**	**0.00001**	0.00001	**0.00001**	0.00001	**0.00001**	0.00001	0.00001	0.00002				0.00001	0.00001	0.00001
26	T. Bismuth (Bi)	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	0.00002	0.00002	0.00002				0.00002	0.00002	0.00002
27	T. Boron (B)	0.135	0.169	0.180	0.0465	0.129	0.131	0.129	0.119	0.124	0.127				0.12	0.118	0.155
28	T. Cadmium (Cd)	0.000005	0.000005	0.000005	0.000005	0.000020	0.000020	0.000015	0.00001	0.00001	0.00001	0.000005	0.000015	0.000015	0.00001	0.00001	0.00001
29	T. Calcium (Ca)	69.0	44.3	44.7	36.2	85.7	89.1	84.8	51	51.9	52.2	68.2	43.1	53.4	53.2	53.1	77.7
30	T. Chromium (Cr)	**0.0001**	**0.0001**	0.0044	0.0003	0.0003	0.0005	0.0007	0.0005	0.0004	0.0007				0.0003	0.0003	0.0003
31	T. Cobalt (Co)	0.00062	0.00021	0.00026	0.00011	0.00054	0.00061	0.00053	0.00041	0.00039	0.00042	0.00021	0.00045	0.0005	0.0003	0.00029	0.00053
32	T. Copper (Cu)	0.0016	0.0020	0.0025	0.0019	0.0015	0.0023	0.0012	0.0008	0.0008	0.001	0.0026	0.0039	0.0030	0.0013	0.0012	0.0053
33	T. Iron (Fe)	0.23	0.07	0.21	0.11	0.19	0.30	0.14	0.21	0.2	0.31				0.09	0.08	0.19
34	T. Lead (Pb)	0.00012	0.00009	0.00010	0.00006	0.00014	0.00020	0.00012	0.00012	0.00012	0.00018	0.0001	0.00031	0.0003	0.00009	0.00006	0.00011
35	T. Lithium (Li)	0.0388	0.0124	0.0122	0.0142	0.0328	0.0336	0.0330	0.0424	0.0436	0.0422				0.0344	0.034	0.0352
36	T. Magnesium (Mg)	36.3	24.9	25.2	27.8	41.2	42.9	41.0	38.6	39.1	39.7	34.7	26.9	31.9	36.5	35.4	36.8
37	T. Manganese (Mn)	0.0119	0.0113	0.0147	0.0043	0.0509	0.0562	0.0500	0.0053	0.0053	0.007				0.021	0.0219	0.0405

	A	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW
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2	Discharge Coordinates (UTM	15U 425836E 5409205N	15U 426637E 5410794N	15U 426637E 5410794N	15U 427118E 5409012N	15U 425836E 5409205N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 420510E 5412400N	15U 420510E 5412400N	15U 420510E 5412400N	15U 423937E 5408984N	15U 423937E 5408984N	15U 425836E 5409205N
3	Date Sampled	14-Aug-16	22-Aug-16	23-Aug-16	24-Aug-16	24-Aug-16	24-Aug-16	24-Aug-16	28-Aug-16	28-Aug-16	29-Aug-16	30-Aug-16	30-Aug-16	30-Aug-16	04-Sep-16	04-Sep-16	05-Sep-16
38	T. Mercury (Hg)	**0.000002**	**0.000002**	**0.000002**	0.000002	**0.000002**	**0.000002**	**0.000002**	0.000002	0.000002	0.000002				0.000002	0.000002	0.000002
39	T. Molybdenum (Mo)	0.0160	0.00788	0.00782	0.00916	0.0145	0.0146	0.0145	0.0132	0.0135	0.0135				0.0139	0.0137	0.0175
40	T. Nickel (Ni)	0.0027	0.0015	0.0005	0.0005	0.0032	0.0034	0.0032	0.0015	0.0014	0.0015	0.002	0.0024	0.0029	0.0015	0.0013	0.0029
41	T. Phosphorus (P)																
42	T. Potassium (K)	10.6	4.77	5.06	2.9	10.2	10.7	10.2	9.73	9.96	9.95				6.95	6.65	9.97
43	T. Selenium (Se)	0.0010	0.0008	0.0008	0.002	0.0010	0.0010	0.0010	0.001	0.0012	0.0012				0.001	0.001	0.001
44	T. Silver (Ag)	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00001	0.00001				0.00001	0.00001	0.00001
45	T. Sodium (Na)	35.4	12.0	11.8	8.36	33.1	33.7	32.7	36.1	36.5	36.4				24.5	24.2	36.1
46	T. Strontium (Sr)	0.595	0.204	0.207	0.148	0.597	0.609	0.599	0.545	0.548	0.561				0.398	0.396	0.697
47	T. Tellurium (Te)	0.00005	0.00002	0.00003	0.00004	0.00008	0.00013	0.00010	0.00008	0.00007	0.00008				0.00008	0.00009	0.00017
48	T. Thallium (Tl)	0.000024	0.000010	0.000014	0.000004	0.000032	0.000032	0.000030	0.00002	0.000016	0.000018				0.000016	0.000018	0.000028
49	T. Tin (Sn)	0.00004	0.00006	0.00004	0.00002	0.00002	0.00002	0.00002	0.00004	0.00004	0.00008				0.00006	0.00002	0.00002
50	T. Titanium (Ti)	0.00730	0.00255	0.00560	0.00345	0.00560	0.00840	0.00410	0.00845	0.00865	0.0149				0.00255	0.0026	0.0068
51	T. Tungsten (W)	0.00058	0.00005	0.00005	0.00003	0.00047	0.00047	0.00050	0.00039	0.00039	0.00037				0.00033	0.00031	0.00077
52	T. Uranium (U)	0.00185	0.0129	0.0145	0.00401	0.00214	0.00219	0.00223	0.00114	0.00111	0.00111				0.00352	0.00343	0.00215
53	T. Vanadium (V)	0.00160	0.00140	0.00160	0.0022	0.00150	0.00180	0.00135	0.00165	0.0016	0.00205				0.0017	0.0017	0.00135
54	T. Zinc (Zn)	0.0070	0.0020	0.0045	0.0015	0.0100	0.0110	0.0305	0.006	0.005	0.0045	0.0010	**0.003**	0.0020	0.002	0.006	0.002
55	T. Zirconium (Zr)	0.00026	0.00016	0.00024	0.00014	0.00022	0.00022	0.00036	0.0003	0.00034	0.00046				0.00012	0.00012	0.00016
56	D. Aluminum (Al)	**0.001**	0.006	0.005	0.005	0.002	0.003	0.002	0.003	0.002	0.003				0.006	0.005	0.006
57	D. Antimony (Sb)	0.0174	0.00022	0.00023	0.00024	0.0190	0.0191	0.0184	0.0166	0.0166	0.0165	0.00027	0.00036	0.00025	0.0121	0.012	0.0189
58	D. Arsenic (As)	0.00284	0.00126	0.00129	0.00181	0.00269	0.00263	0.00269	0.00152	0.00149	0.00152	0.00264	0.00187	0.00245	0.00173	0.00171	0.00233
59	D. Barium (Ba)	0.0452	0.0417	0.0433	0.0408	0.0450	0.0419	0.0438	0.0507	0.0483	0.0503				0.0425	0.0414	0.0359
60	D. Beryllium (Be)	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00001	0.00001				0.00001	0.00001	0.00001
61	D. Bismuth (Bi)	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	**0.00002**	**0.00002**	0.00002	0.00002	0.00002				0.00002	0.00002	0.00002
62	D. Boron (B)	0.120	0.155	0.151	0.0405	0.112	0.132	0.116	0.141	0.137	0.134				0.109	0.107	0.159
63	D. Cadmium (Cd)	0.000010	**0.000005**	**0.000005**	0.000005	0.000015	0.000015	0.000015	0.00001	0.000005	0.00001	**0.000005**	**0.000005**	0.000005	0.00001	0.00001	0.000005
64	D. Calcium (Ca)	72.9	41.4	41.3	35	84.9	96.0	85.8	52.1	56.3	55.3	65.8	40.2	49.9	52.7	51.2	84.9
65	D. Chromium (Cr)	**0.0001**	0.0002	0.0045	0.0001	**0.0001**	**0.0001**	**0.0001**	0.0001	0.0001	0.0001				0.0001	0.0001	0.0001
66	D. Cobalt (Co)	0.00051	0.00015	0.00015	0.00006	0.00039	0.00039	0.00037	0.00032	0.0003	0.0003	0.00015	0.0002	0.00025	0.00021	0.0002	0.00043
67	D. Copper (Cu)	0.0009	0.0018	0.0019	0.0015	0.0010	0.0010	0.0008	0.0005	0.0004	0.0004	0.0024	0.003	0.0023	0.0008	0.0009	0.0009
68	D. Iron (Fe)	**0.01**	**0.01**	0.04	0.01	**0.01**	**0.01**	**0.01**	0.01	0.01	0.01				0.01	0.01	0.01
69	D. Lead (Pb)	**0.00001**	0.00001	**0.00001**	0.00001	**0.00001**	0.00003	0.00001	0.00002	0.00002	0.00001	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00001	0.00001
70	D. Lithium (Li)	0.0372	0.0114	0.0106	0.013	0.0288	0.0374	0.0302	0.0442	0.0436	0.0426				0.0328	0.0324	0.0382
71	D. Magnesium (Mg)	36.6	25.4	25.1	27.8	41.9	42.1	41.0	40.3	40.6	39.8	35.6	28	32.7	36.2	35.9	38.5
72	D. Manganese (Mn)	0.0059	0.0013	0.0020	0.001	0.0398	0.0407	0.0391	0.0027	0.0024	0.0015				0.0161	0.0169	0.037
73	D. Mercury (Hg)	**0.000002**	**0.000002**	**0.000002**	0.000002	**0.000002**	**0.000002**	**0.000002**	0.000002	0.000002	0.000002				0.000002	0.000002	0.000002
74	D. Molybdenum (Mo)	0.0148	0.00750	0.00724	0.00852	0.0137	0.0138	0.0142	0.0135	0.0131	0.0131				0.0129	0.0126	0.017
75	D. Nickel (Ni)	0.0028	0.0008	0.0009	0.0008	0.0034	0.0034	0.0033	0.0012	0.0011	0.0011	0.0018	0.0017	0.0022	0.0011	0.0012	0.0026
76	D. Potassium (K)	11.4	4.74	4.77	2.78	10.3	10.5	9.88	10	10.1	10.3				7.36	7.11	11.1
77	D. Selenium (Se)	0.0012	0.0006	0.0008	0.0022	0.0010	0.0010	0.0010	0.0012	0.0012	0.0012				0.001	0.001	0.001
78	D. Silver (Ag)	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00001	0.00001				0.00001	0.00001	0.00001
79	D. Sodium (Na)	38.9	12.2	11.7	8.02	33.2	34.7	32.6	37.1	38	38.4				23.6	23.6	38.7
80	D. Strontium (Sr)	0.548	0.183	0.184	0.135	0.554	0.599	0.559	0.552	0.546	0.539				0.383	0.368	0.693
81	D. Tellurium (Te)	0.00003	**0.00001**	**0.00001**	0.00001	0.00003	0.00002	0.00002	0.00002	0.00002	0.00003				0.00002	0.00002	0.00005
82	D. Thallium (Tl)	0.000020	0.000006	0.000004	0.000002	0.000026	0.000030	0.000026	0.000016	0.000014	0.000014				0.000016	0.000016	0.000028
83	D. Tin (Sn)	**0.00002**	0.00004	**0.00002**	0.00002	0.00004	**0.00002**	**0.00002**	0.00002	0.00002	0.00002				0.00002	0.00002	0.00002
84	D. Titanium (Ti)	**0.00005**	0.00010	0.00010	0.00005	**0.00005**	0.00005	0.00010	0.0001	0.00005	0.0001				0.00005	0.00005	0.00005
85	D. Tungsten (W)	0.00056	0.00006	0.00006	0.00002	0.00048	0.00050	0.00047	0.0004	0.00039	0.00037				0.00034	0.00032	0.00078
86	D. Uranium (U)	0.00171	0.0139	0.0135	0.00382	0.00210	0.00202	0.00207	0.00113	0.00112	0.00113				0.00336	0.00319	0.00194
87	D. Vanadium (V)	0.00105	0.00110	0.00110	0.0018	0.00095	0.00095	0.00090	0.001	0.00105	0.00105				0.0014	0.0014	0.00085
88	D. Zinc (Zn)	0.0065	0.0010	0.0035	0.001	0.0100	0.0100	0.0100	0.0055	0.005	0.008	0.0010	**0.0005**	0.0005	0.002	0.011	0.002
89	D. Zirconium (Zr)	0.00004	0.00006	0.00004	0.00004	0.00006	0.00006	0.00006	0.00004	0.00004	0.00004				0.00002	0.00002	0.00004

	A	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM
1	Station	In Pit Sump 4 Discharge42	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge43	WMP Area Excavated Settling Pond Discharge44	In Pit Sump 4 Discharge45	WMP Area Excavated Settling Pond Discharge46	In Pit Sump 3 Discharge47	In Pit Sump 3 Discharge48	In Pit Sump 3 Discharge49	In Pit Sump 3 Discharge50	WMP Area Excavated Settling Pond Discharge51	WMP Area Excavated Settling Pond Discharge52	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge53	In Pit Sump 3 Discharge54	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge55	In Pit Sump 3 Discharge56	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge57
2	Discharge Coordinates (UTM	15U 425836E 5409205N	15U 423937E 5408984N	15U 420510E 5412400N	15U 425836E 5409205N	15U 420510E 5412400N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 420510E 5412400N	15U 420510E 5412400N	15U 423937E 5408984N	15U 424982E 5409309N	15U 426637E 5410794N	15U 424982E 5409309N	15U 423937E 5408984N
3	Date Sampled	05-Sep-16	05-Sep-16	05-Sep-16	06-Sep-16	06-Sep-16	09-Sep-16	09-Sep-16	10-Sep-16	10-Sep-16	12-Sep-16	12-Sep-16	16-Sep-16	16-Sep-16	17-Sep-16	17-Sep-16	17-Sep-16
4	pH_Field	7.58	7.39	7.8	7.82	8.3	7.63	7.7	7.71	7.71	8.68	8.68	7.16	6.89	8.3	7.28	7.6
5	Temp_Field	19.19	19.88	19.88	19	20.5	20	18.14	19.86	19.86	19.02	19.02	16.2	15.9	17.3	15.8	16.6
6	DO_Field	9.61	9.19	7.91	9	6.72	4.11	5.63	6.26	6.26	3.39	3.39	6.95	9.61	7.72	7.73	6.5
7	Conductivity	948	660	614	931	605	882	878	879	871	601	602	783	849	520	843	782
8	Hardness	373	272	306	356	310	315	317	309	329	308	302	320	338	243	341	324
9	pH_Lab	8.01	8.03	8.3	7.94	8.38	7.94	8.07	8.14	8.16	8.31	8.30	7.61	7.41	8.35	7.61	7.74
10	TSS	2	17	3.5	4.5	4	9.5	4.5	4.0	3.0	9.0	6.0	7	3.5	7.0	3.5	8.5
11	Alkalinity (Total as CaCO3)	278	253	260	274	259	281	282	279	288	267	264	256	294	194	290	264
12	Total Ammonia-N	4.98	2.74	0.092	4.91	0.016	6.59	6.70	6.40	6.49	0.204	0.038	5.84	8.37	0.090	8.23	5.88
13	Ammonia - U	0.07	0.026	**0.002**	0.117	**0.001**	0.109	0.114	0.126	0.128	0.031	0.006	0.025	0.019	0.005	0.045	0.071
14	Chloride (Cl)	54.6	15.9	3.89	54.5	3.89	37.9	38.8	35.9	32.3	3.89	3.95	23	23.5	10.7	24.2	23.9
15	Nitrate (N)	8.22	5.08	0.02	8.24	0.015	12.0	12.2	11.4	10.2	**0.005**	**0.005**	10.8	13.3	9.09	13.2	10.8
16	Nitrite (N)	0.44	0.309	0.001	0.426	0.002	0.443	0.429	0.397	0.351	**0.001**	**0.001**	0.488	0.465	0.141	0.464	0.508
17	Orthophosphate (P)																
18	Sulfate (SO4)	123	70.6	87.5	124	76	98.7	100	91.2	82.0	89.1	89.8	95.5	80.5	55.9	81.0	96.7
19	Cyanide, Free																
20	Total Cyanide (CN)	0.004	0.001	0.001	0.003	0.001	0.006	0.005	0.005	0.005	**0.001**	**0.001**	0.004	0.020	0.001	0.017	0.004
21	T. Aluminum (Al)	0.104	0.39		0.075	0.156	0.124	0.0710	0.0525	0.0635	0.334	0.185	0.143	0.0820	0.218	0.105	0.234
22	T. Antimony (Sb)	0.0184	0.0114	0.00027	0.019	0.00026	0.0177	0.0174	0.0177	0.0177	0.00028	0.00028	0.015	0.0157	0.00024	0.0156	0.0151
23	T. Arsenic (As)	0.0024	0.0018	0.0025	0.0024	0.0025	0.0026	0.0029	0.0026	0.0026	0.0025	0.0024	0.0022	0.0041	0.0011	0.0040	0.0022
24	T. Barium (Ba)	0.036	0.0443		0.0369	0.0577	0.0492	0.0526	0.0503	0.0502	0.0611	0.0595	0.0459	0.0473	0.0495	0.0480	0.0466
25	T. Beryllium (Be)	0.00001	0.00002		0.00001	0.00001	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	0.00001	0.00001	**0.00001**	0.00001	**0.00001**	0.00001
26	T. Bismuth (Bi)	0.00002	0.00002		0.00002	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	0.00002	**0.00002**	0.00002
27	T. Boron (B)	0.155	0.112		0.169	0.0585	0.167	0.169	0.174	0.171	0.0725	0.0710	0.121	0.145	0.167	0.138	0.122
28	T. Cadmium (Cd)	0.00001	0.000015	**0.00001**	0.000005	**0.00002**	0.000005	0.000010	0.000005	0.000010	0.000010	0.000010	0.00001	0.000015	0.000005	0.000015	0.00001
29	T. Calcium (Ca)	86.4	50.5	63.6	83.1	65.2	64.2	66.9	65.1	63.9	67.3	63.1	67.8	71.6	56.1	69.4	65.4
30	T. Chromium (Cr)	0.0002	0.0007		0.0002	0.0004	0.0003	0.0002	0.0001	0.0002	0.0006	0.0004	0.0003	0.0002	0.0005	0.0002	0.0004
31	T. Cobalt (Co)	0.00053	0.00037	0.00028	0.00049	0.00024	0.00041	0.00040	0.00037	0.00037	0.00027	0.00024	0.00037	0.00039	0.00023	0.00038	0.0004
32	T. Copper (Cu)	0.0014	0.0015	0.0028	0.0015	0.0037	0.0012	0.0012	0.0010	0.0011	0.0090	0.0072	0.0019	0.0027	0.0024	0.0017	0.002
33	T. Iron (Fe)	0.12	0.35		0.09	0.18	0.11	0.07	0.05	0.06	0.27	0.20	0.18	0.10	0.19	0.10	0.23
34	T. Lead (Pb)	0.00011	0.0002	0.00014	0.00007	0.00030	0.00009	0.00008	0.00006	0.00006	0.00051	0.00029	0.00012	0.00011	0.00015	0.00011	0.00026
35	T. Lithium (Li)	0.0376	0.0324		0.039	0.0242	0.0434	0.0450	0.0462	0.0466	0.0286	0.0278	0.0384	0.0536	0.0128	0.0506	0.0398
36	T. Magnesium (Mg)	38	33.8	34.7	37.9	35.7	39.1	39.3	38.2	38.5	32.4	33.0	38.8	40.6	25.7	39.7	38.6
37	T. Manganese (Mn)	0.0534	0.0224		0.0422	0.0126	0.0117	0.0109	0.0093	0.0096	0.0180	0.0156	0.0317	0.0367	0.0122	0.0350	0.0318

	A	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM
1	Station	In Pit Sump 4 Discharge42	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge43	WMP Area Excavated Settling Pond Discharge44	In Pit Sump 4 Discharge45	WMP Area Excavated Settling Pond Discharge46	In Pit Sump 3 Discharge47	In Pit Sump 3 Discharge48	In Pit Sump 3 Discharge49	In Pit Sump 3 Discharge50	WMP Area Excavated Settling Pond Discharge51	WMP Area Excavated Settling Pond Discharge52	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge53	In Pit Sump 3 Discharge54	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge55	In Pit Sump 3 Discharge56	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge57
2	Discharge Coordinates (UTM	15U 425836E 5409205N	15U 423937E 5408984N	15U 420510E 5412400N	15U 425836E 5409205N	15U 420510E 5412400N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 424982E 5409309N	15U 420510E 5412400N	15U 420510E 5412400N	15U 423937E 5408984N	15U 424982E 5409309N	15U 426637E 5410794N	15U 424982E 5409309N	15U 423937E 5408984N
3	Date Sampled	05-Sep-16	05-Sep-16	05-Sep-16	06-Sep-16	06-Sep-16	09-Sep-16	09-Sep-16	10-Sep-16	10-Sep-16	12-Sep-16	12-Sep-16	16-Sep-16	16-Sep-16	17-Sep-16	17-Sep-16	17-Sep-16
38	T. Mercury (Hg)	0.000002	0.000002		0.000002	0.000002	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	0.000002	**0.000002**	0.000002	**0.000002**	0.000002
39	T. Molybdenum (Mo)	0.018	0.013		0.018	0.0121	0.0223	0.0217	0.0220	0.0218	0.0129	0.0128	0.0204	0.0326	0.00740	0.0324	0.0204
40	T. Nickel (Ni)	0.0028	0.0016	0.0022	0.0031	0.0021	0.0025	0.0025	0.0023	0.0024	0.0025	0.0022	0.0018	0.0024	0.0012	0.0020	0.0019
41	T. Phosphorus (P)																
42	T. Potassium (K)	10.1	6.5		10.3	3.2	11.3	12.4	11.1	11.6	3.19	3.07	9.96	12.8	5.14	13.2	10.5
43	T. Selenium (Se)	0.001	0.001		0.001	0.0018	0.0010	0.0010	0.0010	0.0010	0.0018	0.0016	0.0012	0.0008	0.0006	0.0010	0.0012
44	T. Silver (Ag)	0.00001	0.00001		0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	**0.00001**	**0.00001**	0.00001	0.00002	0.00001	0.00002	0.00001
45	T. Sodium (Na)	37	22.6		37	9.8	36.1	38.1	35.9	35.8	9.62	9.26	30.1	31.7	11.8	30.5	29.9
46	T. Strontium (Sr)	0.711	0.356		0.693	0.237	0.749	0.728	0.739	0.737	0.260	0.254	0.51	0.738	0.240	0.738	0.523
47	T. Tellurium (Te)	0.00019	0.00009		0.00015	0.00007	0.00006	0.00007	0.00009	0.00008	0.00004	0.00002	0.00007	0.00014	0.00003	0.00010	0.00006
48	T. Thallium (Tl)	0.000028	0.000018		0.00003	0.000006	0.000028	0.000028	0.000026	0.000026	0.000008	0.000006	0.000026	0.000036	0.000014	0.000034	0.000026
49	T. Tin (Sn)	0.00012	0.00008		0.0001	0.00004	0.00002	0.00006	0.00006	0.00008	0.00014	0.00012	0.00006	0.00008	0.00006	0.00010	0.00008
50	T. Titanium (Ti)	0.0031	0.013		0.00215	0.0052	0.00405	0.00240	0.00160	0.00215	0.00755	0.00580	0.00405	0.00220	0.0102	0.00340	0.0074
51	T. Tungsten (W)	0.00076	0.00029		0.0008	0.00001	0.00060	0.00058	0.00058	0.00060	0.00002	0.00001	0.00053	0.00053	0.00005	0.00051	0.00054
52	T. Uranium (U)	0.00215	0.00339		0.00218	0.0076	0.00153	0.00152	0.00151	0.00155	0.00759	0.00714	0.0027	0.00225	0.0149	0.00214	0.00268
53	T. Vanadium (V)	0.0012	0.00235		0.0011	0.0032	0.00155	0.00140	0.00130	0.00130	0.00320	0.00290	0.00165	0.00110	0.00140	0.00115	0.0019
54	T. Zinc (Zn)	0.003	0.0055	0.0015	0.0035	0.0055	0.0055	0.0040	0.0025	0.0025	0.0165	0.0135	0.003	0.0125	0.0045	0.0100	0.0065
55	T. Zirconium (Zr)	0.00018	0.00038		0.00016	0.00036	0.00024	0.00016	0.00018	0.00016	0.00046	0.00054	0.00018	0.00018	0.00036	0.00018	0.00024
56	D. Aluminum (Al)	0.007	0.005		0.007	0.003	0.003	0.003	0.002	0.004	0.003	0.003	0.008	0.004	0.003	0.003	0.008
57	D. Antimony (Sb)	0.0189	0.0114	0.00026	0.0186	0.00026	0.0167	0.0167	0.0165	0.0167	0.00025	0.00025	0.0153	0.0163	0.00024	0.0160	0.0157
58	D. Arsenic (As)	0.00229	0.0016	0.0024	0.00233	0.0025	0.00265	0.00261	0.00261	0.00266	0.00249	0.00246	0.00219	0.00421	0.00103	0.00398	0.0022
59	D. Barium (Ba)	0.0357	0.0418		0.0356	0.0573	0.0448	0.0459	0.0443	0.0449	0.0542	0.0541	0.0452	0.0458	0.0479	0.0451	0.0452
60	D. Beryllium (Be)	0.00001	0.00001		0.00001	0.00001	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	**0.00001**	0.00001	**0.00001**	0.00001	**0.00001**	0.00001
61	D. Bismuth (Bi)	0.00002	0.00002		0.00002	0.00002	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00002	**0.00002**	0.00002	**0.00002**	0.00002
62	D. Boron (B)	0.154	0.11		0.157	0.0545	0.123	0.127	0.125	0.127	0.0525	0.0540	0.11	0.126	0.159	0.132	0.115
63	D. Cadmium (Cd)	0.000005	0.00001	**0.000005**	0.000005	**0.000005**	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00001	0.000010	0.000005	0.000010	0.00001
64	D. Calcium (Ca)	86.4	50.7	63.1	78.4	63	64.0	66.3	64.4	69.5	66.1	64.9	66.1	68.1	55.1	70.8	65.1
65	D. Chromium (Cr)	0.0001	0.0001		0.0001	0.0001	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	0.0001	**0.0001**	0.0001	**0.0001**	0.0001
66	D. Cobalt (Co)	0.00042	0.00021	0.00016	0.00039	0.00016	0.00031	0.00031	0.00031	0.00032	0.00017	0.00017	0.00027	0.00033	0.00015	0.00032	0.00027
67	D. Copper (Cu)	0.0009	0.0008	0.0026	0.0007	0.0027	0.0007	0.0007	0.0007	0.0008	0.0025	0.0027	0.0012	0.0013	0.0020	0.0013	0.0012
68	D. Iron (Fe)	0.01	0.01		0.01	0.01	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	0.01	**0.01**	0.01	**0.01**	0.01
69	D. Lead (Pb)	0.00001	0.00001	0.00003	0.00001	0.00007	0.00002	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00002	0.00004	0.00003	0.00002
70	D. Lithium (Li)	0.0378	0.033		0.0384	0.0222	0.0410	0.0410	0.0410	0.0432	0.0254	0.0260	0.0376	0.0504	0.0128	0.0498	0.0382
71	D. Magnesium (Mg)	38.2	35.4	36	38.8	37	37.8	36.8	36.1	37.8	34.7	33.9	37.7	40.9	25.7	39.9	39.1
72	D. Manganese (Mn)	0.0427	0.0149		0.0229	0.0046	0.0063	0.0049	0.0036	0.0038	0.0084	0.0083	0.0219	0.0310	0.0017	0.0298	0.022
73	D. Mercury (Hg)	0.000002	0.000002		0.000002	0.000002	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	**0.000002**	0.000002	**0.000002**	0.000002	**0.000002**	0.000002
74	D. Molybdenum (Mo)	0.0173	0.0127		0.017	0.0113	0.0197	0.0197	0.0194	0.0200	0.0117	0.0119	0.0198	0.0303	0.00734	0.0313	0.0198
75	D. Nickel (Ni)	0.0026	0.0011	0.0018	0.0025	0.0019	0.0021	0.0021	0.0021	0.0020	0.0018	0.0018	0.0016	0.0019	0.0010	0.0019	0.0016
76	D. Potassium (K)	11	6.9		10.9	3.3	11.1	11.1	11.1	10.9	3.06	3.08	10.2	12.9	5.23	12.9	10.1
77	D. Selenium (Se)	0.001	0.001		0.001	0.002	0.0010	0.0010	0.0010	0.0010	0.0020	0.0020	0.0014	0.0010	0.0006	0.0010	0.0012
78	D. Silver (Ag)	0.00001	0.00001		0.00001	0.00001	0.00001	**0.00001**	**0.00001**	0.00001	**0.00001**	**0.00001**	0.00001	0.00002	0.00001	0.00001	0.00001
79	D. Sodium (Na)	36.9	23.5		38.6	8.86	33.9	33.0	33.2	34.3	9.22	9.32	28	30.9	11.7	30.5	28.5
80	D. Strontium (Sr)	0.705	0.376		0.684	0.227	0.648	0.658	0.627	0.659	0.227	0.231	0.508	0.663	0.234	0.674	0.507
81	D. Tellurium (Te)	0.00004	0.00003		0.00004	0.00003	0.00003	0.00004	0.00004	0.00003	0.00002	**0.00001**	0.00002	0.00004	0.00002	0.00002	0.00001
82	D. Thallium (Tl)	0.000028	0.000014		0.000028	0.000004	0.000026	0.000024	0.000026	0.000026	0.000004	0.000004	0.000024	0.000032	0.000008	0.000034	0.000024
83	D. Tin (Sn)	0.00002	0.00002		0.00002	0.00008	**0.00002**	**0.00002**	**0.00002**	0.00004	**0.00002**	**0.00002**	0.00002	**0.00002**	0.00002	**0.00002**	0.00002
84	D. Titanium (Ti)	0.00005	0.00005		0.00005	0.0001	**0.00005**	**0.00005**	**0.00005**	**0.00005**	0.00015	0.00010	0.00005	**0.00005**	0.00005	0.00005	0.00005
85	D. Tungsten (W)	0.00081	0.00031		0.00079	0.00002	0.00059	0.00059	0.00060	0.00060	0.00001	0.00001	0.00053	0.00049	0.00004	0.00049	0.00051
86	D. Uranium (U)	0.00201	0.00306		0.00199	0.00716	0.00154	0.00155	0.00156	0.00159	0.00728	0.00704	0.0026	0.00211	0.0139	0.00209	0.0026
87	D. Vanadium (V)	0.00085	0.00135		0.00085	0.0026	0.00110	0.00105	0.00110	0.00110	0.00240	0.00245	0.00115	0.00075	0.00080	0.00080	0.00115
88	D. Zinc (Zn)	0.002	0.0045	0.001	0.0025	0.0705	0.0055	0.0035	0.0030	0.0035	0.0060	0.0060	0.0015	0.0125	0.0035	0.0095	0.006
89	D. Zirconium (Zr)	0.00004	0.00004		0.00004	0.00018	0.00004	0.00004	0.00004	0.00004	0.00020	0.00020	0.00004	0.00008	0.00008	0.00008	0.00004

	A	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC
1	Station	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge58	In Pit Sump 3 Discharge59	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge60	In Pit Sump 4 Discharge61	Overburden and West Mine Rock Stockpile Sediment Pond 1 Discharge	In Pit Sump 4 Discharge62	In Pit Sump 4 Discharge63	In Pit Sump 3 Discharge64	In Pit Sump 3 Discharge65	Overburden and West Mine Rock Stockpile Sediment Pond 1 Discharge66	WMP Area Excavated Settling Pond Discharge67	In Pit Sump 4 Discharge68	In Pit Sump 4 Discharge69	Overburden and West Mine Rock Stockpile Sediment Pond 1 Discharge70	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge71	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge72
2	Discharge Coordinates (UTM	15U 426637E 5410794N	15U 424982E 5409309N	15U 423937E 5408984N	15U 425836E 5409205N	15U 423937E 5408984N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 420510E 5412400N	15U 425836E 5409205N	15U 425836E 5409205N	15U 423937E 5408984N	15U 426327E 5410357N	15U 426327E 5410357N
3	Date Sampled	18-Sep-16	18-Sep-16	18-Sep-16	22-Sep-16	22-Sep-16	23-Sep-16	23-Sep-16	30-Sep-16	01-Oct-16	03-Oct-16	03-Oct-16	04-Oct-16	04-Oct-16	04-Oct-16	11-Oct-16	12-Oct-16
4	pH_Field	8.1	7.89	7.58	6.94	6.8	7.21	7.21	7.41	7.59	7.62	8.32	7.35	7.56	8.18	8.58	7.8
5	Temp_Field	16.9	14.5	15.9	15	14.9	14	14	12.4	13.7	16.4	18.2	14.5	14.4	15.3	10.1	8.76
6	DO_Field	7.76	8.87	7.46	7.16	8.92	8.31	8.93	10.85	11.16	9.53	6.66	7.99	6.17	8.28	9.96	9.48
7	Conductivity	510	835	786	946	657	950	958	900	896	514	538	949	941	529	447	462
8	Hardness	242	343	326	403	289	410	406	327	320	224	285	395	386	222	216	217
9	pH_Lab	8.25	7.96	7.75	7.05	8.15	7.39	7.38	7.78	7.9	7.7	8.34	7.78	7.98	8.26	8.36	8.31
10	TSS	27.5	4.0	6	5	2.5	4.5	4.5	3	3.5	7.5	15	9.5	6.5	18.5	7	7
11	Alkalinity (Total as CaCO3)	180	287	260	286	225	295	290	306	297	178	244	294	295	185	152	154
12	Total Ammonia-N	0.108	7.97	5.93	5.5	3.23	5.46	5.13	11.9	11.1	1.33	0.118	5.22	5.23	1.15	0.202	0.002
13	Ammonia - U	0.004	0.159	0.065	0.013		0.022	0.021	0.068	0.106	0.017	0.008	0.031	0.049	0.047	0.013	0.001
14	Chloride (Cl)	10.0	23.2	23	50.5	23.7	50.9	49.6	25.1	23.4	17.7	3.3	46.1	45.4	15.3	10.2	10.3
15	Nitrate (N)	8.69	12.9	10.7	8.3	10.4	8.36	8.14	17.8	16.6	7.02	1.69	7.69	7.64	6.02	2.47	2.93
16	Nitrite (N)	0.129	0.430	0.497	0.435	0.36	0.431	0.418	0.597	0.543	0.211	0.053	0.33	0.325	0.183	0.035	0.036
17	Orthophosphate (P)																
18	Sulfate (SO4)	52.7	78.6	94.5	131	68.6	131	128	80.5	73.8	50.2	70	134	133	42.5	69.6	71.9
19	Cyanide, Free																
20	Total Cyanide (CN)	**0.001**	0.011	0.003	0.017	0.001	0.013	0.013	0.031	0.027	0.001	0.002	0.015	0.012	**0.001**	0.001	0.001
21	T. Aluminum (Al)	0.568	0.120	0.217	0.369	0.136	0.231	0.22	0.091	0.089	0.201	0.426	0.141	0.194	0.520	0.105	0.222
22	T. Antimony (Sb)	0.00023	0.0157	0.0154	0.0175	0.0107	0.0173	0.0178	0.0155	0.0155	0.00726	0.00025	0.0152	0.0154	0.00702	0.00042	0.00046
23	T. Arsenic (As)	0.0012	0.0040	0.0022	0.0039	0.0021	0.0037	0.0037	0.0035	0.0034	0.0016	0.0023	0.0025	0.0024	0.0017	0.0011	0.0011
24	T. Barium (Ba)	0.0537	0.0463	0.049	0.0425	0.0426	0.0421	0.0411	0.0447	0.044	0.0368	0.0568	0.0402	0.0403	0.0377	0.0448	0.0467
25	T. Beryllium (Be)	0.00002	**0.00001**	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	**0.00001**	0.00001	0.00002	0.00001	0.00001	0.00003	0.00001	0.00001
26	T. Bismuth (Bi)	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00002	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	**0.00002**	0.00002	0.00002
27	T. Boron (B)	0.162	0.137	0.121	0.149	0.111	0.15	0.149	0.145	0.151	0.0805	0.0525	0.155	0.158	0.0935	0.094	0.11
28	T. Cadmium (Cd)	0.000010	0.000015	0.00001	0.000025	0.00001	0.000025	0.00002	0.000015	0.000015	0.00001	0.000015	0.000015	0.00003	0.000015	0.00001	0.00001
29	T. Calcium (Ca)	57.1	67.9	67.5	91.8	56.8	93.7	92.5	66.2	65.6	43.8	66.1	90.7	88.4	42.3	46.2	48
30	T. Chromium (Cr)	0.0010	0.0002	0.0004	0.0007	0.0003	0.0004	0.0004	0.0001	0.0001	0.0005	0.0008	0.0003	0.0004	0.0011	0.0003	0.0005
31	T. Cobalt (Co)	0.00034	0.00039	0.0004	0.00066	0.00029	0.0006	0.00059	0.00052	0.00052	0.00026	0.0007	0.00065	0.00061	0.00038	0.00017	0.0002
32	T. Copper (Cu)	0.0029	0.0018	0.002	0.0031	0.0016	0.0025	0.0025	0.0019	0.0019	0.002	0.0035	0.0022	0.0019	0.0022	0.0041	0.0042
33	T. Iron (Fe)	0.50	0.11	0.23	0.42	0.14	0.27	0.26	0.09	0.09	0.21	0.5	0.19	0.24	0.59	0.1	0.19
34	T. Lead (Pb)	0.00037	0.00009	0.00013	0.00028	0.00008	0.00023	0.00022	0.00007	0.00007	0.00012	0.00036	0.00002	0.00006	0.00026	0.00006	0.00009
35	T. Lithium (Li)	0.0134	0.0510	0.0396	0.039	0.0316	0.0386	0.0386	0.0506	0.052	0.0232	0.0216	0.0466	0.0414	0.0272	0.0148	0.0164
36	T. Magnesium (Mg)	27.2	42.6	42.2	43.1	35.8	42.3	42	39.7	39.2	28.2	36	41	39.9	27.7	23.4	23.7
37	T. Manganese (Mn)	0.0172	0.0326	0.0304	0.0723	0.0046	0.0724	0.0724	0.0257	0.025	0.0059	0.0554	0.0787	0.0749	0.0126	0.0057	0.0064

	A	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC
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2	Discharge Coordinates (UTM	15U 426637E 5410794N	15U 424982E 5409309N	15U 423937E 5408984N	15U 425836E 5409205N	15U 423937E 5408984N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 420510E 5412400N	15U 425836E 5409205N	15U 425836E 5409205N	15U 423937E 5408984N	15U 426327E 5410357N	15U 426327E 5410357N
3	Date Sampled	18-Sep-16	18-Sep-16	18-Sep-16	22-Sep-16	22-Sep-16	23-Sep-16	23-Sep-16	30-Sep-16	01-Oct-16	03-Oct-16	03-Oct-16	04-Oct-16	04-Oct-16	04-Oct-16	11-Oct-16	12-Oct-16
38	T. Mercury (Hg)	**0.000002**	**0.000002**	0.000002	0.000002	0.000002	0.000002	0.000002	**0.000002**	**0.000002**	0.000002	0.000002	0.000002	0.000002	**0.000002**	0.000002	0.000002
39	T. Molybdenum (Mo)	0.00742	0.0316	0.0207	0.0179	0.0176	0.0175	0.0178	0.0298	0.0302	0.0136	0.0108	0.0143	0.0143	0.0135	0.0073	0.00764
40	T. Nickel (Ni)	0.0015	0.0020	0.0019	0.0039	0.0016	0.0036	0.0036	0.0028	0.0027	0.0016	0.0029	0.0046	0.0046	0.0019	0.0017	0.0018
41	T. Phosphorus (P)																
42	T. Potassium (K)	4.96	13.4	10.2	10.7	7.6	10.6	10.9	13.8	13.8	5.77	3.36	10.1	9.91	5.74	4.73	4.73
43	T. Selenium (Se)	0.0006	0.0010	0.0012	0.001	0.0006	0.0008	0.001	0.0008	0.0008	0.0004	0.0014	0.001	0.001	0.0006	0.0014	0.0014
44	T. Silver (Ag)	**0.00001**	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00002	0.00001	0.00001	0.00001
45	T. Sodium (Na)	11.6	32.0	30.6	36.7	25.7	35.5	36	38.9	38.9	18.4	9.5	42.8	41.5	18.7	9.34	9.82
46	T. Strontium (Sr)	0.243	0.716	0.532	0.776	0.42	0.756	0.754	0.669	0.692	0.286	0.231	0.737	0.698	0.291	0.158	0.162
47	T. Tellurium (Te)	0.00003	0.00011	0.00009	0.00018	0.00007	0.00016	0.00015	0.0001	0.00009	0.00006	0.00005	0.00002	0.00002	0.00002	0.00004	0.00002
48	T. Thallium (Tl)	0.000014	0.000034	0.000026	0.000032	0.000016	0.00003	0.00003	0.000028	0.000026	0.000012	0.00001	0.000024	0.000026	0.000014	0.000012	0.00001
49	T. Tin (Sn)	0.00006	0.00002	0.00004	0.00004	0.00002	0.00004	0.00002	0.00002	0.00002	0.00004	0.00004	0.00002	0.00006	0.00004	0.00002	0.00004
50	T. Titanium (Ti)	0.0248	0.00335	0.00675	0.0118	0.0053	0.0077	0.0072	0.0036	0.00315	0.0067	0.0142	0.0058	0.00855	0.0200	0.0042	0.00805
51	T. Tungsten (W)	0.00005	0.00051	0.00054	0.00069	0.00034	0.00065	0.00066	0.00053	0.00054	0.00023	0.00001	0.00058	0.00058	0.00022	0.00006	0.00006
52	T. Uranium (U)	0.0149	0.00218	0.00281	0.00225	0.00261	0.00221	0.00222	0.0013	0.00131	0.00274	0.00606	0.00193	0.00199	0.00287	0.00984	0.0108
53	T. Vanadium (V)	0.00230	0.00115	0.0019	0.00195	0.0017	0.00155	0.0016	0.00105	0.00100	0.0017	0.0033	0.00035	0.0006	0.00290	0.0015	0.00165
54	T. Zinc (Zn)	0.0065	0.0055	0.007	0.0095	0.0005	0.005	0.005	0.0065	0.0045	0.0025	0.0055	0.01	0.0085	0.0035	0.008	0.0065
55	T. Zirconium (Zr)	0.00068	0.00020	0.00022	0.00042	0.00022	0.00042	0.00034	0.00016	0.00016	0.00026	0.00064	0.00058	0.00036	0.00054	0.00026	0.00034
56	D. Aluminum (Al)	0.004	0.004	0.008	0.004	0.004	0.003	0.003	0.002	0.002	0.005	0.002	0.004	0.004	0.005	0.005	0.004
57	D. Antimony (Sb)	0.00023	0.0166	0.0162	0.0175	0.0108	0.0178	0.0181	0.0163	0.0162	0.00717	0.00023	0.0162	0.0157	0.00695	0.00044	0.00044
58	D. Arsenic (As)	0.00101	0.00417	0.00209	0.00353	0.00214	0.00349	0.00347	0.00344	0.00338	0.00156	0.00206	0.00254	0.00247	0.00161	0.00117	0.00113
59	D. Barium (Ba)	0.0494	0.0438	0.0471	0.0397	0.0411	0.04	0.0402	0.0467	0.0456	0.0367	0.0537	0.041	0.0404	0.0375	0.0409	0.0427
60	D. Beryllium (Be)	**0.00001**	**0.00001**	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	**0.00001**	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001
61	D. Bismuth (Bi)	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00002	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	**0.00002**	0.00002	0.00002
62	D. Boron (B)	0.160	0.132	0.114	0.143	0.105	0.141	0.143	0.134	0.125	0.0775	0.0505	0.123	0.122	0.0745	0.0935	0.099
63	D. Cadmium (Cd)	**0.000005**	0.000010	0.00001	0.00002	0.00001	0.00002	0.00002	0.000015	0.000015	0.000005	0.00001	0.000015	0.000015	0.000005	0.000005	0.000005
64	D. Calcium (Ca)	53.7	71.1	67.1	94.8	57.7	95.8	95	64.7	64.1	44.8	62.4	95	93	42.2	48	48.6
65	D. Chromium (Cr)	0.0001	**0.0001**	0.0001	0.0001	0.0001	0.0001	0.0001	**0.0001**	**0.0001**	0.0001	0.0001	0.0001	0.0001	**0.0001**	0.0001	0.0001
66	D. Cobalt (Co)	0.00015	0.00030	0.00026	0.00045	0.00021	0.00047	0.00046	0.00048	0.00049	0.00018	0.00044	0.00051	0.00049	0.00017	0.00009	0.0001
67	D. Copper (Cu)	0.0020	0.0013	0.0013	0.002	0.0014	0.0018	0.0018	0.0016	0.0015	0.0014	0.0026	0.0012	0.0011	0.0014	0.0037	0.0036
68	D. Iron (Fe)	**0.01**	**0.01**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	**0.01**	0.01	0.01
69	D. Lead (Pb)	0.00004	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001
70	D. Lithium (Li)	0.0126	0.0508	0.0392	0.0396	0.0318	0.0384	0.0396	0.0498	0.0484	0.0232	0.0206	0.038	0.0378	0.0224	0.0146	0.0148
71	D. Magnesium (Mg)	26.1	40.2	38.5	40.3	35.2	41.6	41	40.1	38.7	27.2	31.5	38.2	37.4	28.3	23.3	23.3
72	D. Manganese (Mn)	0.0015	0.0268	0.0199	0.0627	0.0014	0.0661	0.065	0.0245	0.0233	0.0034	0.0351	0.0712	0.0698	0.0042	0.0007	0.0004
73	D. Mercury (Hg)	**0.000002**	**0.000002**	0.000002	0.000002	0.000002	0.000002	0.000002	**0.000002**	**0.000002**	0.000002	0.000002	0.000002	0.000002	**0.000002**	0.000002	0.000002
74	D. Molybdenum (Mo)	0.00726	0.0312	0.0197	0.0179	0.0176	0.0179	0.018	0.0277	0.0272	0.0128	0.0098	0.0137	0.0137	0.0122	0.00698	0.00736
75	D. Nickel (Ni)	0.0010	0.0019	0.0016	0.0032	0.0014	0.0032	0.0032	0.0028	0.0027	0.0011	0.0019	0.0036	0.0035	0.0012	0.0015	0.0014
76	D. Potassium (K)	5.15	13.3	10.2	10.8	7.68	10.6	10.8	13.9	13.8	5.6	2.97	9.37	9.39	5.49	4.91	4.86
77	D. Selenium (Se)	0.0006	0.0010	0.0012	0.001	0.0006	0.001	0.001	0.0008	0.0008	0.0006	0.0014	0.0012	0.0012	0.0006	0.0016	0.0016
78	D. Silver (Ag)	**0.00001**	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	**0.00001**	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001
79	D. Sodium (Na)	12.1	32.3	29.7	34.4	25	34.5	33.8	38.1	38	18	8.42	40.6	40.2	19.5	8.96	9.06
80	D. Strontium (Sr)	0.232	0.697	0.498	0.715	0.394	0.725	0.718	0.65	0.643	0.277	0.212	0.714	0.694	0.275	0.151	0.157
81	D. Tellurium (Te)	0.00001	0.00002	0.00003	0.00004	0.00004	0.00004	0.00005	0.00005	0.00005	0.00001	0.00001	0.00003	0.00003	0.00002	0.00001	0.00002
82	D. Thallium (Tl)	0.000006	0.000034	0.000024	0.000026	0.000012	0.000028	0.000028	0.000026	0.00003	0.000014	0.000006	0.00002	0.00002	0.000006	0.000006	0.000006
83	D. Tin (Sn)	**0.00002**	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	**0.00002**	0.00002	0.00002
84	D. Titanium (Ti)	0.00005	0.00005	0.00005	0.00005	0.0001	0.00005	0.00005	0.00005	0.00005	0.0004	0.00025	0.00005	0.00005	0.00040	0.0003	0.00015
85	D. Tungsten (W)	0.00004	0.00048	0.00049	0.00071	0.00035	0.00073	0.00072	0.00051	0.00051	0.00024	0.00001	0.00058	0.00057	0.00022	0.00006	0.00006
86	D. Uranium (U)	0.0143	0.00209	0.00262	0.00215	0.00257	0.00223	0.00222	0.00124	0.00124	0.00259	0.00573	0.0018	0.00175	0.00255	0.0091	0.0104
87	D. Vanadium (V)	0.00080	0.00080	0.0011	0.00085	0.00125	0.00085	0.0008	0.0007	0.0007	0.00125	0.00185	0.0006	0.0006	0.00130	0.00115	0.00105
88	D. Zinc (Zn)	0.0035	0.0195	0.0055	0.0105	0.0085	0.0055	0.0055	0.0065	0.0045	0.0055	0.004	0.0065	0.0055	0.0020	0.006	0.0055
89	D. Zirconium (Zr)	0.00006	0.00008	0.00004	0.00006	0.00006	0.00006	0.00006	0.00006	0.00004	0.00014	0.0002	0.00004	0.00004	0.00012	0.0001	0.00008

	A	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS
1	Station	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge73	In Pit Sump 4 Discharge74	In Pit Sump 3 Discharge75	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge76	In Pit Sump 3 Discharge77	In Pit Sump 3 Discharge78	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge79	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge80	Overburden and West Mine Rock Stockpile Sediment Pond 1 Discharge81	Overburden and West Mine Rock Stockpile Sediment Pond 1 Discharge82	In Pit Sump 3 Discharge83	In Pit Sump 3 Discharge84	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge85	In Pit Sump 3 Discharge86	In Pit Sump 4 Discharge87	In Pit Sump 3 Discharge88
2	Discharge Coordinates (UTM	15U 426327E 5410357N	15U 425836E 5409205N	15U 424982E 5409309N	15U 426637E 5410794N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 423937E 5408984N	15U 423937E 5408984N	15U 423937E 5408984N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 424982E 5409309N	15U 425836E 5409205N	15U 424982E 5409309N
3	Date Sampled	13-Oct-16	13-Oct-16	15-Oct-16	16-Oct-16	16-Oct-16	16-Oct-16	17-Oct-16	18-Oct-16	21-Oct-16	21-Oct-16	28-Oct-16	28-Oct-16	28-Oct-16	29-Oct-16	06-Nov-16	08-Nov-16
4	pH_Field	8.49	7.69	7.71	8.43	8.03	7.85	7.22	7.42	8.4	8.6	8.3	8.17	7.24	7.24	7.51	7.26
5	Temp_Field	7.2	7	10.2	8.8	9.3	8.4	8.8	8.3	4.4	5.9	6.55	6.55	6.55	6.99	6.46	8.88
6	DO_Field	10.7	10.46	8.05	9.15	8.77	9.34	6.31	6.27	7.46	7.46	8	8.34	8.19	7.7	7.68	11.27
7	Conductivity	460	941	782	513	779	784	858	864	502	503	837	838	836	866	889	914
8	Hardness	212	394	333	253	354	355	376	386	225	224	365	366	367	367	380	408
9	pH_Lab	8.38	7.95	7.78	8.38	8.2	8.13	7.57	7.64	8.35	8.38	8.08	8.1	7.17	7.09	7.26	7.96
10	TSS	5	3	19.5	7.5	21	8.5	8	6	6.5	4.5	7.5	10.5	3	7.5	5	3.5
11	Alkalinity (Total as CaCO3)	155	336	303	177	309	307	320	317	176	172	335	333	343	333	380	406
12	Total Ammonia-N	0.002	7.99	4.74	0.02	4.76	4.67	5.67	5.84	0.29	0.224	4.78	4.53	3.83	4.5	5.93	5.17
13	Ammonia - U	0.001	0.057	0.045	0.001	0.088	0.054	0.016	0.025	0.008	0.011	0.131	0.093	0.009	0.011	0.027	0.016
14	Chloride (Cl)	10.5	30.4	21.6	10.2	21.5	21.6	26.4	25.9	17.4	14.2	26.6	26.9	20	27.1	38.2	40
15	Nitrate (N)	3	8.64	6.74	8.95	6.73	6.75	9.72	9.71	6.61	5.59	6.82	6.9	6.64	6.87	7.91	6.75
16	Nitrite (N)	0.041	0.28	0.165	0.089	0.161	0.163	0.269	0.267	0.119		0.143	0.143	0.157	0.142	0.169	0.23
17	Orthophosphate (P)																
18	Sulfate (SO4)	73	93.8	84.0	62.4	84.1	84.2	93	93.2	50.7	42.3	74.1	74.5	73.7	75.4	83.9	85.3
19	Cyanide, Free																
20	Total Cyanide (CN)	0.001	0.014	0.004	0.001	0.004	0.004	0.01	0.009	0.001	0.001	0.004	0.004	0.003	0.004	0.004	0.006
21	T. Aluminum (Al)	0.131	0.152	0.188	0.173	0.405	0.098	0.129	0.107	0.288	0.119	0.138	0.156	0.044	0.185	0.0825	0.135
22	T. Antimony (Sb)	0.00043	0.0163	0.0102	0.00029	0.0105	0.0102	0.0132	0.0136	0.00615	0.00607	0.0157	0.0158	0.0104	0.0155	0.0196	0.0159
23	T. Arsenic (As)	0.0012	0.002	0.0024	0.0011	0.0025	0.0024	0.0024	0.0024	0.0012	0.0011	0.0025	0.0026	0.0027	0.0025	0.0026	0.0025
24	T. Barium (Ba)	0.0434	0.0377	0.0528	0.0493	0.0568	0.0517	0.0583	0.0603	0.0336	0.0307	0.045	0.0452	0.0595	0.0465	0.0342	0.0435
25	T. Beryllium (Be)	0.00001	0.00001	**0.00001**	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
26	T. Bismuth (Bi)	0.00002	0.00002	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
27	T. Boron (B)	0.115	0.13	0.119	0.176	0.119	0.116	0.125	0.127	0.0805	0.0815	0.121	0.123	0.121	0.122	0.137	0.143
28	T. Cadmium (Cd)	0.00001	0.00001	0.000015	0.00001	0.000015	0.00001	0.000015	0.000015	0.00001	0.000005	0.000015	0.000015	0.000015	0.000015	0.000005	0.000015
29	T. Calcium (Ca)	45	88.5	71.2	55.6	75.3	72.2	80.1	86.2	40.3	38.3	76.9	78.2	84.1	77	89	93.5
30	T. Chromium (Cr)	0.0004	0.0003	0.0004	0.0005	0.0008	0.0002	0.0003	0.0002	0.0006	0.0003	0.0003	0.0003	0.0001	0.0004	0.0002	0.0003
31	T. Cobalt (Co)	0.00017	0.0005	0.00040	0.00023	0.00049	0.00036	0.00047	0.00044	0.0003	0.00021	0.00033	0.00036	0.00029	0.00035	0.00037	0.00041
32	T. Copper (Cu)	0.0042	0.0012	0.0010	0.0025	0.0012	0.0008	0.0015	0.0014	0.002	0.0017	0.0017	0.0018	0.001	0.0017	0.0007	0.0014
33	T. Iron (Fe)	0.13	0.19	0.21	0.2	0.46	0.12	0.23	0.15	0.34	0.13	0.15	0.16	0.21	0.17	0.09	0.15
34	T. Lead (Pb)	0.00006	0.00006	0.00016	0.0001	0.00025	0.00011	0.00012	0.00015	0.00017	0.00006	0.00012	0.00015	0.00012	0.00016	0.00007	0.00017
35	T. Lithium (Li)	0.017	0.0536	0.0406	0.0142	0.046	0.0458	0.044	0.0436	0.0254	0.0258	0.0394	0.04	0.0402	0.0396	0.0428	0.042
36	T. Magnesium (Mg)	24.5	40.6	38.8	26.2	42.1	40.4	39.1	41.1	29.6	29.5	39.5	41.3	42.1	41.6	41.6	43.4
37	T. Manganese (Mn)	0.0049	0.0825	0.0303	0.0124	0.0304	0.0266	0.0695	0.0683	0.02	0.0082	0.0547	0.0563	0.0641	0.0594	0.037	0.0641

	A	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS
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2	Discharge Coordinates (UTM	15U 426327E 5410357N	15U 425836E 5409205N	15U 424982E 5409309N	15U 426637E 5410794N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 423937E 5408984N	15U 423937E 5408984N	15U 423937E 5408984N	15U 424982E 5409309N	15U 424982E 5409309N	15U 423937E 5408984N	15U 424982E 5409309N	15U 425836E 5409205N	15U 424982E 5409309N
3	Date Sampled	13-Oct-16	13-Oct-16	15-Oct-16	16-Oct-16	16-Oct-16	16-Oct-16	17-Oct-16	18-Oct-16	21-Oct-16	21-Oct-16	28-Oct-16	28-Oct-16	28-Oct-16	29-Oct-16	06-Nov-16	08-Nov-16
38	T. Mercury (Hg)	0.000002	0.000002	**0.000002**	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002
39	T. Molybdenum (Mo)	0.0076	0.0194	0.0139	0.00808	0.0145	0.0141	0.021	0.021	0.0141	0.0132	0.014	0.014	0.0154	0.0137	0.0172	0.0157
40	T. Nickel (Ni)	0.0017	0.0037	0.0025	0.0012	0.0026	0.0023	0.0031	0.0031	0.0017	0.0014	0.0038	0.004	0.0024	0.0039	0.0049	0.0047
41	T. Phosphorus (P)																
42	T. Potassium (K)	5.06	10.1	8.52	5.09	8.73	8.65	9.26	9.58	4.83	5.02	8.12	8.1	7.65	8.37	8.17	9.69
43	T. Selenium (Se)	0.0014	0.001	0.0012	0.0008	0.0012	0.001	0.001	0.0012	0.0004	0.0004	0.0008	0.0008	0.001	0.0008	0.0008	0.0008
44	T. Silver (Ag)	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00004	0.00001	0.00001
45	T. Sodium (Na)	10	37.3	30.3	13.2	31.1	31.3	34.8	34.2	20.4	20.8	31.4	32.9	29.2	32.1	34.5	36.7
46	T. Strontium (Sr)	0.161	0.627	0.503	0.252	0.582	0.554	0.548	0.583	0.268	0.255	0.54	0.555	0.535	0.544	0.63	0.689
47	T. Tellurium (Te)	0.00002	0.00012	0.00007	0.00005	0.00007	0.00009	0.00004	0.00011	0.00005	0.00008	0.00015	0.00011	0.00013	0.00012	0.00012	0.00017
48	T. Thallium (Tl)	0.00001	0.00002	0.000018	0.000008	0.00002	0.000016	0.00002	0.00002	0.000004	0.000002	0.000024	0.000022	0.000018	0.000024	0.000026	0.000026
49	T. Tin (Sn)	0.00002	0.00002	0.00004	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00008	0.00002	0.00004	0.00002	0.00002
50	T. Titanium (Ti)	0.0051	0.00535	0.00745	0.0072	0.0145	0.0032	0.00355	0.00285	0.0096	0.004	0.0046	0.0055	0.00105	0.0058	0.00295	0.0043
51	T. Tungsten (W)	0.00006	0.00076	0.00046	0.00005	0.00043	0.00044	0.0005	0.00056	0.00022	0.00022	0.00055	0.00054	0.00147	0.00051	0.00068	0.00081
52	T. Uranium (U)	0.0113	0.00123	0.00141	0.0164	0.00146	0.00138	0.00215	0.00212	0.0034	0.00322	0.00145	0.0015	0.00197	0.00145	0.00154	0.00172
53	T. Vanadium (V)	0.0015	0.0009	0.00120	0.00125	0.00175	0.0009	0.00105	0.0009	0.00175	0.00125	0.00115	0.0012	0.00075	0.00125	0.0009	0.0012
54	T. Zinc (Zn)	0.006	0.003	0.0065	0.0045	0.0045	0.0035	0.0055	0.0255	0.002	0.001	0.0035	0.004	0.0075	0.015	0.005	0.011
55	T. Zirconium (Zr)	0.00022	0.00016	0.00030	0.00032	0.00038	0.00022	0.0002	0.00018	0.00036	0.00016	0.00028	0.00028	0.00012	0.0003	0.00014	0.00034
56	D. Aluminum (Al)	0.004	0.004	0.002	0.003	0.002	0.002	0.003	0.004	0.005	0.007	0.002	0.002	0.002	0.002	0.003	0.003
57	D. Antimony (Sb)	0.00044	0.0158	0.0109	0.00028	0.0111	0.0112	0.0139	0.0143	0.00648	0.00653	0.0157	0.0162	0.0104	0.0158	0.0202	0.0172
58	D. Arsenic (As)	0.00113	0.00204	0.00228	0.00099	0.0022	0.00225	0.00216	0.00221	0.0011	0.0011	0.0024	0.00229	0.00187	0.00235	0.00271	0.00258
59	D. Barium (Ba)	0.0424	0.0356	0.0537	0.048	0.0496	0.0488	0.0539	0.0605	0.0312	0.0301	0.0437	0.0438	0.0597	0.0467	0.0349	0.0454
60	D. Beryllium (Be)	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
61	D. Bismuth (Bi)	0.00002	0.00002	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
62	D. Boron (B)	0.0975	0.112	0.126	0.168	0.114	0.115	0.117	0.121	0.0785	0.0745	0.111	0.111	0.107	0.109	0.121	0.136
63	D. Cadmium (Cd)	0.000005	0.00001	0.000005	0.000005	0.00001	0.00001	0.00002	0.000015	0.00001	0.00001	0.00001	0.00001	0.00001	0.000015	0.00001	0.000015
64	D. Calcium (Ca)	46.8	92.5	71.4	56.1	72.4	72.3	82.1	85.1	39.6	39.9	78.2	79.2	82.3	79.4	84.4	92.7
65	D. Chromium (Cr)	0.0001	0.0001	**0.0001**	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
66	D. Cobalt (Co)	0.0001	0.00043	0.00028	0.00018	0.00029	0.0003	0.00036	0.00037	0.00017	0.00016	0.00026	0.00027	0.00025	0.00027	0.00031	0.00035
67	D. Copper (Cu)	0.0036	0.0007	0.0006	0.0022	0.0006	0.0006	0.0011	0.001	0.0014	0.0015	0.0013	0.0013	0.0008	0.0012	0.0006	0.0011
68	D. Iron (Fe)	0.01	0.01	**0.01**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01
69	D. Lead (Pb)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00004
70	D. Lithium (Li)	0.0148	0.0482	0.0418	0.0132	0.0434	0.0438	0.0422	0.0428	0.0254	0.0236	0.0416	0.0418	0.0414	0.0408	0.0374	0.04
71	D. Magnesium (Mg)	23	39.6	37.7	27.5	42	42.3	41.5	42.2	30.6	30.2	41.1	40.8	39.3	41	41	42.9
72	D. Manganese (Mn)	0.0006	0.0791	0.0201	0.0054	0.0184	0.0209	0.0659	0.0667	0.0145	0.0054	0.0495	0.0489	0.0567	0.0534	0.0357	0.0593
73	D. Mercury (Hg)	0.000002	0.000002	**0.000002**	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002
74	D. Molybdenum (Mo)	0.00746	0.0189	0.0142	0.00778	0.0143	0.0141	0.0202	0.0207	0.013	0.0132	0.0137	0.0136	0.0143	0.0133	0.0171	0.0158
75	D. Nickel (Ni)	0.0015	0.0034	0.0020	0.0011	0.002	0.0021	0.0027	0.0028	0.0012	0.0012	0.0035	0.0036	0.0022	0.0037	0.0049	0.0045
76	D. Potassium (K)	4.9	10.3	7.89	5.17	8.4	8.89	9.75	9.62	5.22	5	8.39	8.42	7.5	8.46	8.61	9.86
77	D. Selenium (Se)	0.0016	0.001	0.0014	0.0008	0.0012	0.0012	0.001	0.0012	0.0004	0.0006	0.0008	0.0008	0.001	0.0008	0.001	0.0008
78	D. Silver (Ag)	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
79	D. Sodium (Na)	9.4	36.4	30.5	14	32.8	33.4	35.5	36.4	20.5	20.7	32.9	32.7	28	32.8	36	37.1
80	D. Strontium (Sr)	0.157	0.618	0.511	0.237	0.524	0.525	0.555	0.554	0.253	0.257	0.546	0.542	0.517	0.544	0.624	0.677
81	D. Tellurium (Te)	0.00002	0.00003	0.00003	0.00002	0.00003	0.00004	0.00003	0.00002	0.00003	0.00002	0.00003	0.00004	0.00004	0.00003	0.00005	0.00004
82	D. Thallium (Tl)	0.000006	0.000016	0.000020	0.000006	0.000014	0.000014	0.000018	0.000018	0.000004	0.000004	0.000022	0.00002	0.000018	0.000022	0.000024	0.000026
83	D. Tin (Sn)	0.00002	0.00002	**0.00002**	0.00002	0.00002	0.00002	0.00002	0.00004	0.00002	0.00004	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
84	D. Titanium (Ti)	0.0001	0.00005	0.00005	0.00005	0.00005	0.0001	0.00005	0.0001	0.0002	0.0001	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
85	D. Tungsten (W)	0.00006	0.00075	0.00052	0.00005	0.00051	0.00053	0.00059	0.00058	0.00023	0.00024	0.00059	0.00058	0.00142	0.00055	0.00071	0.00091
86	D. Uranium (U)	0.0103	0.00117	0.00141	0.0173	0.00138	0.00142	0.00207	0.00209	0.00324	0.00316	0.0015	0.00151	0.00198	0.00148	0.00151	0.00167
87	D. Vanadium (V)	0.00105	0.00045	0.00055	0.00095	0.00055	0.00055	0.00055	0.00055	0.00095	0.0009	0.0007	0.00065	0.00045	0.0007	0.00065	0.0007
88	D. Zinc (Zn)	0.005	0.002	0.0050	0.033	0.003	0.0105	0.0055	0.0275	0.0025	0.001	0.003	0.0025	0.01	0.0155	0.005	0.0115
89	D. Zirconium (Zr)	0.00008	0.00002	0.00004	0.00008	0.00004	0.00004	0.00004	0.00004	0.00008	0.00006	0.00004	0.00006	0.00006	0.00006	0.00004	0.00008

	A	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI
1	Station	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge89	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge90	In Pit Sump 4 Discharge91	In Pit Sump 4 Discharge92	In Pit Sump 3 Discharge93	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge94	Overburden and West Mine Rock Stockpile Sediment Pond 2 Discharge95	Process Plant and Crusher Area Temporary Sediment Ponds (Polishing Pond) Discharge96	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)97	In Pit Sump 3 Discharge98	Preliminary Phase Mine Rock Pond Discharge (Process Plant Overburden Pile)99	Process Plant and Crusher Area Temporary Sediment Ponds (North Runoff Pond) Discharge100	Process Plant and Crusher Area Temporary Sediment Ponds (North Runoff Pond) Discharge101	In Pit Sump 4 Discharge102	In Pit Sump 4 Discharge103	In Pit Sump 4 Discharge104
2	Discharge Coordinates (UTM	15U 423937E 5408984N	15U 423937E 5408984N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 423937E 5408984N	15U 423937E 5408984N	15U 426637E 5410794N	15U 427118E 5409012N	15U 424982E 5409309N	15U 427118E 5409012N	15U 426388E 5411267N	15U 426388E 5411267N	15U 425836E 5409205N	15U 425836E 5409205N	15U 425836E 5409205N
3	Date Sampled	11-Nov-16	12-Nov-16	16-Nov-16	17-Nov-16	21-Nov-16	21-Nov-16	21-Nov-16	23-Nov-16	23-Nov-16	23-Nov-16	25-Nov-16	27-Nov-16	28-Nov-16	02-Dec-16	02-Dec-16	03-Dec-16
4	pH_Field	6.83	6.86	6.88	7.03	7.23	6.92	6.91	8.1	8.13	7.11	8.45	8.21	8.16	7.21	7.5	7.39
5	Temp_Field	7.01	6.46	5.35	4.81	2.13	2.28	2.3	2.5	2.89	2.21	3.29	2.4	2.8	2.5	2.6	1.9
6	DO_Field	8.46	8.84	6.52	6.91	10.1	3.83	6.37	6.81	7.05	9.79	7.946	12.74	12.32	12.75	12.94	13.34
7	Conductivity	869	876	910	903	899	931	930	575	623	896	621	477	549	901	903	915
8	Hardness	395	398	419	418	348	389	401	258	286	343	314	214	211	390	391	399
9	pH_Lab	7.24	7.36	7.27	7.47	7.43	7.2	7.15	8.19	8.05	7.48	8.01	7.88	7.79	7.4	7.51	7.53
10	TSS	7.5	11.5	6.5	6.5	8	7.5	3.5	46	3.5	9.5	2	3.5	16.5	4	3.5	2.5
11	Alkalinity (Total as CaCO3)	346	347	347	345	305	367	362	177	131	311	132	128	157	343	346	345
12	Total Ammonia-N	4.46	4.41	5.2	5.21	4.95	4.35	5.01	0.13	0.01	4.18	0.024	0.132	0.134	4.55	4.59	4.63
13	Ammonia - U	0.004	0.004	0.005	0.007	0.008	0.004	0.004	0.002	0.001	0.005	0.001	0.002	0.002	0.007	0.015	0.011
14	Chloride (Cl)	29.2	29	42.9	43.1	42.9	34.7	35.4	11	9.76	42.4	10.2	14	16	46.9	46.1	46.5
15	Nitrate (N)	6.79	6.75	6.66	6.98	7.57	6.75	6.77	11.3	1.69	8	1.32	2.51	4.46	5.38	5.34	5.39
16	Nitrite (N)	0.211	0.218	0.247	0.25	0.172	0.223	0.224	0.116	0.011	0.176	0.013	0.067	0.085	0.206	0.204	0.204
17	Orthophosphate (P)																
18	Sulfate (SO4)	81.5	81.5	80.6	81.2	90.1	79.2	79.3	77.5	176	88.1	179	93.6	100	79.1	78.4	78.9
19	Cyanide, Free																
20	Total Cyanide (CN)	0.009	0.008	0.01	0.009	0.003	0.008	0.008	0.0002	0.0004	0.0038	0.001	0.001	0.001	0.019	0.019	0.018
21	T. Aluminum (Al)	0.072	0.12	0.269	0.172	0.111	0.084	0.0805	0.31	0.028	0.122	0.019	0.231	0.285	0.104	0.16	0.091
22	T. Antimony (Sb)	0.0108	0.0102	0.0154	0.0154	0.0168	0.0122	0.0118	0.0003	0.00027	0.0167	0.00031	0.00027	0.00027	0.0148	0.0151	0.0143
23	T. Arsenic (As)	0.002	0.002	0.003	0.0028	0.0024	0.002	0.002	0.001	0.0014	0.0024	0.0014	0.0007	0.0007	0.0027	0.0028	0.0026
24	T. Barium (Ba)	0.0493	0.0499	0.0373	0.035	0.0471	0.0402	0.0406	0.0522	0.0591	0.0462	0.0618	0.0367	0.0367	0.0355	0.0348	0.034
25	T. Beryllium (Be)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
26	T. Bismuth (Bi)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
27	T. Boron (B)	0.122	0.12	0.147	0.145	0.148	0.131	0.122	0.189	0.0485	0.132	0.047	0.127	0.128	0.13	0.13	0.128
28	T. Cadmium (Cd)	0.000015	0.000015	0.000015	0.00002	0.00001	0.000015	0.000015	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000015	0.000015	0.000015
29	T. Calcium (Ca)	84.7	80.1	78.4	84.1	71.8	88	89.1	68.8	66.1	74.5	65.3	44	44.3	88.2	87	84.3
30	T. Chromium (Cr)	0.0002	0.0003	0.0005	0.0004	0.0002	0.0002	0.0002	0.0007	0.0002	0.0003	0.0036	0.0031	0.0061	0.0002	0.0003	0.0002
31	T. Cobalt (Co)	0.00034	0.00037	0.00044	0.0004	0.0003	0.00036	0.00037	0.0004	0.00014	0.00029	0.00017	0.00033	0.0004	0.00043	0.00043	0.00039
32	T. Copper (Cu)	0.0011	0.0013	0.0018	0.0016	0.0007	0.0009	0.0007	0.0033	0.0022	0.0008	0.0024	0.0023	0.0024	0.0018	0.0017	0.0016
33	T. Iron (Fe)	0.11	0.16	0.36	0.23	0.12	0.1	0.1	0.45	0.03	0.12	0.03	0.37	0.45	0.14	0.15	0.09
34	T. Lead (Pb)	0.00011	0.00013	0.00013	0.00013	0.0001	0.00007	0.00008	0.0002	0.00003	0.0001	0.00004	0.00017	0.00019	0.0001	0.00009	0.00006
35	T. Lithium (Li)	0.0398	0.0378	0.0408	0.041	0.0442	0.0418	0.0416	0.0158	0.0144	0.0418	0.0168	0.0246	0.0252	0.0358	0.0356	0.0358
36	T. Magnesium (Mg)	38.9	39.2	39.9	39.5	43.3	38	40.3	27.4	33.5	44.7	34.2	25.9	26.3	42.1	42.2	42
37	T. Manganese (Mn)	0.0647	0.0658	0.0712	0.0682	0.0082	0.0774	0.0792	0.0537	0.0091	0.0081	0.009	0.0488	0.0494	0.0822	0.0819	0.0776

	A	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI
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2	Discharge Coordinates (UTM	15U 423937E 5408984N	15U 423937E 5408984N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	15U 423937E 5408984N	15U 423937E 5408984N	15U 426637E 5410794N	15U 427118E 5409012N	15U 424982E 5409309N	15U 427118E 5409012N	15U 426388E 5411267N	15U 426388E 5411267N	15U 425836E 5409205N	15U 425836E 5409205N	15U 425836E 5409205N
3	Date Sampled	11-Nov-16	12-Nov-16	16-Nov-16	17-Nov-16	21-Nov-16	21-Nov-16	21-Nov-16	23-Nov-16	23-Nov-16	23-Nov-16	25-Nov-16	27-Nov-16	28-Nov-16	02-Dec-16	02-Dec-16	03-Dec-16
38	T. Mercury (Hg)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002
39	T. Molybdenum (Mo)	0.0148	0.0142	0.0194	0.0194	0.0167	0.0182	0.0177	0.0085	0.00864	0.0164	0.00836	0.0102	0.0103	0.0175	0.017	0.0168
40	T. Nickel (Ni)	0.0034	0.0036	0.0041	0.004	0.0039	0.0029	0.0031	0.0027	0.0013	0.0039	0.0033	0.0043	0.0063	0.0041	0.004	0.0038
41	T. Phosphorus (P)																
42	T. Potassium (K)	9.29	9.36	10.6	10.5	10.4	10.5	10.7	5.6	3.58	10.2	3.48	4.03	3.99	11	10.8	10.8
43	T. Selenium (Se)	0.0008	0.0008	0.0006	0.0006	0.0008	0.0006	0.0006	0.0008	0.0024	0.0008	0.0024	0.0012	0.0012	0.0006	0.0006	0.0006
44	T. Silver (Ag)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
45	T. Sodium (Na)	33.7	34.6	38.9	37.7	42.9	34.2	36.3	15.5	12.1	45.7	11.7	13.7	13.5	38	38.4	37.1
46	T. Strontium (Sr)	0.563	0.535	0.646	0.664	0.656	0.606	0.594	0.284	0.224	0.633	0.231	0.213	0.213	0.66	0.628	0.623
47	T. Tellurium (Te)	0.00009	0.00009	0.00008	0.00012	0.00011	0.00011	0.00012	0.00007	0.00004	0.00012	0.00005	0.00004	0.00003	0.00013	0.00015	0.00012
48	T. Thallium (Tl)	0.000024	0.000022	0.000024	0.000024	0.000024	0.000022	0.000022	0.000012	0.000002	0.000022	0.000004	0.000008	0.00001	0.000026	0.000026	0.000022
49	T. Tin (Sn)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00004	0.00002	0.00004	0.00002	0.00004	0.00004	0.00002	0.00002	0.00002
50	T. Titanium (Ti)	0.00235	0.00405	0.00825	0.0056	0.0043	0.00265	0.0024	0.0121	0.0009	0.00455	0.00075	0.00835	0.0101	0.004	0.0056	0.00295
51	T. Tungsten (W)	0.00123	0.00109	0.00076	0.00075	0.00078	0.00097	0.00102	0.00006	0.00002	0.00075	0.00002	0.00003	0.00003	0.00075	0.00074	0.0007
52	T. Uranium (U)	0.00189	0.0018	0.00136	0.00139	0.00183	0.00171	0.00172	0.0195	0.00409	0.00174	0.00452	0.00909	0.00917	0.00145	0.00144	0.00137
53	T. Vanadium (V)	0.0008	0.00095	0.0016	0.00135	0.0012	0.00115	0.0012	0.00155	0.00135	0.00115	0.00135	0.00105	0.00125	0.00095	0.001	0.00085
54	T. Zinc (Zn)	0.006	0.0045	0.006	0.0045	0.0105	0.0045	0.0045	0.0085	0.002	0.0115	0.0025	0.0115	0.0085	0.011	0.007	0.0055
55	T. Zirconium (Zr)	0.00016	0.0002	0.0002	0.00022	0.00022	0.00016	0.00012	0.00046	0.00008	0.00022	0.00008	0.00034	0.00038	0.00022	0.0002	0.00016
56	D. Aluminum (Al)	0.003	0.003	0.004	0.004	0.001	0.003	0.003	0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.004
57	D. Antimony (Sb)	0.0115	0.0114	0.0163	0.0161	0.0176	0.0125	0.0123	0.00029	0.00027	0.0178	0.00031	0.00027	0.00026	0.0147	0.0147	0.0156
58	D. Arsenic (As)	0.00192	0.00192	0.00279	0.0028	0.00241	0.00212	0.00208	0.00083	0.00128	0.00247	0.00131	0.0006	0.00057	0.00276	0.00273	0.00287
59	D. Barium (Ba)	0.0506	0.0511	0.0382	0.0369	0.047	0.0441	0.0452	0.05	0.0578	0.0461	0.0633	0.0348	0.0331	0.0343	0.0333	0.0348
60	D. Beryllium (Be)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001
61	D. Bismuth (Bi)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
62	D. Boron (B)	0.138	0.142	0.124	0.125	0.144	0.13	0.126	0.174	0.0485	0.139	0.0445	0.121	0.129	0.131	0.125	0.123
63	D. Cadmium (Cd)	0.000015	0.000015	0.000015	0.000015	0.00001	0.000015	0.000015	0.000005	0.000005	0.000005	0.00001	0.000005	0.000005	0.000015	0.000015	0.000015
64	D. Calcium (Ca)	90	91.2	92.7	92.3	71.9	88.4	93.8	60.3	61.8	70.1	68.1	44.4	44.6	88.1	84.9	89.1
65	D. Chromium (Cr)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
66	D. Cobalt (Co)	0.00032	0.00031	0.00033	0.00033	0.00024	0.00031	0.0003	0.00025	0.00007	0.00024	0.0001	0.00018	0.00017	0.00035	0.00036	0.00037
67	D. Copper (Cu)	0.0011	0.0011	0.0023	0.0013	0.0005	0.0007	0.0008	0.0026	0.0019	0.0005	0.0019	0.0017	0.0016	0.0009	0.0013	0.0014
68	D. Iron (Fe)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01
69	D. Lead (Pb)	0.00001	0.00001	0.00007	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001	0.00002	0.00003	0.00001	0.00001	0.00002	0.00001	0.00002
70	D. Lithium (Li)	0.047	0.0418	0.0414	0.0422	0.0428	0.0422	0.0418	0.0142	0.0152	0.0434	0.0152	0.0204	0.0216	0.0418	0.0388	0.0398
71	D. Magnesium (Mg)	41.3	41.4	45.5	45.5	40.8	40.9	40.6	26	32.1	40.9	35	25.2	24.3	41.2	40.9	42.9
72	D. Manganese (Mn)	0.0663	0.0677	0.0704	0.0695	0.0064	0.0776	0.0781	0.0388	0.0002	0.0058	0.0004	0.0387	0.0379	0.073	0.0744	0.0771
73	D. Mercury (Hg)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002
74	D. Molybdenum (Mo)	0.0152	0.015	0.0183	0.018	0.016	0.0174	0.0178	0.0082	0.00852	0.0167	0.00804	0.01	0.00958	0.0164	0.0159	0.0159
75	D. Nickel (Ni)	0.0035	0.0035	0.0038	0.0039	0.0035	0.0029	0.0029	0.0022	0.0012	0.0036	0.0012	0.0023	0.0021	0.0035	0.0036	0.0037
76	D. Potassium (K)	9.8	9.66	11.4	11.2	9.54	10	10	5.22	3.15	9.42	3.42	3.95	3.72	10.4	10.4	11.2
77	D. Selenium (Se)	0.0008	0.0008	0.0006	0.0006	0.001	0.0008	0.0008	0.0008	0.0028	0.001	0.0026	0.0014	0.0012	0.0006	0.0006	0.0006
78	D. Silver (Ag)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
79	D. Sodium (Na)	32.9	31.3	38.2	37	38	30.7	31.2	13.7	10.5	35.1	11.3	12.7	13.7	36.6	37.7	39.3
80	D. Strontium (Sr)	0.597	0.616	0.659	0.661	0.652	0.602	0.61	0.288	0.231	0.665	0.23	0.211	0.201	0.603	0.602	0.62
81	D. Tellurium (Te)	0.00004	0.00004	0.00004	0.00002	0.00003	0.00004	0.00002	0.00003	0.00001	0.00004	0.00006	0.00001	0.00002	0.00004	0.00005	0.00007
82	D. Thallium (Tl)	0.000022	0.000022	0.000024	0.000022	0.000022	0.000022	0.000022	0.000008	0.000002	0.000022	0.000008	0.000004	0.000004	0.000022	0.000022	0.000022
83	D. Tin (Sn)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00004	0.00002	0.00002	0.00002	0.00002	0.00002
84	D. Titanium (Ti)	0.00005	0.00005	0.0001	0.0001	0.00005	0.0001	0.0001	0.00005	0.0001	0.00005	0.0002	0.00015	0.00015	0.00015	0.0001	0.0001
85	D. Tungsten (W)	0.00129	0.00129	0.0008	0.00075	0.0008	0.00102	0.00105	0.00005	0.00001	0.00083	0.00004	0.00005	0.00003	0.00071	0.0007	0.00072
86	D. Uranium (U)	0.00182	0.00183	0.0014	0.00137	0.00168	0.0016	0.00163	0.0183	0.00414	0.00175	0.00388	0.0081	0.00792	0.00133	0.0013	0.00146
87	D. Vanadium (V)	0.00065	0.0006	0.00085	0.0008	0.0007	0.00075	0.00075	0.00035	0.0011	0.00065	0.00135	0.00025	0.00025	0.0009	0.00065	0.0007
88	D. Zinc (Zn)	0.005	0.004	0.006	0.008	0.013	0.0055	0.0045	0.0095	0.002	0.012	0.0035	0.0115	0.0135	0.084	0.007	0.0055
89	D. Zirconium (Zr)	0.00006	0.00008	0.00006	0.00006	0.00004	0.00004	0.00004	0.00004	0.00006	0.00008	0.00016	0.00004	0.00004	0.00006	0.00006	0.00006

	A	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS
1	Station	In Pit Sump 3 Discharge105	In Pit Sump 3 Discharge106	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge107	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge108	In Pit Sump 4 Discharge109	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge110	In Pit Sump 4 Discharge111	In Pit Sump 4 Discharge112	In Pit Sump 3 Discharge113	In Pit Sump 4 Discharge114
2	Discharge Coordinates (UTM	15U 424982E 5409309N	15U 424982E 5409309N	15U 426327E 5410357N	15U 426327E 5410357N	15U 425836E 5409205N	15U 426327E 5410357N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	
3	Date Sampled	07-Dec-16	07-Dec-16	11-Dec-16	11-Dec-16	11-Dec-16	12-Dec-16	12-Dec-16	12-Dec-16	20-Dec-16	29-Dec-16
4	pH_Field	7.25	7.25	8.05	7.78	7.15	8.14	7.17	7.18	7.19	7.28
5	Temp_Field	0.3	0.3	1.7	2.5	2.1	1.4	2.1	2.1	1.57	0.75
6	DO_Field	13.6	13.53	14.98	10.1	11.99	9.92	11.39	11.05	23.1	12.5
7	Conductivity	907	909	617	564	1040	603	1020	1030	1200	1070
8	Hardness	387	390	299	272	432	302	434	434	477	451
9	pH_Lab	7.4	7.45	7.99	7.97	7.31	7.92	7.15	7.01	7.42	7.46
10	TSS	3.5	4	5.5	4	2.5	6.5	0.5	1.5	5.5	19
11	Alkalinity (Total as CaCO3)	332	343	200	216	385	213	379	379	447	424
12	Total Ammonia-N	5.27	5.15	0.042	0.018	7	0.028	6.72	6.86	6.44	7.6
13	Ammonia - U	0.008	0.008	0.001	0.001	0.01	**0.001**	0.01	0.01	0.009	0.013
14	Chloride (Cl)	43	43.4	15.1	10.2	50.5	12.9	49	50.5	55	58.5
15	Nitrate (N)	6.94	6.99	3.23	1.51	7.52	2.47	7.48	7.53	7.58	6.85
16	Nitrite (N)	0.257	0.259	0.036	0.013	0.317	0.026	0.303	0.315	0.312	0.353
17	Orthophosphate (P)										
18	Sulfate (SO4)	79.9	80.9	98	68.3	86.1	86.0	84.3	86.2	95.9	85.9
19	Cyanide, Free										
20	Total Cyanide (CN)	0.032	0.032	0.001	0.001	0.034	**0.001**	0.034	0.033	0.033	0.04
21	T. Aluminum (Al)	0.0875	0.0805	0.197	0.12	0.0655	0.202	0.042	0.0625	0.0525	0.226
22	T. Antimony (Sb)	0.0197	0.0195	0.00053	0.00033	0.0218	0.00045	0.0208	0.0213	0.0243	0.0276
23	T. Arsenic (As)	0.0026	0.0025	0.001	0.001	0.0023	0.0010	0.0023	0.0023	0.0028	0.0024
24	T. Barium (Ba)	0.0314	0.0319	0.0607	0.0572	0.0322	0.0577	0.0303	0.0307	0.043	0.0262
25	T. Beryllium (Be)	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001
26	T. Bismuth (Bi)	0.00002	0.00002	0.00002	0.00002	0.00002	**0.00002**	0.00002	0.00002	0.00002	0.00002
27	T. Boron (B)	0.133	0.136	0.148	0.0945	0.166	0.113	0.156	0.151	0.169	0.155
28	T. Cadmium (Cd)	0.00001	0.00001	0.000015	0.000015	0.00002	0.000015	0.000025	0.000015	0.00002	0.000025
29	T. Calcium (Ca)	85.7	87	71.4	63.3	101	67.5	98.3	94.1	119	108
30	T. Chromium (Cr)	0.0001	0.0002	0.0008	0.0004	0.0002	0.0006	0.0001	0.0003	0.0001	0.0005
31	T. Cobalt (Co)	0.00045	0.00045	0.0003	0.00019	0.00052	0.00025	0.00053	0.00053	0.00056	0.0006
32	T. Copper (Cu)	0.0018	0.0027	0.0051	0.0058	0.001	0.0054	0.0147	0.0011	0.0018	0.0007
33	T. Iron (Fe)	0.09	0.09	0.24	0.14	0.09	0.22	0.07	0.09	0.07	0.31
34	T. Lead (Pb)	0.0001	0.00015	0.00016	0.00013	0.00007	0.00013	0.00078	0.00006	0.0001	0.00014
35	T. Lithium (Li)	0.042	0.0418	0.0286	0.0264	0.0514	0.0264	0.0506	0.05	0.0498	0.0524
36	T. Magnesium (Mg)	41.6	41.8	33.7	30.5	46.4	32.6	46.9	45.5	53.8	47.2
37	T. Manganese (Mn)	0.0804	0.0799	0.0209	0.0112	0.111	0.0178	0.112	0.113	0.114	0.133

	A	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS
1	Station	In Pit Sump 3 Discharge105	In Pit Sump 3 Discharge106	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge107	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge108	In Pit Sump 4 Discharge109	Process Plant and Crusher Area Temporary Sediment Ponds (South Runoff Pond) Discharge110	In Pit Sump 4 Discharge111	In Pit Sump 4 Discharge112	In Pit Sump 3 Discharge113	In Pit Sump 4 Discharge114
2	Discharge Coordinates (UTM	15U 424982E 5409309N	15U 424982E 5409309N	15U 426327E 5410357N	15U 426327E 5410357N	15U 425836E 5409205N	15U 426327E 5410357N	15U 425836E 5409205N	15U 425836E 5409205N	15U 424982E 5409309N	
3	Date Sampled	07-Dec-16	07-Dec-16	11-Dec-16	11-Dec-16	11-Dec-16	12-Dec-16	12-Dec-16	12-Dec-16	20-Dec-16	29-Dec-16
38	T. Mercury (Hg)	0.000002	0.000002	0.000002	0.000002	0.000026	**0.000002**	0.000002	0.000002	0.000002	0.000002
39	T. Molybdenum (Mo)	0.0204	0.0208	0.0084	0.00516	0.0223	0.00724	0.0223	0.0226	0.0238	0.0197
40	T. Nickel (Ni)	0.0039	0.0039	0.0032	0.0026	0.0052	0.0029	0.0051	0.0053	0.0055	0.007
41	T. Phosphorus (P)										
42	T. Potassium (K)	11.1	11.6	5.69	5.14	14.6	5.48	14.1	14	14	12.7
43	T. Selenium (Se)	0.0006	0.0006	0.0014	0.0008	0.0006	0.0012	0.0006	0.0006	0.0006	0.0006
44	T. Silver (Ag)	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001
45	T. Sodium (Na)	39.3	39.7	13.2	8.34	44.8	11.5	45.3	44.6	48.8	47.2
46	T. Strontium (Sr)	0.651	0.666	0.221	0.168	0.699	0.204	0.715	0.711	0.827	0.762
47	T. Tellurium (Te)	0.00017	0.00016	0.00004	0.00002	0.00008	0.00004	0.0001	0.00013	0.0001	0.00009
48	T. Thallium (Tl)	0.000024	0.000024	0.000012	0.00001	0.000024	0.000010	0.000022	0.000022	0.000028	0.00003
49	T. Tin (Sn)	0.00002	0.00002	0.00004	0.00002	0.00002	0.00002	0.00004	0.00002	0.00002	0.00004
50	T. Titanium (Ti)	0.00285	0.0027	0.0077	0.0044	0.003	0.00795	0.0012	0.00235	0.0019	0.0091
51	T. Tungsten (W)	0.00083	0.00084	0.00007	0.00006	0.00087	0.00006	0.0008	0.0008	0.00105	0.00087
52	T. Uranium (U)	0.00152	0.00152	0.0142	0.00802	0.0013	0.0104	0.00109	0.0011	0.00176	0.00152
53	T. Vanadium (V)	0.00085	0.0009	0.0013	0.00105	0.00085	0.00130	0.00075	0.0008	0.00105	0.00115
54	T. Zinc (Zn)	0.0105	0.011	0.0225	0.0225	0.013	0.0225	0.025	0.016	0.015	0.02
55	T. Zirconium (Zr)	0.00016	0.00018	0.00034	0.00058	0.00016	0.00048	0.0001	0.00012	0.00016	0.00026
56	D. Aluminum (Al)	0.004	0.008	0.004	0.003	0.004	0.015	0.003	0.004	0.003	0.001
57	D. Antimony (Sb)	0.0196	0.019	0.00051	0.00033	0.0216	0.00042	0.0222	0.021	0.0249	0.027
58	D. Arsenic (As)	0.00301	0.00273	0.00092	0.00092	0.00232	0.00088	0.0023	0.00231	0.00273	0.00224
59	D. Barium (Ba)	0.0316	0.0314	0.0608	0.0566	0.0333	0.0575	0.0315	0.032	0.0413	0.0232
60	D. Beryllium (Be)	0.00001	0.00001	0.00001	0.00001	0.00001	**0.00001**	0.00001	0.00001	0.00001	0.00001
61	D. Bismuth (Bi)	0.00002	0.00002	0.00002	0.00002	0.00002	**0.00002**	0.00002	0.00002	0.00002	0.00002
62	D. Boron (B)	0.138	0.14	0.127	0.089	0.144	0.113	0.15	0.149	0.182	0.152
63	D. Cadmium (Cd)	0.000015	0.000015	0.00001	0.00001	0.000015	0.000010	0.00002	0.00002	0.000015	0.000015
64	D. Calcium (Ca)	83.2	86.1	67.6	62.3	99	68.3	98.6	98.3	110	105
65	D. Chromium (Cr)	0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001
66	D. Cobalt (Co)	0.0004	0.00042	0.00017	0.00013	0.00051	0.00014	0.0005	0.00051	0.00051	0.0005
67	D. Copper (Cu)	0.0015	0.0023	0.0046	0.0052	0.0008	0.0045	0.0007	0.0007	0.0011	0.0002
68	D. Iron (Fe)	0.01	0.01	0.01	0.01	0.01	**0.01**	0.01	0.01	0.01	0.02
69	D. Lead (Pb)	0.00004	0.00008	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
70	D. Lithium (Li)	0.0438	0.044	0.0284	0.0274	0.0508	0.0276	0.0508	0.0506	0.0536	0.0552
71	D. Magnesium (Mg)	43.6	42.5	31.6	28.4	44.8	31.8	45.5	45.7	49.2	45.7
72	D. Manganese (Mn)	0.0793	0.0772	0.0141	0.0067	0.112	0.0119	0.111	0.111	0.11	0.126
73	D. Mercury (Hg)	0.000002	0.000002	0.000002	0.000002	0.000002	**0.000002**	0.000002	0.000002	0.000002	0.000002
74	D. Molybdenum (Mo)	0.0196	0.0194	0.0077	0.00496	0.0208	0.00688	0.0218	0.0214	0.0218	0.0178
75	D. Nickel (Ni)	0.0039	0.0039	0.0025	0.0023	0.0048	0.0026	0.0051	0.0051	0.0054	0.0063
76	D. Potassium (K)	11.5	11.3	6.13	4.92	14.5	5.41	13.8	14.1	13.1	12.3
77	D. Selenium (Se)	0.0008	0.0008	0.0016	0.001	0.0006	0.0016	0.0006	0.0006	0.0006	0.0006
78	D. Silver (Ag)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
79	D. Sodium (Na)	40.4	39.8	13.3	8.32	42.5	10.8	43.9	44.8	45.4	45
80	D. Strontium (Sr)	0.633	0.649	0.215	0.166	0.691	0.204	0.701	0.697	0.778	0.729
81	D. Tellurium (Te)	0.00005	0.00005	0.00002	0.00002	0.00003	0.00002	0.00004	0.00004	0.00007	0.00003
82	D. Thallium (Tl)	0.000022	0.000022	0.000008	0.00001	0.000028	0.000008	0.000024	0.000022	0.000026	0.000028
83	D. Tin (Sn)	0.00004	0.0012	0.00002	0.00002	0.00002	0.00010	0.00002	0.00002	0.00002	0.00002
84	D. Titanium (Ti)	0.0001	0.00015	0.0001	0.0001	0.0001	0.00015	0.0001	0.00015	0.0001	0.00005
85	D. Tungsten (W)	0.00081	0.0008	0.00006	0.00007	0.00082	0.00006	0.00081	0.0008	0.00106	0.00089
86	D. Uranium (U)	0.0014	0.00141	0.0141	0.00803	0.00123	0.0100	0.00111	0.0011	0.00166	0.00147
87	D. Vanadium (V)	0.0006	0.0007	0.0006	0.0007	0.0006	0.00115	0.0006	0.0006	0.0007	0.00045
88	D. Zinc (Zn)	0.0115	0.031	0.021	0.0225	0.013	0.133	0.018	0.017	0.0165	0.019
89	D. Zirconium (Zr)	0.00006	0.00044	0.0001	0.00014	0.00006	0.00012	0.00006	0.00006	0.00008	0.00014

newgold™ Rainy River Project

May 31th 2016

Ray Boivin
Senior Environmental Officer
Ministry of Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; ray.boivin@ontario.ca

Dear Mr. Boivin,

RE; In Pit Sump 3 ECA Total Suspended Solids Exceedance

Further to the discussion on 20th May 2016 regarding a sediment release from In Pit Sump 3 on 15th April 2016 (Licensed MMER Discharge Location "In Pit Sumps"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine data entry and review, it was noted by Environmental Technician that the Total Suspended Solids for the In Pit Sump 3 discharge was 41.5 mg/L on 15th April 2016.
- These results were obtained from samples sent to ALS Environmental.

Cause

- In Pit Sump 3 was sampled on 11th April 2016 to determine if water quality objectives were met and a certified lab calculated the Total Suspended Solids to be 3.5 mg/L.
- There was no water pumped into Sump 3 between 11th April 2016 and 15th April 2016.
- There was no precipitation between 11th April 2016 and 15th April 2016.
- The discharge pump was started at 12:30 15th April 2016 and ran for approximately 12 hours.
- The sample was taken at discharge on 15th April 2016 at 13:10.
- Due to sampling occurring close to the time the discharge started, it is determined that the sample collected sediment that settled in the hose of the pump and at the intake.
- When the discharge started, this sediment laden water would have surged through the pump for a short timeframe at which point the sample was taken.

Clean Up and Recovery

- Water samples were collected at the discharge location on 15th April 2016 to quantify the water quality that was released to a vegetated wetland area surrounding the discharge location.
- It is not predicted that any sediment laden water made it to West Creek or the Pinewood River as the water has to flow through low-lying wetland grasses that would reduce the total suspended solids in the water significantly.

Preventative measures and schedule of implementation

- A treatment system for total suspended solids has been installed to treat water being pumped into Sump 3.
- Further training for the Environment Team to mitigate future exceedances discharge.

- Since the occurrence, New Gold has hired a single contractor to operate the water management pumps on site.

The In Pit Sumps are a component of the water management plan to control contact water in the Open Pit. As the Phase 1 Pit is developed, the need to dewater work areas is of high priority. Lack of training and understanding of the visual water quality expected at discharge led to no indication that the water quality was in question until the data was reviewed.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,
<Original signed by>

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

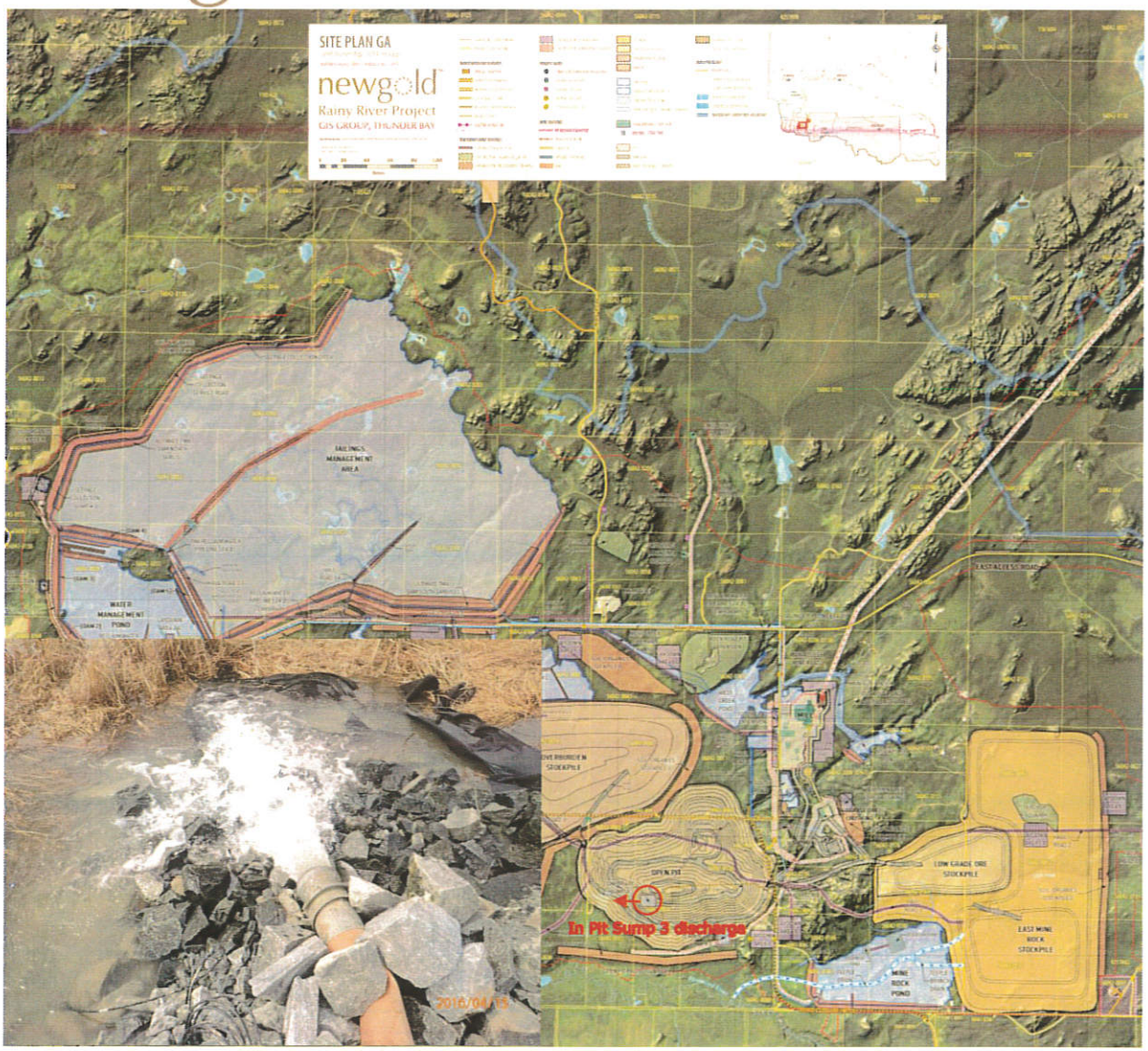

Figure 1 shows the direction and location of In Pit Sump 3 discharge and the visual effluent quality on the 15th April 2016.

newgold™ Rainy River Project

April 27th 2016

Ray Boivin
Senior Environmental Officer
Ministry of Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; ray.boivin@ontario.ca

Dear Mr. Boivin,

RE: Spill Report for SAC Reference # 5640-A97NVD,

Further to the notification to Spills Action Centre (SAC Reference #5640-A97NVD) on 19th April 2016 regarding a sediment release from the Plant Site Treatment System (Licensed MMER Discharge Location "Process Plant Site"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC) consistent with requested reporting for all notifications to SAC and in accordance with our ECA approval.

Discovery

- During routine sampling of the discharge, it was noted by Environmental Technician that the effluent was visibly turbid.
- Contact was made to the supervisor of the area and discharge was stopped immediately.
- The sediment laden water was tracked off of the discharge point to and was observed to have only travelled 75 meters over vegetation until it was no longer visibly turbid. Turbid effluent did not enter a waterbody.
- The discharge of sediment laden effluent occurred between 12:45 and 15:15 on 19th April 2016.

Cause

- The Plant Site Treatment System is designed as 12-day retention time to allow fine clay particles to settle out. The maximum input flow rate is 1,800 cubic meters per day.
- Due to multiple inputs from different work fronts, the water flow exceeded the calculated maximum flow rate allowable. This increase of flow inundated the system with sediment. Sediment laden effluent was released to a vegetated area downslope of the discharge location, and was not transported into a waterbody.

New Gold Inc., Rainy River Project
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Clean Up and Recovery

- The discharge from the polishing pond was stopped immediately.
- Water samples were collected at the discharge location to quantify the water quality that was released to a vegetated area downslope of the discharge location.
- Sampling inside of the treatment system will continue until water quality limits are met.

Preventative measures and schedule of implementation

- The treatment system for total suspended solids was re-installed. The treatment system was disconnected for the winter season.
- Increased communication to ensure pumping quantities and flows do not exceed the maximum flow to allow a 12-day retention time.
- The system is moving internally towards a single contractor operating the water management pumps on the site.

The use of the Plant Site Treatment System is a component of the water management plan to control contact water at the Plant Site. As new work fronts continue to come on board, the need to dewater work areas is of high priority. Due to the winter season, the flocculant system was disconnected from the pump lines to prevent damage. Lack of communication and understanding of the systems capabilities led to the system being overwhelmed.

The treatment system has now been re-installed and is functioning as intended to allow future water quality meet the criteria set out in the ECA approval.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,
<Original signed by>

Cailey Anderson
Environmental Specialist
New Gold – Rainy River Project
Cailey.anderson@newgold.com

newgold™ Rainy River Project

July 19th 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; ray.boivin@ontario.ca

Dear Mr. Boivin,

RE; In Pit Sumps 3 and 4 ECA Un-ionized Ammonia Exceedances

Further to the discussion on 30th June 2016 regarding an un-ionized ammonia release from In Pit Sumps 3 and 4 on 9th May 2016 and 30th May 2016, respectively (Licensed MMER Discharge Location "In Pit Sumps"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine data entry and review, it was noted by Environmental Technician that the Un-ionized Ammonia for the In Pit Sump 4 discharge was 0.526 mg/L on 30th May 2016.
- Sampling before discharge of In Pit Sump 4 occurred on 24th May 2016 and determined the Un-ionized Ammonia to be 0.001 mg/L.
- No water was pumped into In Pit Sump 4 between when the samples were taken on 24th May 2016 and when discharge began on 30th May 2016.
- An internal data audit determined that a discharge from In Pit Sump 3 also exceeded the ECA Un-ionized Ammonia limits with 0.339 mg/L on 9th May 2016 which varied from certified lab results of 0.001 mg/L,
- The certified lab was queried about the validity of the Un-ionized Ammonia results for the month of May.

Cause

- Treatment of the In Pit Sumps was determined by the Un-ionized Ammonia content calculated by an accredited lab.
- Due to the lab calculating the Un-ionized Ammonia content to be 0.001 mg/L, a limited treatment of In Pit Sump 3 and no treatment of In Pit Sump 4, occurred.
- The samples were sent to an alternate lab during these sample periods to measure Ammonia content.
- An internal calculation error between the two accredited labs calculated the Un-ionized Ammonia to be 0.001 mg/L for all samples between 3rd May 2016 and 25th May 2016.

Clean Up and Recovery

- No implication to water quality in the natural systems was noted as downstream sampling sites showed no increase in un-ionized ammonia content during surface water sampling.

- The nearest surface water sampling site, SW21A, was sampled on 18th May 2016 and 22nd June 2016 and determined an un-ionized ammonia content of 0.001 mg/L and 0.018 mg/L, respectively.

Preventative measures and schedule of implementation

- Treatment quantity will be increased to a set amount to mitigate increased Un-ionized Ammonia content.
- All In Pit Sumps will be treated once at full capacity.
- Sampling and analysis from an accredited lab will continue to occur before discharge is to take place.
- Routine data entry, review, and auditing will continue to occur for all results received from an accredited lab.

The In Pit Sumps are a component of the water management plan used to control contact water in the Mine Open Pit. As the Phase 1 Pit is developed, the need to dewater work areas is of high priority.

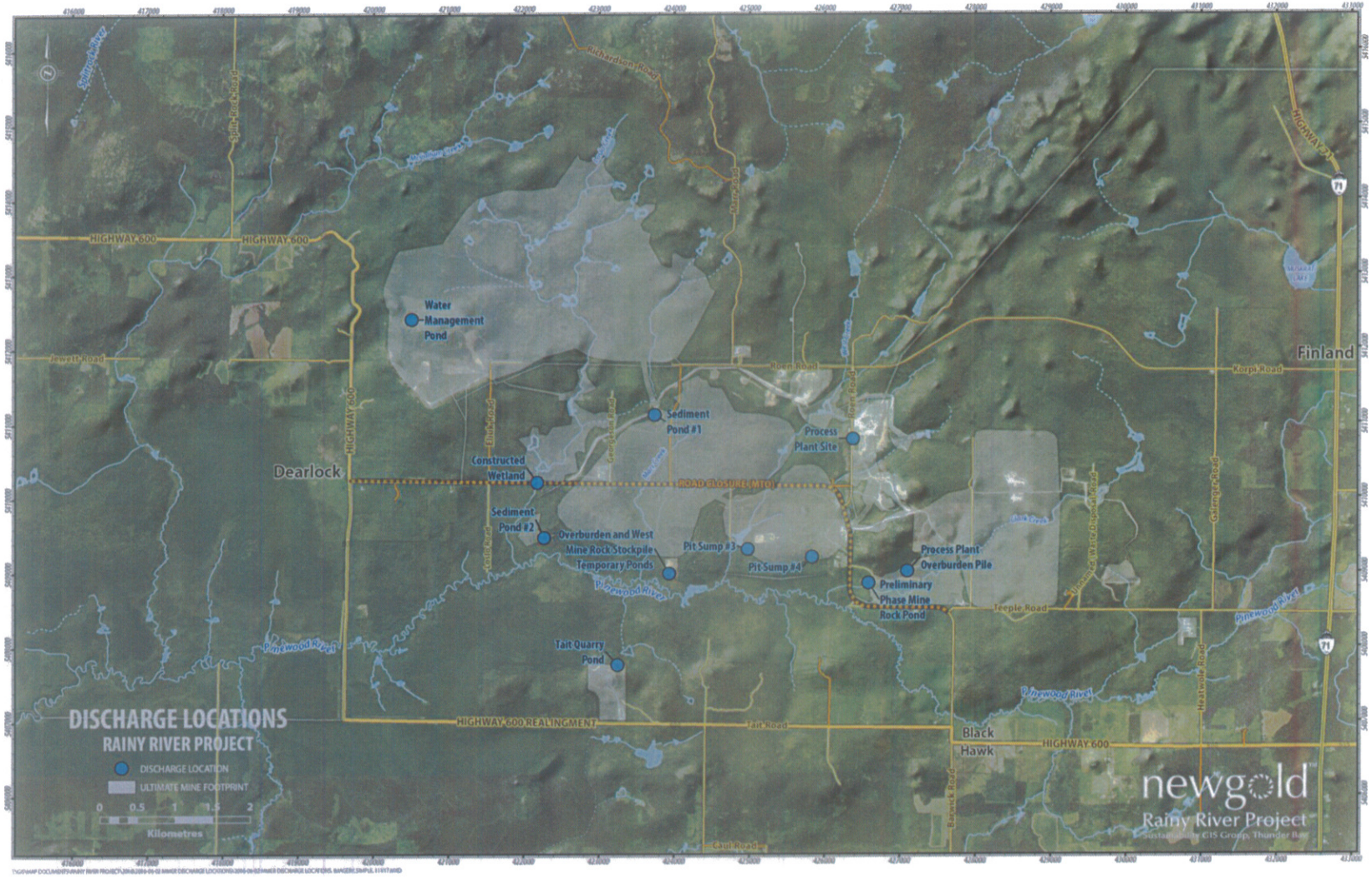
If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,

<Original signed by>

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

newgold™ Rainy River Project



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August 3, 2016

Ray Boivin
Senior Environmental Officer
Ministry of Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE; Plant Site South Runoff Pond ECA Total Suspended Solids Exceedance

Further to the notification to the Spills Action Centre (SAC) Reference #4401-AC-J3CQ, the following report is being submitted to the Ministry of Environment and Climate Change (MOECC) regarding a Total Suspended Solids exceedance from the Plant Site South Runoff Pond per ECA 5781-9VJQ2J.

Discovery

- During routine data entry, it was noted by Environmental Technician that the Total Suspended Solids was calculated to be 32.5 mg/L during a discharge of the Plant Site South Runoff Pond on 30th June 2016.
- Discharge was allowed to occur due to sampling of the water quality on 27th June 2016 where total suspended solids was calculated to be 12.5 mg/L.

Cause

- It was discovered that the Plant Site South Runoff Pond had bedrock protruding into it during construction.
- These outcrops were capped with clay to prevent weathering of the rock.
- The intake of the discharge pump was placed in the corner where the clay outcrop and wall met.
- Rainfall overnight, erosion of the walls, and inadequate missing of the sump led to elevated Total Suspended Solids levels at discharge.

Clean Up and Recovery

- There was no turbid water indicated downstream after the exceedance in West Creek. Turbidity reading was 7.3 NTU.

Preventative measures and schedule of implementation

- More flocculent treatment blocks were added to the inputs of the pond.
- The pump and intake were relocated to a more desirable location which included:
    - A gradual slope from top of bank to water level.
    - Centralized intake area that allowed for better mixing.

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The use of the Plant Site South Runoff Pond is a component of the water management plan to control contact water at the Plant Site. As new work fronts continue to come on board, the need to dewater work areas is of high priority. Due to water quality needs in the mill, the Plant Site South Runoff Pond is intended to send all contact water from the Plant Site to the mill for use.

The flocculent treatment system in use is flocculent blocks placed in passive drainage culverts along the pond. As contact water drains into the system, treatment is applied and mixed with the use of rip-rap on the downstream side.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,

<Original signed by>

on behalf

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

cc: Adam Scheepers, Fishery Inspector, Enviro Canada; adam.scheepers@canada.ca
Andrea Doherty, DFO; andrea.doherty@dfo-mpo.gc.ca

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August 4th 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE; In Pit Sump 4 ECA Un-Ionized Ammonia Exceedances

Further to the notification to the Spills Action Centre (SAC) Reference #4401-AC-J3CQ, regarding an un-ionized ammonia release from in Pit Sump 4 on June 30th 2016, respectively (Licensed MMER Discharge Location "In Pit Sumps"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine data entry and review, it was noted by Environmental Technician that the Un-Ionized Ammonia for the in Pit Sump 4 discharge was 0.211 mg/L on 30th June 2016.
- Sampling before discharge of in Pit Sump 4 occurred on 27th June 2016 and determined the Un-Ionized Ammonia to be 0.117 mg/L.
- No water was pumped into in Pit Sump 4 between when the samples were taken on 27th June 2016 and when discharge began on 30th June 2016.

Cause

- A set amount of treatment was used to reduce the amount of Un-Ionized Ammonia in Sump 4 before discharge.
- Sample taken before discharge determined the Un-Ionized Ammonia to be below the Daily Maximum limit (0.117 mg/L).
- Discharge was critical due to Open Pit requiring water storage as the floor had large amounts of pooling water.
- Atmospheric conditions were clear and sunny which increase evaporation and decrease Unionized Ammonia content.
- Treatment quantity was too small.

Clean Up and Recovery

- No implication to water quality in the natural systems was noted as downstream sampling sites showed no increase in un-ionized ammonia content during surface water sampling.
- The nearest surface water sampling site, SW21A, was sampled on 14th July 2016 and determined an un-ionized ammonia content of <0.001 mg/L.

Preventative measures and schedule of implementation

- Treatment quantity will be increased to a set amount to mitigate increasing Un-Ionized Ammonia content.
- All in Pit Sumps will be treated once at full capacity.
- Sampling and analysis from an accredited lab will continue to occur before discharge is to take place.
- Routine data entry, review, and auditing will continue to occur for all results received from an accredited lab.

The in Pit Sumps are a component of the water management plan used to control contact water in the Mine Open Pit. As the Phase 1 Pit is developed, the need to dewater work areas is of high priority.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

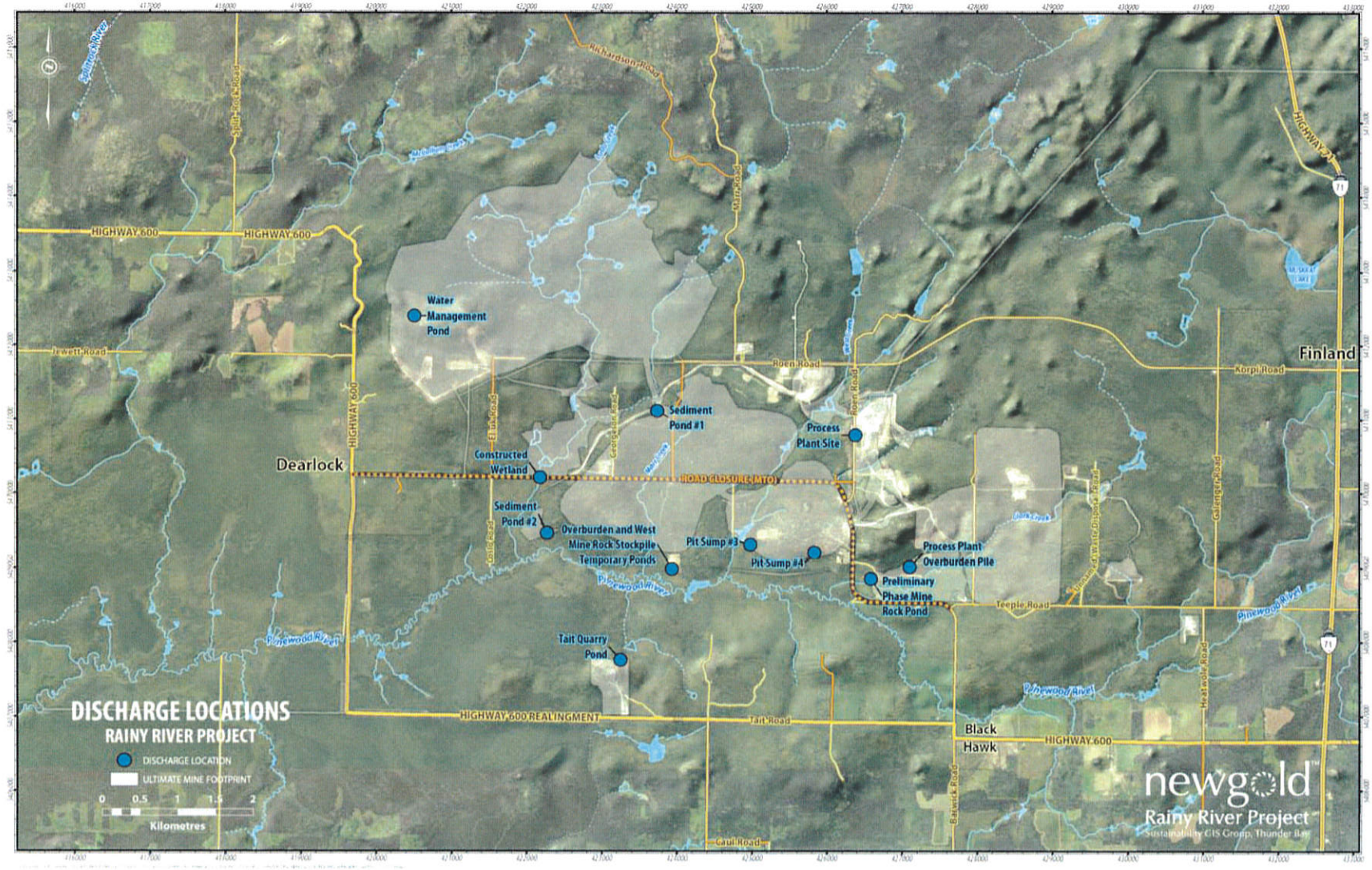
Regards,

<Original signed by>

On behalf of

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

cc: Adam Scheepers, Fishery Inspector, Enviro Canada; adam.scheepers@canada.ca
Andrea Doherty, DFO; andrea.doherty@dfo-mpo.gc.ca



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July 18th 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email: Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: Spill Report for SAC Reference #8428-AB-PHUR,

Further to the notification to the Spills Action Centre (SAC) Reference #8428-AB-PHUR regarding a sediment release into the natural environment on July 8th of 2016, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC), consistent with requested reporting notifications to SAC and in accordance with our ECA approval #5781-9VJQ2J.

Discovery

- At 2:30 am a clay plug in the lower West Creek Diversion was overwhelmed and allowed turbid water to enter Loslo Creek.
- Upon discovery, extra pumps and heavy equipment were mobilized in the early hours of July 8th to mitigate the release.
- A water sample was taken at 9:45 am at the confluence of Loslo Creek and Pinewood River and the analytical testing results from ALS labs in Thunder Bay yielded a total suspended solids level of 168 mg/L.
- The sediment plume was tracked and noted at 13:50 hours at the Pinewood River bridge. A water sample was taken and the analytical testing results from ALS labs yielded a total suspended solids level of 72 mg/L.
- The sediment plume dissipated between the Pinewood River bridge and the pump house. Background for the Pinewood River entering our site was 17 mg/L and the pump house was 41.5 mg/L at 14:30.

Cause

- Heavy rainfall of approximately 73 mm over a 3-hour period.
- The West Creek Diversion is currently under construction. A clay plug was in place to trap run-off water so it could be pumped to vegetation before entering any fish bearing waterbodies.

Clean Up and Recovery

- Additional pumps were bought to the lower West Creek Diversion to reduce the flow entering Loslo Creek.
- Sandbags were placed in the gap in the plug.
- A large rock-armored plug was built behind the sandbags.
- A spill way was built into the rock-armored plug to ensure water will leave this area in a more controlled fashion should we experience another situation where pumping capacity is overwhelmed.
- Water stopped leaving the diversion above Highway 600 at approximately 10:00 hours.
- At 16:17 hours a water sample was taken at the confluence of Loslo Creek and Pinewood River again and the analytical testing results from ALS labs yielded a total suspended solids level of 14.5 mg/L and another of Loslo Creek itself yielded 13 mg/L TSS at 16:40 hours. These samples prove our mitigation efforts were effective.

Preventative measures and schedule of implementation

- Additional pumps will remain at the lower West Creek Diversion and water levels will continue to be monitored.

In conclusion at 2:30 am the plug on the West Creek Diversion was breached and turbid water travelled as far as the Pinewood river bridge as a sediment plume. By 10:00 am turbid water was no longer entering the lower West Creek Diversion and by 16:00 hours clean water was again leaving our site from this area. Therefore, the duration of the event was approximately 13.5 hours and its highest recorded intensity was 168 mg/L of total suspended solids.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,

Nathan Baird
Environmental Technician
Nathan.Baird@newgold.com

cc: Adam Scheepers, Fishery Inspector, Enviro Canada; adam.scheepers@canada.ca
Andrea Doherty, DFO; andrea.doherty@dfo-mpo.gc.ca

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August 4th 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: In Pit Sump 4 ECA Un-Ionized Ammonia Exceedances

Further to the notification to the Spills Action Centre (SAC) Reference #4401-AC-J3CQ, regarding an un-ionized ammonia release from in Pit Sump 4 on July 20th 2016 (Licensed MMER Discharge Location "In Pit Sumps"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine data entry and review, it was noted by Environmental Technician that the Un-Ionized Ammonia for the in Pit Sump 4 discharge was 0.359 mg/L on 20th July 2016.
- Sampling before discharge of in Pit Sump 4 occurred on 15th July 2016 and determined the Un-Ionized Ammonia to be 0.019 mg/L.
- No water was pumped into in Pit Sump 4 between when the samples were taken on 15th July 2016 and when discharge began on 20th July 2016.

Cause

- A set amount of treatment was used to reduce the amount of Un-Ionized Ammonia in Sump 4 before discharge.
- Sample taken before discharge determined the Un-Ionized Ammonia to be below the Daily Maximum limit and Monthly Average limit (0.019 mg/L).
- Treatment quantity and inadequate mixing appear to be the reason for high variance in the two samples.

Clean Up and Recovery

- No implication to water quality in the natural systems was observed.

Preventative measures and schedule of implementation

- Treatment quantity will be increased to a set amount to mitigate increasing Un-Ionized Ammonia content.
- All in Pit Sumps will be treated once at full capacity.
- Sampling and analysis from an accredited lab will continue to occur before discharge is to take place.

- Routine data entry, review, and auditing will continue to occur for all results received from an accredited lab.

The in Pit Sumps are a component of the water management plan used to control contact water in the Mine Open Pit. As the Phase 1 Pit is developed, the need to dewater work areas is of high priority.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,
<Original signed by>

on behalf of

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

cc: Adam Scheepers, Fishery Inspector, Enviro Canada; adam.scheepers@canada.ca
Andrea Doherty, DFO; andrea.doherty@dfo-mpo.gc.ca

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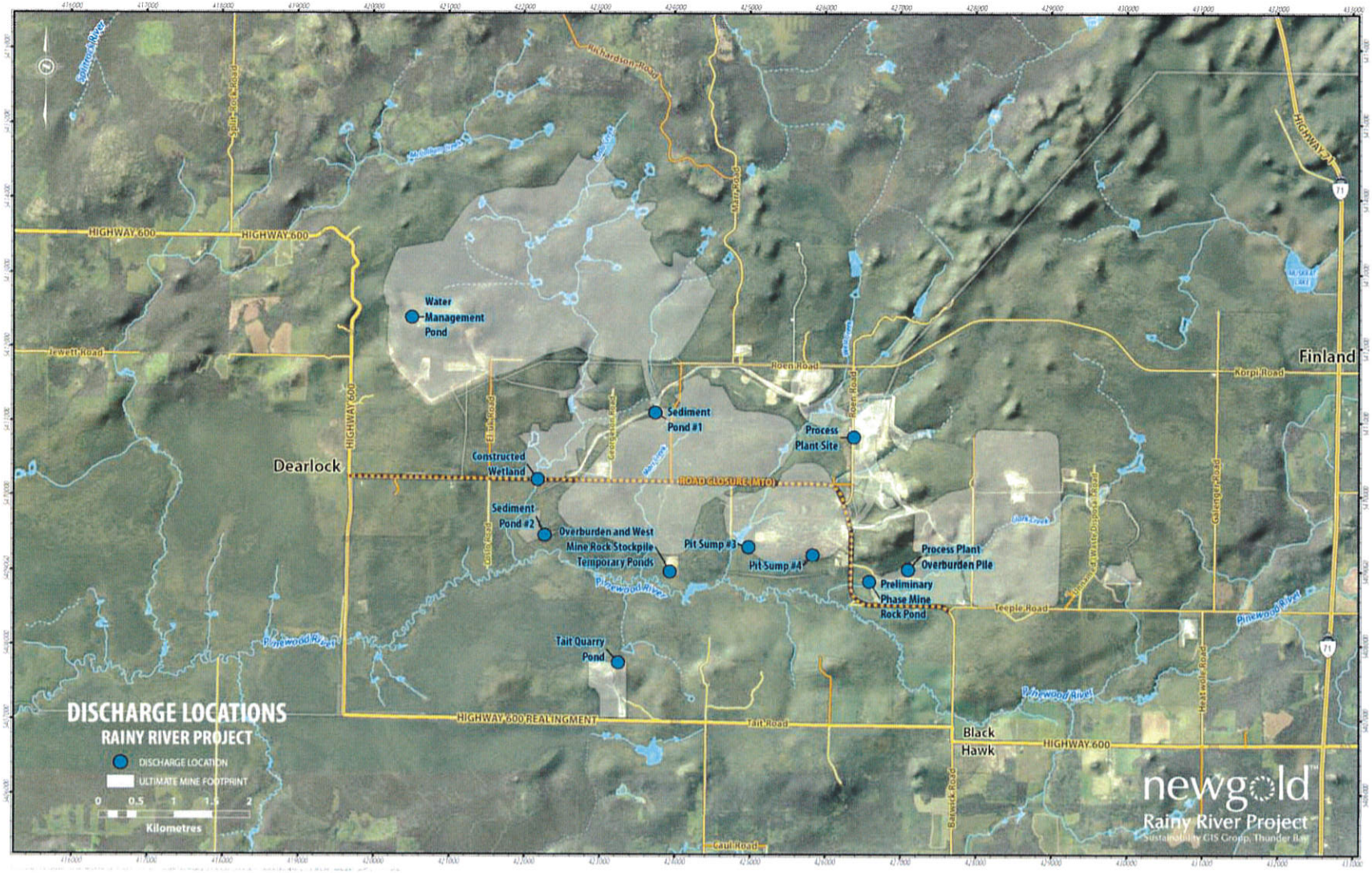

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August 11th 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: In Pit Sump 3 ECA Un-Ionized Ammonia and Total Suspended Solids Exceedances

Further to the notification to the Spills Action Centre (SAC) Reference #5722-ACGJF8, regarding an un-ionized ammonia and total suspended solids exceedance from In Pit Sump 3 on 27th July 2016 (Licensed MMER Discharge Location "In Pit Sumps"), the following report is being submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine data entry and review, it was noted by Environmental Technician that the un-ionized ammonia and total suspended solids for the In Pit Sump 3 discharge was 0.616 mg/L and 36.0 mg/L, respectively, on 27th July 2016.

Cause

- A set amount of treatment was used to reduce the amount of Un-Ionized Ammonia in In Pit Sump 3 before discharge.
- Due to the Open Pit being inundated with water, In Pit Sump 3 was discharged before the results from a certified lab were received.
- Treatment amount was insufficient. This was done under the assumption that the set amount of dry ice was sufficient for un-ionized ammonia, which was used to treat the previous batch of water that was discharged on 15th July 2016 (un-ionized ammonia at discharge was 0.018 mg/L).
- Total suspended solids exceeded due to sand being in the samples as noted by the certified laboratory.
- During the investigation after results were received, it was stated by the contactor responsible for pumping that the water being pumped to In Pit Sump 3 was from an area located beside a recently blasted zone.

Clean Up and Recovery

- No implication to water quality in the natural systems was detected.
- Downstream samples in the Pinewood River were taken at SW22A and SW3 on 30th July 2016 where the un-ionized ammonia content was calculated to be 0.001 mg/L for both sites.
- The elevated total suspended solids would have had a limited impact downstream as the water must travel through approximately 200 m of vegetation before it reaches a sensitive receptor.

Preventative measures and schedule of implementation

- Treatment quantity will be increased to a set amount to mitigate increasing Un-Ionized Ammonia content.
- All in Pit Sumps will be treated once at full capacity.
- Sampling and analysis from an accredited lab will continue to occur before discharge is to take place and water is not to be discharged until water quality guidelines, set out in the ECA, are met.
- Water is cycled by pumping water from one corner of the sump to the other. The discharge is released into flocculant blocks to help with total suspended solids and to assist with mixing treatment into the sump.
- A sprinkler system is set up to discharge over the water surface to assist with evaporation.
- Water is to be used for dust suppression site wide. Two water towers have been installed to allow filling of all water trucks on site, New Gold or other contractors. One water tower is mobile to allow it to travel around site to be utilized when other issues arise with water quality for other water management sumps.
- Further research is being done to find a more efficient treatment solution for high ammonia content.
- Routine data entry, review, and auditing will continue to occur for all results received from an accredited lab.

The in Pit Sumps are a component of the water management plan used to control contact water in the Mine Open Pit. As the Phase 1 Pit is developed, the need to dewater work areas is of high priority.

If you have any questions regarding the spill report or construction activity, please contact the undersigned.

Regards,
<Original signed by>

Garnet Cornell
Environmental Technician
garnet.cornell@newgold.com

cc: Adam Scheepers, Fishery Inspector, Enviro Canada; adam.scheepers@canada.ca
Andrea Doherty, DFO; andrea.doherty@dfo-mpo.gc.ca

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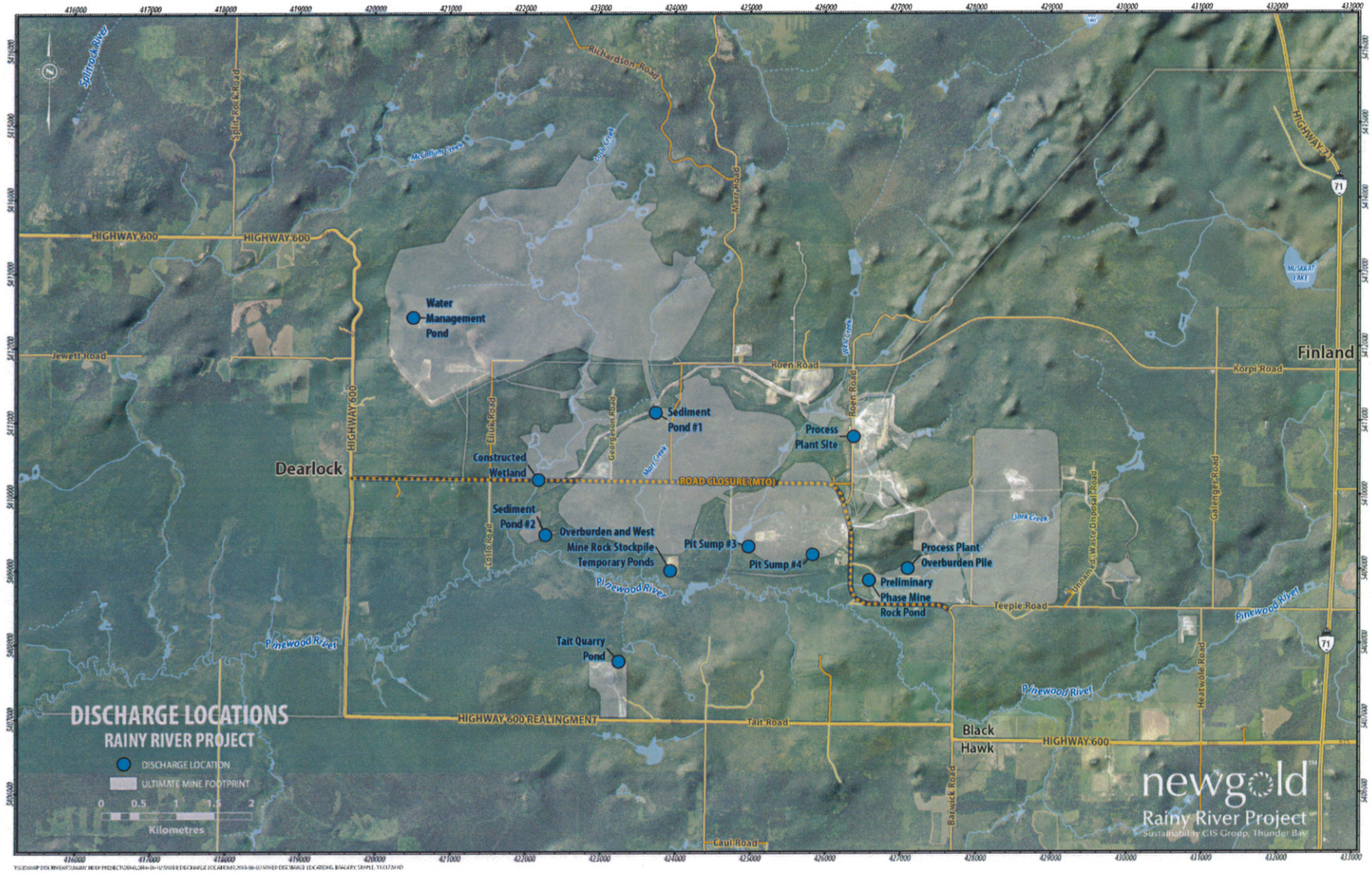

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October 15, 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email: Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: Spill Report for SAC Reference #7417-AELPGC,

Further to the notification to the Spills Action Centre (SAC) Reference #7417-AELPGC regarding a Total Suspended Solids (TSS) exceedance from a mine effluent discharge into the natural environment on October 8th of 2016, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC), consistent with requested reporting notifications to SAC and in accordance with our ECA approval #5781-9VJQ2J.

Discovery

- During routine monitoring of ALS WEBTRIEVE™ on October 10th, 2016 a Newgold Environmental Technician noted a TSS exceedance of 3 mg/l over our daily discharge limit of 30 mg/l from West Mine Rock Stockpile Sump 2 sampled on October 8th, 2016 totaling a discharge of 33mg/l TSS.
- SAC was called immediately upon discovery.
- The reporting Technician began an internal investigation as they were not directly involved in gathering this sample.

Cause

- The inspection of West Mine Rock Stockpile Sump 2 revealed that the dewatering pump being used had lost its floatation device on the intake foot valve.
- Insufficient floatation of the dewatering pump intake foot valve allowed the intake foot valve to come to rest on the bottom of the sump, this allowed sediment to be introduced to the discharge as the water level in the sump receded.

Clean Up and Recovery

- Upon discovery and after SAC was called the reporting Technician took an NTU reading upstream and downstream of the discharge location in an attempt to identify any lingering affect.
- The upstream location at UTM NAD83 Zone 15U E431006 N5407717 had an NTU of 7.3, the downstream location at UTM NAD83 Zone 15U E419596 N5408080 had an NTU of 4.2. this

allows us to conclude, at that time no measurable effects were present in the Pinewood River and the TSS may not have reached the natural environment.

- The discharge location is approximately 100m from the Pinewood River. Therefore, the existing vegetation should have sufficiently removed sediment.
- Because the discharge was completed before this exceedance was discovered no clean up or recovery efforts could be made.

Preventative measures and schedule of implementation

- All dewatering pump intake foot valves will be inspected prior to and during discharge by dewatering crews and Environmental staff to ensure intake foot valves have proper floatation.
- Dewatering crews will be required to ensure pumping has creased before intake foot valves are at risk of contacting the bottom of the sump and introducing sediment.
- New Gold will be reviewing the current use of intake foot valves site wide and determining if improvements are nececssary.

Further Information and Comment

Water Quality Results prior to discharge:

Four samples were taken October 6th one in each corner of the West Mine Rock Stockpile Sump 2 between 8:15 and 8:45, TSS ranged from 7.5 mg/L to 9.0 mg/L

The discharge began on October 7th 15:30 and stopped on October 9th at 15:45.
The estimated volume released was 1,615,403 litres.

Water Quality Results at discharge:

Sample taken October 7th at 16:46 had TSS of 6.5 mg/L
Sample taken October 8th at 07:10 had TSS of 33.0 mg/L

If you have any questions regarding the spill report, please contact the undersigned.

Regards,
<Original signed by>

Nathan Baird
Environmental Technician
Nathan.Baird@newgold.com
M: 1-807-271-3190

CC: Andrea Doherty (DFO), Dan Mcdonell (EC), Shawn Michajluk (EC), Karli Allen (MNRF).

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November 30, 2016

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email: Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: Spill Report for SAC Reference #6347-AG4JZH,

Further to the notification to the Spills Action Centre (SAC) Reference #6347-AG4JZH regarding a Total Suspended Solids (TSS) exceedance from a mine effluent discharge into the natural environment on November 27th of 2016, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC), consistent with requested reporting notifications to SAC and in accordance with our ECA approval #5781-9VJQ2J.

Discovery

- During routine monitoring of ALS WEBTRIEVE™ on November 27th, 2016 a New Gold Environmental Technician noted the Plant Site Polishing Pond discharge from November 23, 2016 has a calculated TSS value of 46 mg/L.
- SAC was called immediately upon discovery.
- The reporting Technician contacted ALS laboratory in Thunder Bay and requested a re-run of the sample.

Cause

- Between when the pre-discharge sample was taken and when discharge took place, ice formed on the surface of the Plant Site Polishing Pond. Rainfall/snow melt deposited sediment on the surface of this ice during discharge. It was also noted during the investigation that there was a high amount of construction activity directly East of the pond before and during discharge.
- As the discharge lowered the water level in the pond the receding sediment laden ice caused the sediment to mobilize and report to the intake of the pump.
- During sampling, the discharge was noted to be surging, indicating that the intake may be drawing air and close to the end of the discharge. It is possible that sediment could have entered the discharge in this manner.

Clean Up and Recovery

- Discharge sample test results where received after discharge was complete.
- Routine monitoring of the closest receiving water body (West Creek) had a turbidity of 2.2 NTU on the day the exceeding sample was taken. The discharge itself had a turbidity of 10.4 NTU. Due to the large size of the total suspended solids observed in the certified lab, it is unlikely that the sediment made it to the nearest waterbody.
- The discharge point is an estimated 700 meters overland from the nearest receiving water body which is West Creek. The water then travels approximately 2.5 kilometers and reports to the Pinewood River.
- A fish salvage program was performed in West Creek within the last month and deemed complete before the time of discharge.
- No clean up or recovery was or could have been attempted for the above mentioned reasons.
- However, an acute toxicity test was taken with this discharge and will determine if it would have been toxic to fish.

Preventative measures and schedule of implementation

- Better communication between sampling staff and those responsible for the logistics of dewatering efforts needs to occur to ensure a reprehensive sample can be taken.
- To prevent ice buildup on ponds and the possible mobilization of sediment in relation to ice, we are exploring options such as bubblers and agitators.
- Currently all water being discharged from the plant site has been diverted to the South Pond where it will be tested to ensure it meets water quality objectives and discharged to the environment in a manner that is free from the influence of ice.

Further Information and Comment

Water Quality Results prior to discharge:

Sample taken November 17th at 10:20 had a TSS of 8 mg/L

The discharge began on November 22nd at 1700 and stopped on November 23rd at 1730.
The estimated volume released was 4,000,000 litres.

Water Quality Results at discharge:

Sample taken November 23rd at 10:35 had TSS of 46 mg/L.

Discharge water was tested at the time of sampling for turbidly with a field meter and revealed a turbidity of 10.4 NTU and no visual indication of high TSS was noted at this time. The discharge line did begin to surge before sampling was complete but the field turbidity was within acceptable limits, no change in water color occurred, and no concerns were raised at the time of sampling. A turbidity reading was taken during the day of this discharge as part of our regular monitoring at the receiving water body, West Creek, indicating a turbidity of 2.2 NTU. Upon discovering the laboratory result of 46 mg/L of TSS the lab was asked to re-run the test to check for a lab error. The results of the re-run confirmed the original results,

however the photos of the sample bottles and filters used in the test show large granular particulate which would have dropped out of the discharge flow quickly after entering the environment (see attached photos). Therefore, this large granular particulate must have been present as a result of the intake coming into contact with the bottom of the pond and the influence of the sediment laden ice as the water level in the pond dropped.

An acute toxicity test was taken with this sample, however the test remains in process and will not be complete before this letter is due. We will make the results of this test known to you as soon as we have received them.

If you have any questions regarding the spill report, please contact the undersigned.

Regards,

<Original signed by>

Nathan Baird
Environmental Technician
Nathan.Baird@newgold.com
M: 1-807-271-3190

CC: Andrea Doherty (DFO), Dan Mcdonell (EC), Adam Scheepers (EC), Karli Allen (MNRF).

Photo 1

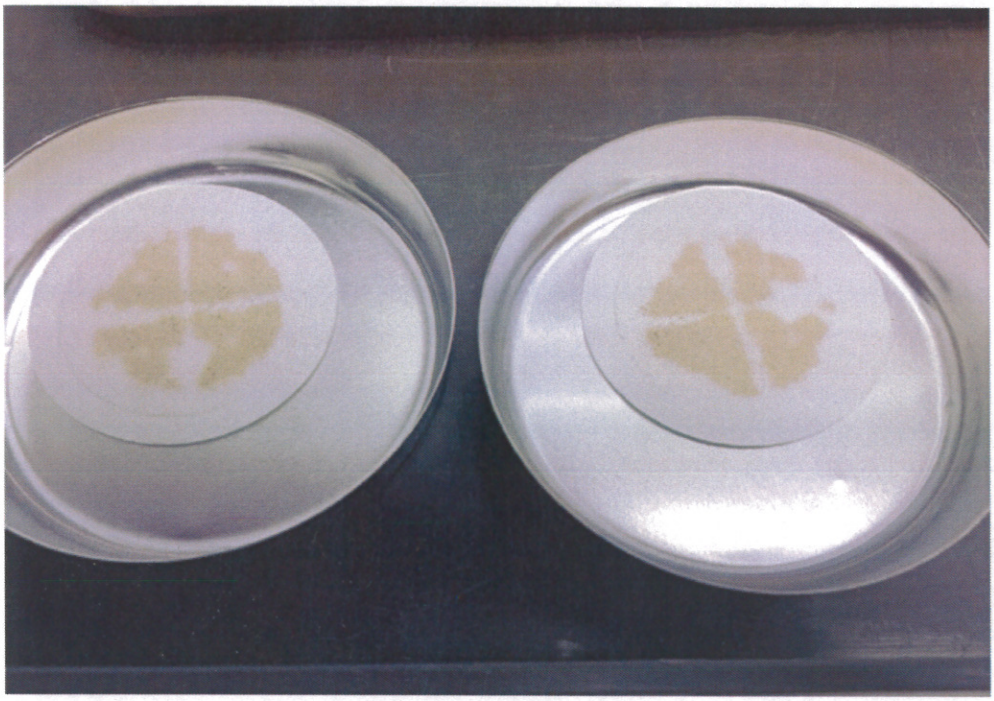

Photo 1 shows "nugget effect" from large granular particulate on glass filters used in TSS sampling.

Photo was taken after re-run test completed at ALS labs in Thunder Bay on November 28th 2016 by ALS labs staff.

Photo 2

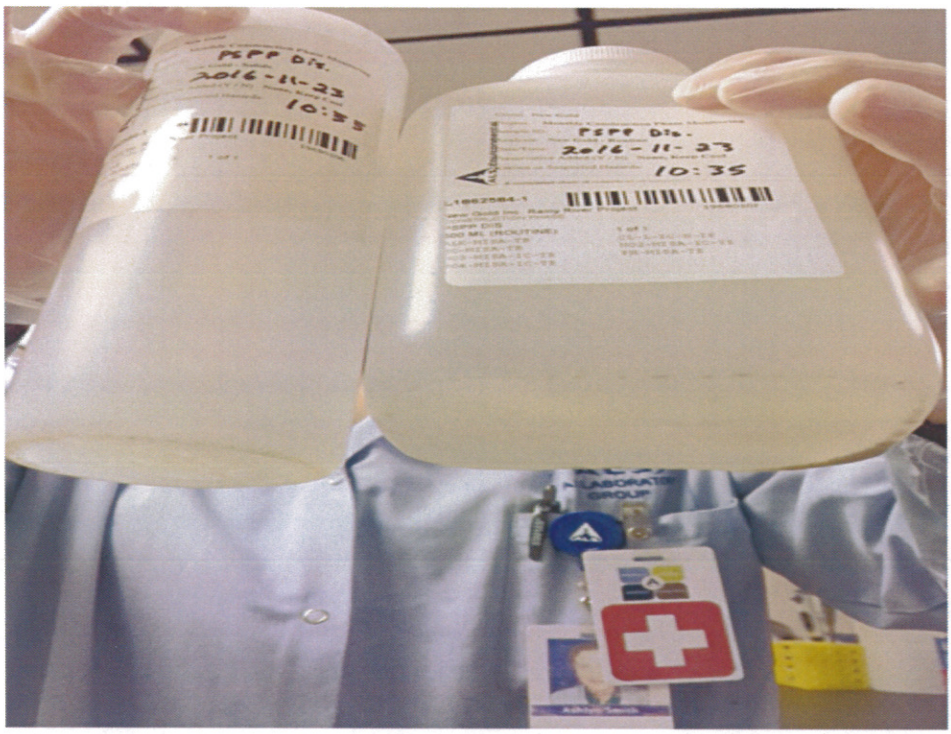

Photo 2 shows large granular particulate settled in the bottom of sample bottles.

Photo was taken after re-run test completed at ALS labs in Thunder Bay on November 28th 2016 by ALS labs staff.

newgold™ Rainy River Project

January 6th 2017

Adam Scheepers, Fishery Inspector
Environmental Enforcement Directorate
Enforcement Branch – Ontario Region
Environment Canada
335 River Rd
Ottawa, Ontario K1V 1C7
Canada

Ray Boivin, Senior Environmental Officer
Ministry of the Environment
and Climate Change
808 Robertson St.
Kenora, Ontario P9N 1X9
Canada

Dear Mr. Scheepers and Mr. Boivin,

RE: Exceedance of MMER Rainbow Trout Acute Toxicity (SAC Ref#7425-AHBTWL)

Further to the phone communication on Jan 5th 2017, regarding an exceedance of water quality in acute lethality, in water discharged from Dec 28th to Dec 30th from Sump 4 (Licensed MMER Discharge Location FDP #3), the following report is being submitted to Environment Canada.

As per the Environmental Compliance Approval (ECA #5781-9VJQ2J) the Spill Action Center was contacted on Jan 5th 2017 (SAC Ref#7425-AHBTWL).

Discovery

Prior to discharge the Sump 4 water was sampled as part of the regular procedure for temperature, dissolved oxygen, ammonia, pH and conductivity. Also as part of our regular procedure, an additional sample was sent prior to discharge for metals content. The analysis found that all the parameters were within regular range and under all limits (both Environmental Compliance Approval, MOECC and MMER) and based on the analysis the water was cleared for discharge.

Under the MMER, one sample from each licensed discharge point is required on a monthly basis and tested for acute lethality. The MMER is based off of a constant discharge model however Sump 4 (FDP#3) does not constantly discharge. To ensure conformance to the MMER requirement (1 sample per discharge location per month) sampling for acute lethality occurs for every discharge, including discharges from Sump 4.

The results of 60% mortality in rainbow trout in undiluted effluent were received on Jan 5th 2017 from samples taken on Dec 29th 2016 (this is the regular processing time for this test).

Cause

The cause of the mortality is still under investigation. The circumstances around this Sump 4 discharge differ from previous discharges in that;

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- The discharge was the first time the Baker Ammonia Treatment Unit had been used. The Baker Unit was commissioned and the water was tested for un-ionized ammonia, total suspended solids, temperature, dissolved oxygen, pH and metals. All results of the analysis indicated the water was of acceptable quality to discharge.

- Due to the holiday season, the lab that previously conducted the acute lethality tests was not available and a different lab was used.

On Going Causation Analysis

- A second set of samples were taken at approximately 3 pm on Jan 5th 2017 from the remaining water in Sump 4. Field parameters (temperature, pH, conductivity, dissolved oxygen and turbidity) were taken and were within regular operating levels and below regulatory limits.
- An additional acute lethality analysis will be conducted at the lab used regularly.
- Should the second acute lethality analysis exceed the mortality limits, a Toxicity Identification Evaluation (TIE) test will be conducted at the regular lab to identify the cause of the mortality. The sample will then also be analyzed for all the previously tested parameters.

A letter summarizing the results of the causation analysis will follow this report once the analysis is complete by Jan 20th 2017.

In the meantime, if you have any questions regarding this report of the on-going causation analysis, please contact the undersigned or Darrell Martindale (Environment Department Manager) at darrell.martindale@newgold.com.

Kind Regards,

<Original signed by>

Robyn Gaebel, P.Eng
Environmental Specialist
robyn.gaebel@newgold.com

cc: Ray Boivin, MOECC; ray.boivin@ontario.ca
Paula Spencer, MOECC; paula.spencer@ontario.ca
Gary Cooper, DFO; gary.cooper@dfo-mpo.gc.ca

newgold™ Rainy River Project

January 20th 2017

Adam Scheepers, Fishery Inspector
Environmental Enforcement Directorate
Enforcement Branch – Ontario Region
Environment Canada
335 River Rd
Ottawa, Ontario K1V 1C7
Canada

Ray Boivin, Senior Environmental Officer
Ministry of the Environment
and Climate Change
808 Robertson St.
Kenora, Ontario P9N 1X9
Canada

Dear Mr. Scheepers and Mr. Boivin,

RE: Exceedance of MMER Rainbow Trout Acute Toxicity (SAC Ref#7425-AHBTWL)

Further to the letter provided on Jan 6th 2017, regarding an exceedance of water quality in acute lethality, and causation analysis, the following report is being submitted to Environment Canada.

The sample for the second (2) acute lethality analysis was frozen in transit, making the result invalid. The analysis on sample 2 was completed however and there were no mortalities in rainbow trout or daphnia magna.

A third (3) sample for acute lethality was taken when notification of the frozen sample was received on 14th Jan 2017. Sample 3 was sent to the lab regularly used and the acute lethality analysis is ongoing. The field parameters (temperature, pH, conductivity, dissolved oxygen, unionized ammonia and turbidity) were taken and were within regular operating levels and below regulatory limits.

Should the third acute lethality analysis exceed the mortality limits, a Toxicity Identification Evaluation (TIE) test will be conducted at the regular lab to identify the cause of the mortality. The sample will then also be analyzed for all the previously tested parameters.

Another letter summarizing the results of the causation analysis will follow this report once the third analysis is complete by Feb 3rd 2017.

In the meantime, if you have any questions regarding this report of the on-going causation analysis, please contact the undersigned or Darrell Martindale (Environment Department Manager) at darrell.martindale@newgold.com.

Kind Regards,

<Original signed by>

Robyn Gaebel, P.Eng
Environmental Specialist
robyn.gaebel@newgold.com

cc:
Ray Boivin, MOECC; ray.boivin@ontario.ca
Paula Spencer, MOECC; paula.spencer@ontario.ca
Gary Cooper, DFO; gary.cooper@dfo-mpo.gc.ca

New Gold Inc., Rainy River Project
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Emo, ON P0W 1E0

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Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: February 26, 2016

Re: **Monthly Surface Water Quality Results Summary – January 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for December 2015 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July;
- Surface water sampling was conducted on January 27, 2015; and
- Construction discharge sampling for the Plant Site and Crusher Area Temporary Treatment Ponds was not conducted as no discharge took place in the month of January, 2016.
- Construction discharge sampling for In-Pit Sump 3 was not conducted as no discharge took place in the month of January, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Temporary Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was not utilized in January, 2016 due to frozen conditions therefore a discharge did not take place.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. No water was pumped to this sump due to frozen conditions and therefore no discharge took place in the month of January, 2016.

2.0 Effluent Sampling and Results

No sampling of the construction phase works occurred in January, 2016 due to frozen conditions. The sampling is to provide indication of performance of works relative to predicted performance and allow

for water treatment to be tailored based on inputs. No discharges occurred in the month of January, 2016.

3.0 Surface Water Sampling

Surface water sampling was conducted on January 27, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, SW28 and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.
- SW21 due to site inaccessibility.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO and CEQG levels except for total iron, total aluminum, turbidity, and total suspended solids at some sites in the Pinewood River, the Rainy River, Loslo Creek, and West Creek (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.
- Dissolved concentrations of zinc exceeded total concentrations in SW20. The analytical laboratory has been queried as to the cause of this irregularity and its implications to data integrity. This remains under investigation by the laboratory. Given other parameters are within guidelines/objectives there is no concern relative to surface water quality.

4.0 Non-Routine Procedures

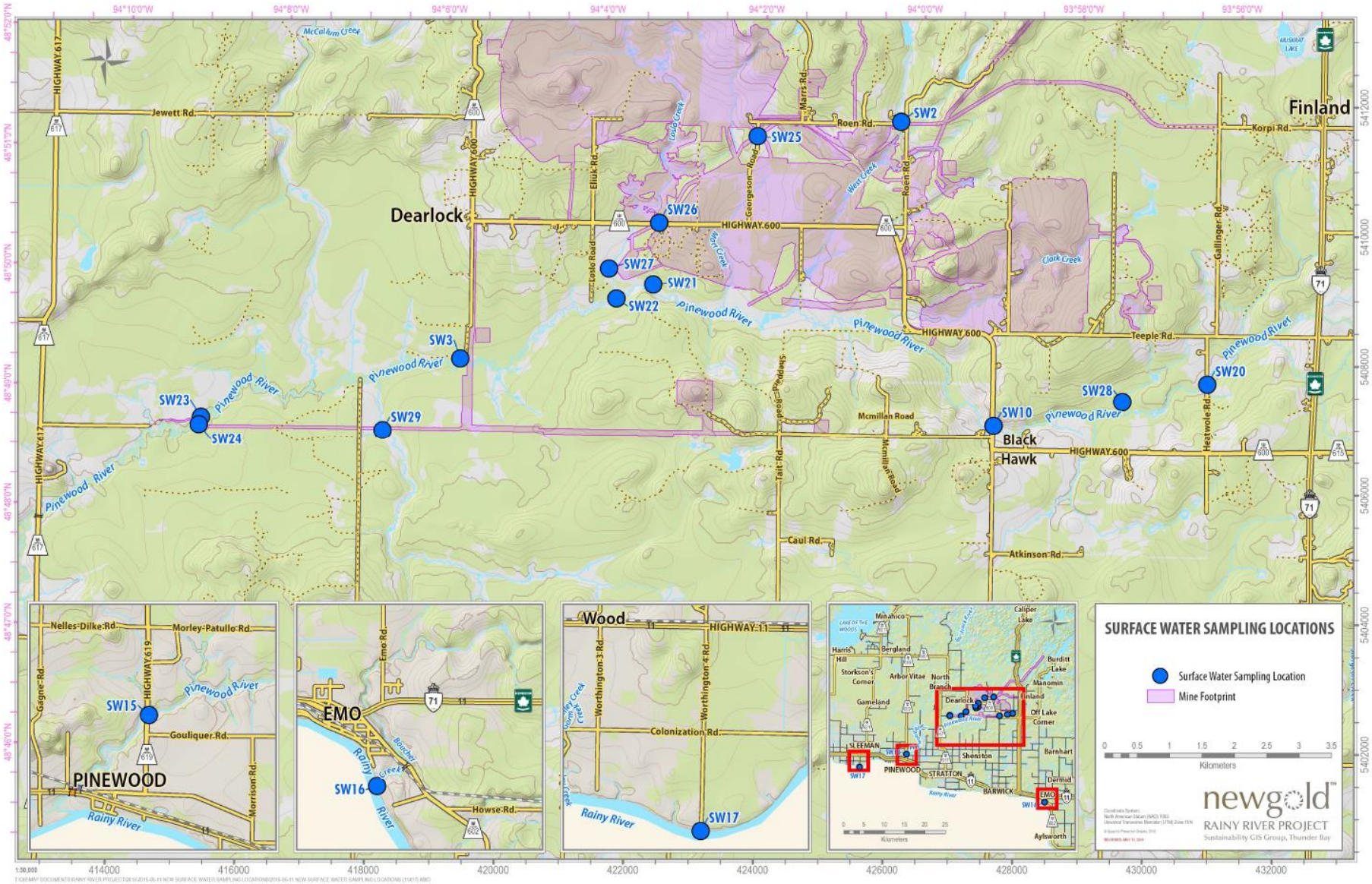
There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 2: Summary of Surface Water Sampling Results Where PWQO or CEQG Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.091	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	1.510	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Al	0.203	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW2	West Creek	T-Fe	1.010	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW3	Pinewood River	Turbidity	14.4 NTU	7.909	-	-	-	13.55	84.3	0.7	8.62
SW3	Pinewood River	T-Al	0.487	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	1.530	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.186	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	1.180	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.170	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	0.320	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.281	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	1.570	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Al	0.098	0.075	0.1	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.320	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.180	0.075	0.1	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	1.310	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.184	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-Al	0.0965	0.075	0.1	-	-	0.23	1.71	0.05	0.13


SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold™
RAINY RIVER PROJECT
Sustainability GIS Group, Thunder Bay
Dearlock
Finland
Black Hawk
Wood
EMO
PINEWOOD
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21
SW22
SW23
SW24
SW25
SW26
SW27
SW28
SW29
Pinewood River
Rainy River
HIGHWAY 600
HIGHWAY 617
HIGHWAY 11
Jewett Rd.
Roen Rd.
Korpi Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Colonization Rd.
Howse Rd.
Gouliquer Rd.
Nelles Dilke Rd.
Morley Patullo Rd.
Morrison Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
Eliuk Rd.
Tait Rd.
Hestwole Rd.
Gallinger Rd.
Gagne Rd.
McCallum Creek
Clark Creek
West Creek
Loslo Creek
Rainy River
Caliper Lake
Minahico
Harris Hill
Bergland
Storkson's Corner
Arbor Vitae
North Branch
Burditt Lake
Manomin
Gameland
Off Lake Corner
SLEEMAN
STRATTON
Shenston
Barnhart
Dermid
BARWICK
Aylsworth

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: March 28, 2016

Re: **Monthly Surface Water Quality Results Summary – February 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for February 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July;
- Surface water sampling was conducted on February 24 and 29, 2016; and
- Construction discharge sampling for the Plant Site and Crusher Area Temporary Treatment Ponds was not conducted as no discharge took place in the month of February, 2016.
- Construction discharge sampling for In-Pit Sump 3 was not conducted as no discharge took place in the month of February, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Temporary Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was not utilized in February, 2016 due to frozen conditions therefore a discharge did not take place.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. No water was pumped to this sump due to frozen conditions and therefore no discharge took place in the month of February, 2016.

2.0 Effluent Sampling and Results

No sampling of the construction phase works occurred in February, 2016 due to frozen conditions. The sampling is to provide indication of performance of works relative to predicted performance and allow

for water treatment to be tailored based on inputs. No discharges occurred in the month of February, 2016.

3.0 Surface Water Sampling

Surface water sampling was conducted on February 24 and 29, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, SW28 and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO and CEQG levels except for total iron and total aluminum at some sites in the Pinewood River, the Rainy River, Loslo Creek, and West Creek (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

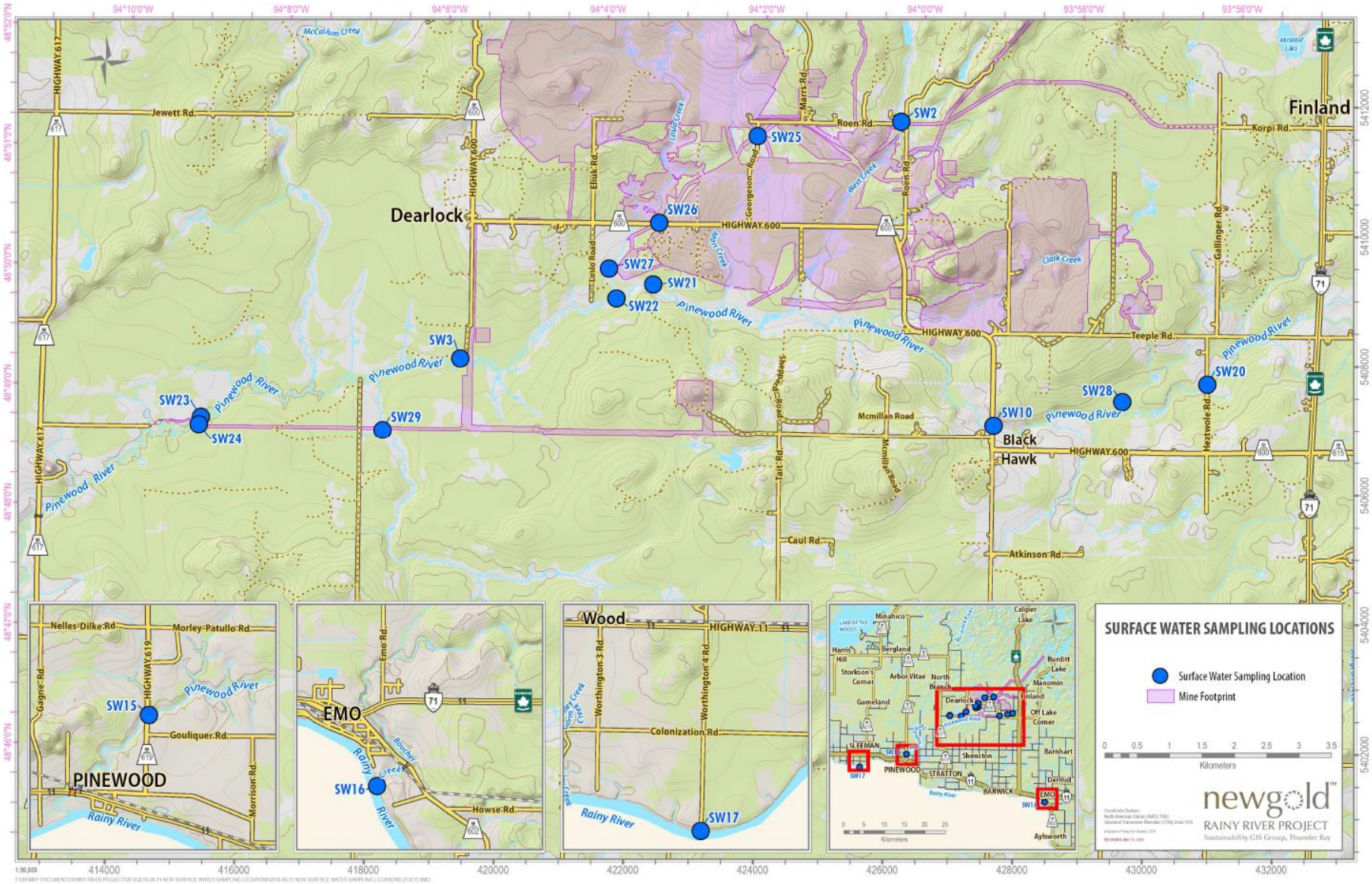
There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 2: Summary of Surface Water Sampling Results Where PWQO or CEQG Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.11	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	1.51	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Al	0.081	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW2	West Creek	T-Fe	1.14	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW3	Pinewood River	T-Al	0.511	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	2.05	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.387	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	1.88	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.146	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW20	Pinewood River	T-Al	0.305	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	1.35	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Al	0.23	0.075	0.1	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	1.48	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.193	0.075	0.1	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	1.58	0.3	0.3	-	-	-	-	-	-
SW17	Rainy River	T-Al	0.084	0.075	0.1	-	-	0.23	1.71	0.05	0.13


SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold™
RAINY RIVER PROJECT
Sustainability GIS Group, Thunder Bay
Dearlock
Finland
Black Hawk
Wood
EMO
PINEWOOD
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21
SW22
SW23
SW24
SW25
SW26
SW27
SW28
SW29
Pinewood River
Rainy River
HIGHWAY 600
HIGHWAY 617
HIGHWAY 11
Jewett Rd.
Roen Rd.
Korpi Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Colonization Rd.
Howse Rd.
Gouliquer Rd.
Nelles Dilke Rd.
Morley Patullo Rd.
Morrison Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
Eliuk Rd.
Tait Rd.
Hestwole Rd.
Gallinger Rd.
Gagne Rd.
McCallum Creek
Clark Creek
West Creek
Loslo Creek
Rainy River
Caliper Lake
Minahico
Harris Hill
Bergland
Storkson's Corner
Arbor Vitae
North Branch
Burditt Lake
Manomin
Gameland
Off Lake Corner
SLEEMAN
STRATTON
Shenston
Barnhart
Dermid
BARWICK
Aylsworth

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: May 2, 2016

Re: **Monthly Surface Water Quality Results Summary – March 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for March 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioning planned for April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015 and commissioning planned for May, 2016;
- Surface water sampling was conducted on March 23, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Temporary Treatment Ponds was conducted on March 17 and 24, 2016.
- Construction discharge sampling for In-Pit Sump 3 was not conducted as no discharge took place in the month of March, 2016.
- Construction discharge sampling from In-Pit Sump 4 was not conduscted as no discharge took place in the month of March, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Temporary Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was not utilized in March, 2016 due to system being disconnected to prevent damage over the winter season.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. No water

was pumped to this sump due to frozen conditions and therefore no discharge took place in the month of March, 2016.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. No Water was pumped from this sump due to completion occurring in the month of March, 2016.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 and part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on March 17 and 24, 2016 from the Process Plant and Crusher Area Temporary Sediment Ponds. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on March 23, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total suspended solids, total iron and total aluminum at some sites in the Pinewood River, the Rainy River, Loslo Creek, and West Creek (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

The field meter for water quality displayed incorrect numbers after the first two sites and recalibration was attempted twice. The certified lab results were used for these parameters as there was no back up field meter available as it was in for repairs at the time sampling occured.

5.0 Bypass or Upset Summary

During the day of March 21, 2016, Teeple Dam failed and released sediment into the environment. This plume of sediment travelled through Teeple Drain and was recorded at the confluence of the Teeple Drain and the Pinewood River. Monitoring continued upstream and downstream of this confluence to monitor the affect the sediment had on the natural system. Table 3 shows the results of that sampling.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

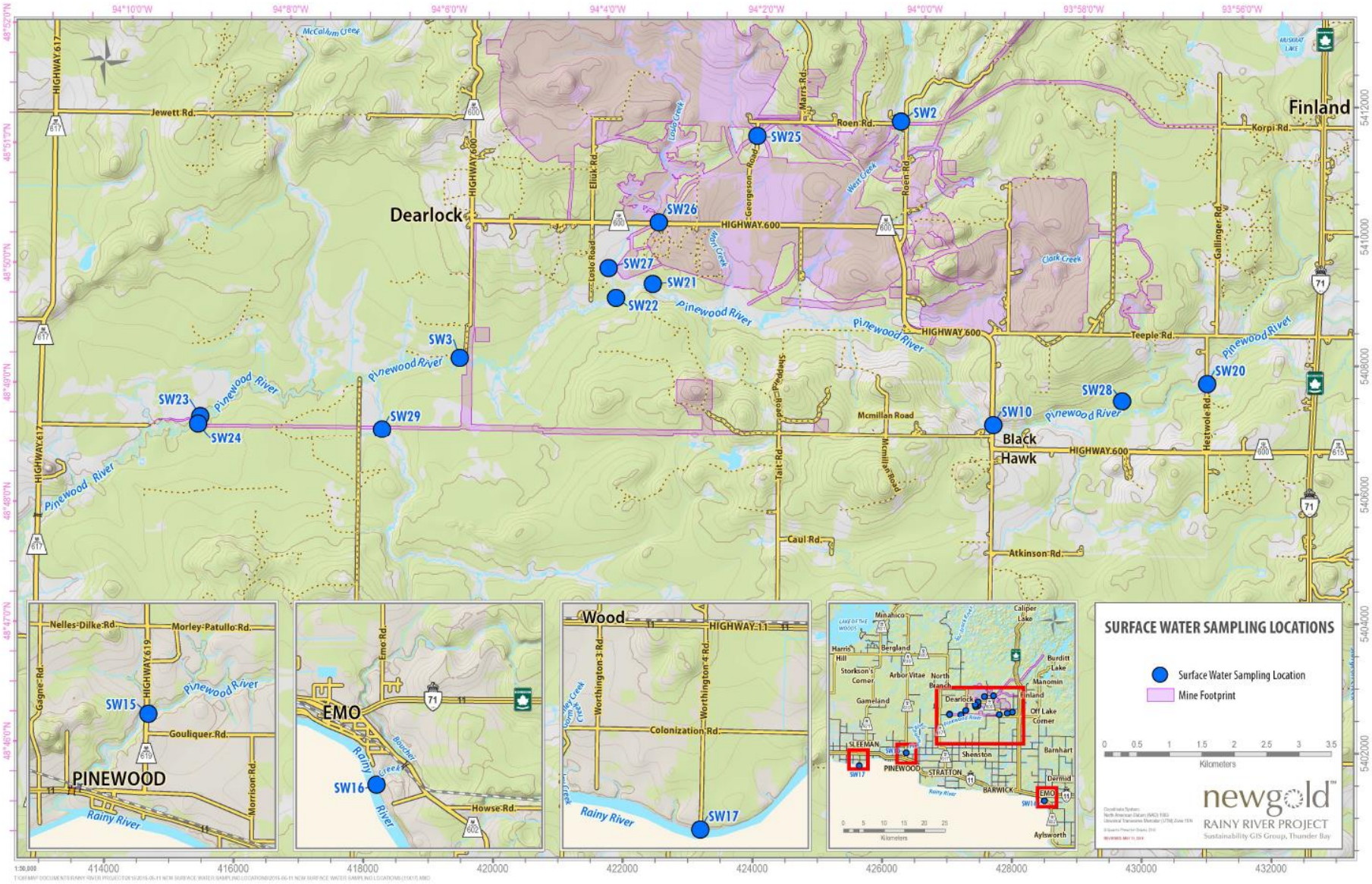
Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.175	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.35	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Al	0.17	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW3	Pinewood River	T-Al	0.465	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.64	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.579	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.66	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.564	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	0.78	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.317	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.460	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Al	0.53	0.075	0.1	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.7	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.445	0.075	0.1	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	0.62	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	TSS	25.5	-	-	15.0	-	16.51	159.00	2.00	8.00
SW16	Rainy River	T-Al	0.762	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.98	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	TSS	21	-	-	15.0	-	11.51	88.50	2.00	5.15
SW17	Rainy River	T-Al	0.084	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	1.3	0.3	0.3	-	-	0.35	1.95	0.08	

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	March 17, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	March 24, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)
Total Suspended Solids	30	15	9.0	7.4
Total Arsenic	0.034	0.017	0.0011	0.0008
Total Copper	0.028	0.014	0.0022	0.0036
Total Nickel	0.094	0.047	0.00166	0.0020
Total Lead	0.030	0.015	0.00265	0.0002
Total Zinc	0.348	0.174	0.106	0.0300
Un-ionized Ammonia	0.2	0.1	<0.001	<0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.4	6.0

Table 3: Summary of Total Suspended Solids monitoring at Teeple Drain – Pinewood River confluence

Sampling Location	March 21, 2016 Total Suspended Solids (mg/L)	March 23, 2016 Total Suspended Solids (mg/L)	March 25, 2016 Total Suspended Solids (mg/L)	March 27, 2016 Total Suspended Solids (mg/L)	March 29, 2016 Total Suspended Solids (mg/L)
Teeple Drain – Pinewood River Confluence (PWDT/Ph2)	26.0	10.5	22.5	6.0	5.5
Upstream (SW28/PR6)	7.0	5.5	2.5	3.0	4.0
Downstream (SW10/PR5)	13.5	12.5	6.0	10.0	9.0


SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold™
RAINY RIVER PROJECT
Sustainability GIS Group, Thunder Bay
Finland
Dearlock
Black Hawk
Wood
EMO
PINEWOOD
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21
SW22
SW23
SW24
SW25
SW26
SW27
SW28
SW29
Pinewood River
Rainy River
HIGHWAY 600
HIGHWAY 617
Jewett Rd.
Roen Rd.
Korpi Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Colonization Rd.
Howse Rd.
Gouliquer Rd.
Nelles-Dilke Rd.
Morley-Patullo Rd.
Morrison Rd.
Gagne Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
HIGHWAY 11
HIGHWAY 619
Minahico
Caliper Lake
Burditt Lake
Manomin
Off Lake Corner
Shenston
Barnhart
Dormid
Aylsworth
STRATTON
BARWICK
SLEEMAN
Arbor Vitae
Storkson's Corner
Gameland
Harris Hill
Bergland
North Branch

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: June 3, 2016

Re: **Monthly Surface Water Quality Results Summary – April 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for April 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015 and commissioning planned for May, 2016;
- Surface water sampling was conducted on April 18, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on April 4, 12, 19, and 29, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on April 15, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on April 29, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in April, 2016 due to elevated Total Suspended Solids.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 and part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on April 4, 12, 19, and 29, 2016 from the Process Plant and Crusher Area Sediment Ponds and on April 15 and 29, 2016 from In Pit Sumps 3 and 4, respectively. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on April 18, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.
- SW28 due to property access issues with private land owner.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total suspended solids, total iron and total aluminum at some sites in the Pinewood River, the Rainy River, Loslo Creek, and West Creek (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

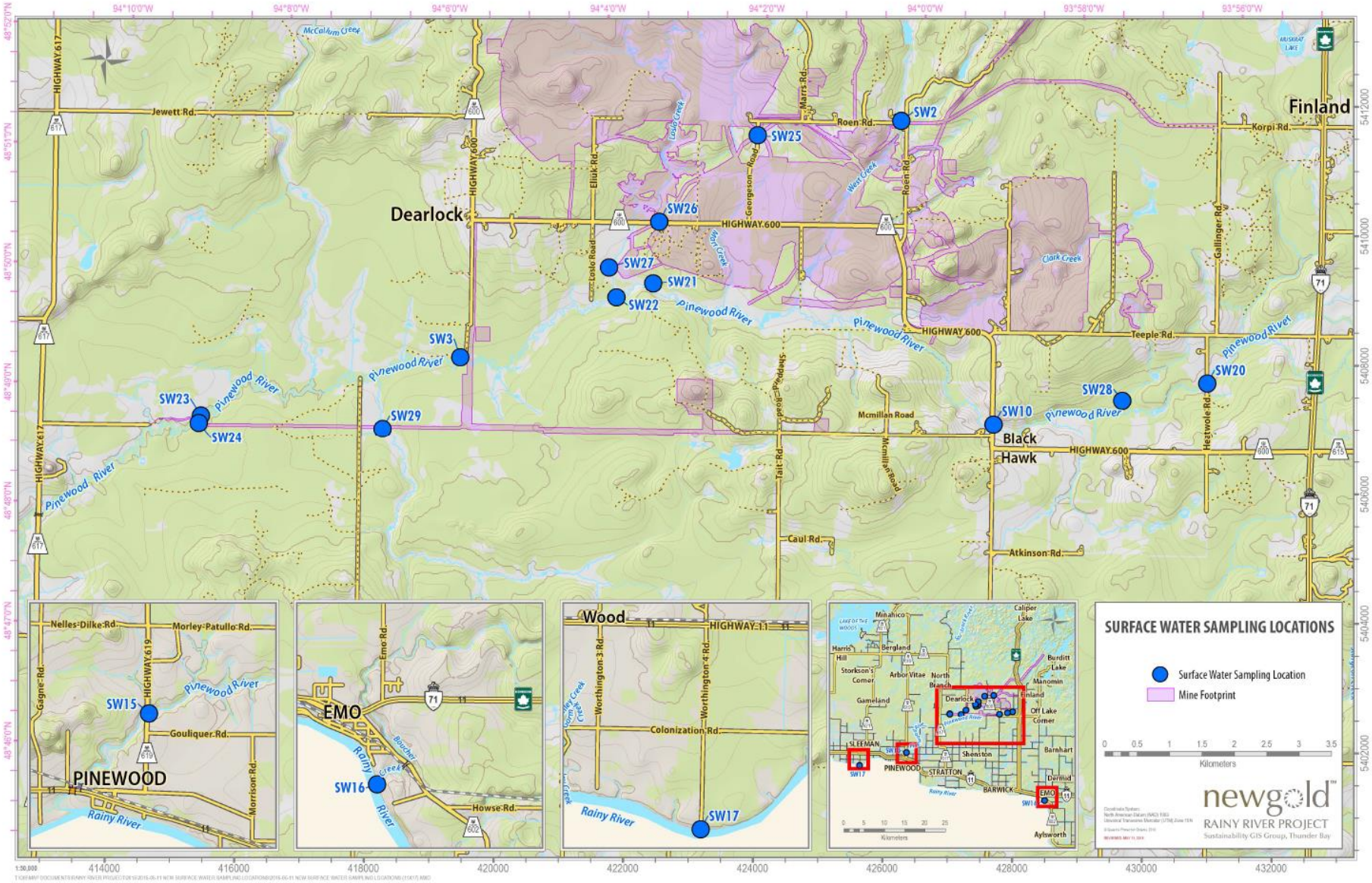
Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.111	0.075	0.1	-	-	-	-	-	-
SW2	West Creek	T-Fe	0.31	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Al	0.142	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW3	Pinewood River	T-Al	0.555	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.72	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	TSS	36.0	-	-	30	-	31.91	1340	2	7.3
SW10	Pinewood River	T-Al	0.943	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	1.17	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	TSS	54.0	-	-	30	-	24.66	243	2	12
SW15	Pinewood River	T-Al	1.93	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	2.00	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.415	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.48	0.3	0.3	-	-	-	-	-	-
SW21a	Pinewood River	T-Al	0.216	0.075	0.1	-	-	-	-	-	-
SW21a	Pinewood River	T-Fe	0.34	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.170	0.075	0.1	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.23	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.36	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-Al	0.314	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.44	0.3	0.3	-	-	0.35	1.95	0.08	

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	April 4, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	April 12, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	April 15, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	13.5	9.5	41.5
Total Arsenic	0.034	0.017	0.0009	0.0011	0.0032
Total Copper	0.028	0.014	0.0045	0.0042	0.0059
Total Nickel	0.094	0.047	0.0025	0.0028	0.0047
Total Lead	0.030	0.015	0.00033	0.00047	0.00002
Total Zinc	0.348	0.174	0.0220	0.0135	0.0755
Un-ionized Ammonia	0.2	0.1	0.001	0.001	0.018
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.12	7.59	7.48

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	April 19, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	April 29, 2016 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	April 29, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	30.5	7.5	9.5
Total Arsenic	0.034	0.017	0.0015	0.0012	0.0024
Total Copper	0.028	0.014	0.0046	0.0030	0.0017
Total Nickel	0.094	0.047	0.0033	0.0018	0.0041
Total Lead	0.030	0.015	0.00058	0.00011	0.00006
Total Zinc	0.348	0.174	0.0100	0.0040	0.0020
Un-ionized Ammonia	0.2	0.1	0.005	0.001	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.38	7.77	8.00


SW2
SW25
SW26
SW27
SW21
SW22
SW3
SW29
SW23
SW24
SW10
SW28
SW20
SW15
SW16
SW17
Dearlock
Finland
Black Hawk
PINEWOOD
EMO
Wood
HIGHWAY 600
HIGHWAY 617
Pinewood River
Rainy River
Roen Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Colonization Rd.
Gouliquer Rd.
Howse Rd.
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold
RAINY RIVER PROJECT
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: July 16, 2016

Re: **Monthly Surface Water Quality Results Summary – May 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for May 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Surface water sampling was conducted on May 18, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on May 2, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on May 9, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on May 30, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in May, 2016 due to elevated Total Suspended Solids.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 and part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on May 2, 2016 from the Process Plant and Crusher Area Sediment Ponds and on May 9 and 30, 2016 from In Pit Sumps 3 and 4, respectively. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on May 18, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron and total aluminum at some sites in the Pinewood River, the Rainy River, and Teeple Drain (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

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- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

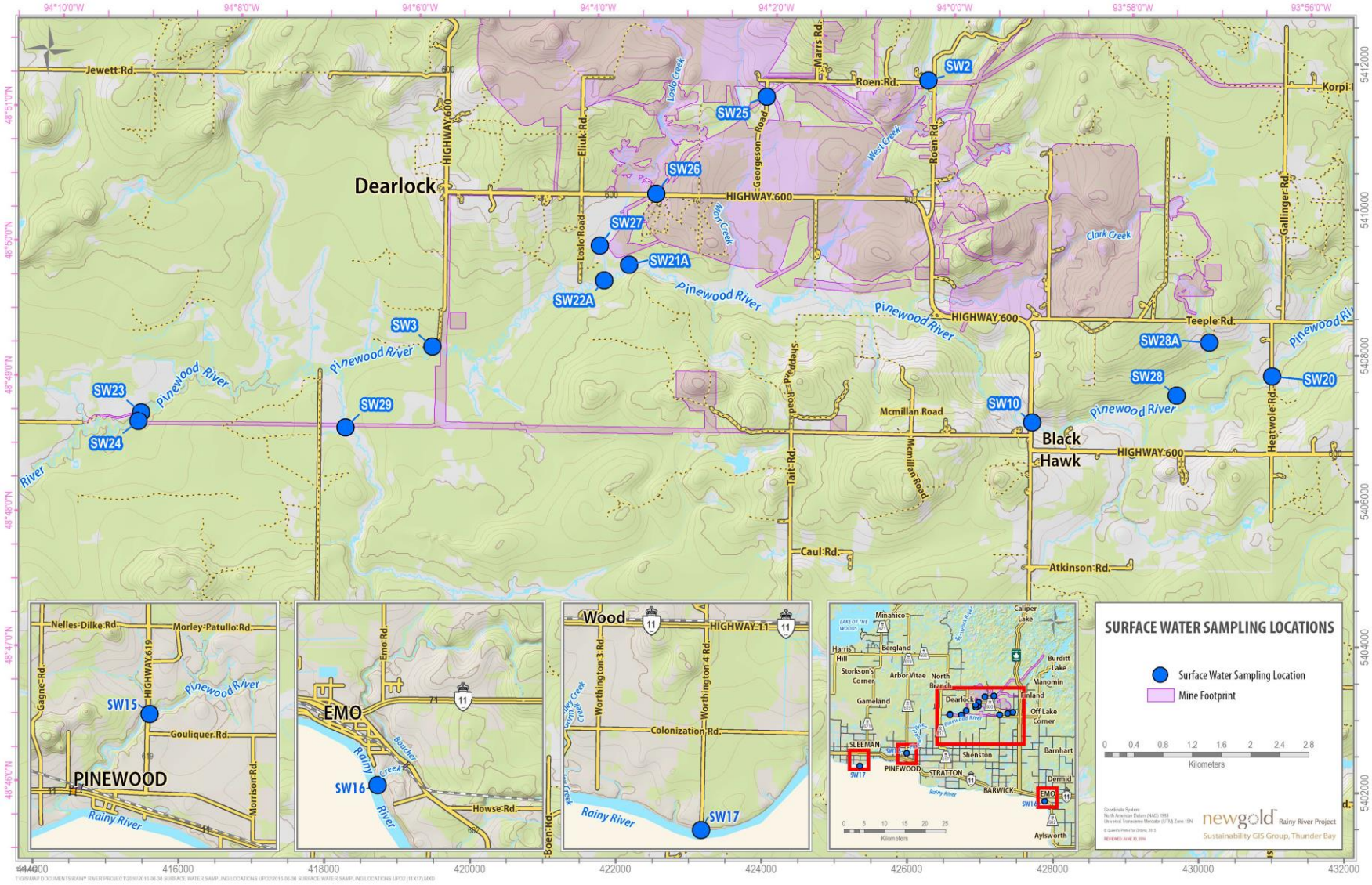
No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW28	Teeple Drain	T-Al	0.132	0.075	0.1	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.255	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.51	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.182	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.49	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.722	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.06	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW21a	Pinewood River	T-Al	0.078	0.075	0.1	-	-	-	-	-	-
SW21a	Pinewood River	T-Fe	0.35	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.109	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-Al	0.149	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.31	0.3	0.3	-	-	0.35	1.95	0.08	

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	May 2, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	May 9, 2016 In Pit Sump 3 (mg/L)	May 30, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	16.5	3.5	3.5
Total Arsenic	0.034	0.017	0.0014	0.0042	0.0034
Total Copper	0.028	0.014	0.0032	0.0010	0.001
Total Nickel	0.094	0.047	0.0020	0.0032	0.0028
Total Lead	0.030	0.015	0.00031	0.00004	0.00002
Total Zinc	0.348	0.174	0.0040	0.0035	0.002
Un-ionized Ammonia	0.2	0.1	0.002	0.339	0.526
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.03	8.49	8.64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EMO
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SW26
SW27
SW28
SW28A
SW29
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HIGHWAY 11
HIGHWAY 619
Pinewood River
Rainy River
West Creek
Clark Creek
Mart Creek
Loslo Creek
Jewett Rd.
Roen Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
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SURFACE WATER SAMPLING LOCATIONS
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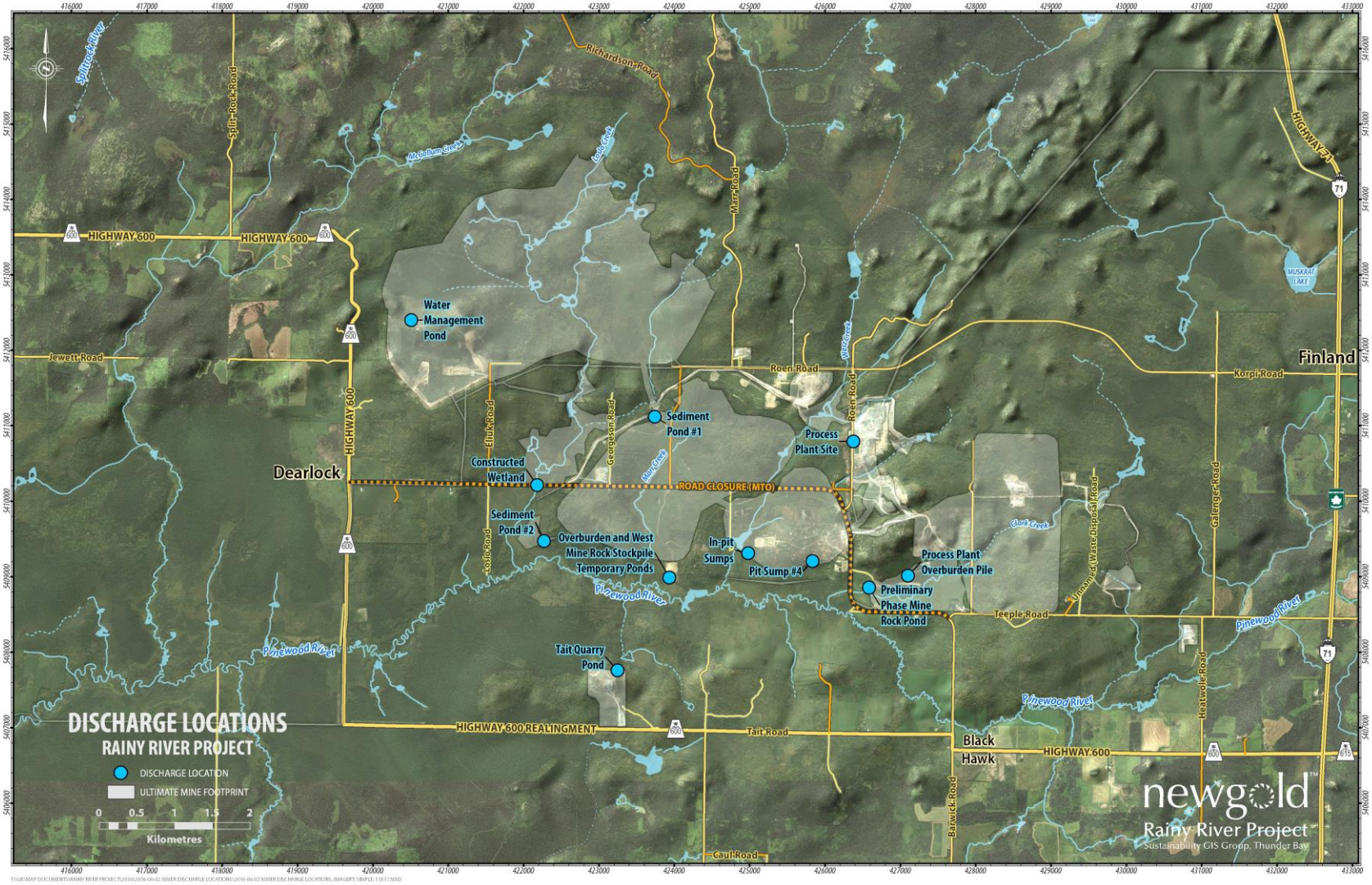

DISCHARGE LOCATIONS
RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
0 0.5 1 1.5 2
Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
ROAD CLOSURE (MTO)
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
Tait Quarry Pond
HIGHWAY 600 REALIGNMENT
Dearlock
Finland
Black Hawk
HIGHWAY 600
HIGHWAY 71
Jewett Road
Richardson Road
Korpi Road
Teeple Road
Tait Road
Caul Road
Pinewood River
Split Rock River
Barwick Road
Heatwole Road
Galenga Road
newgold
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: August 8, 2016

Re: **Monthly Surface Water Quality Results Summary – June 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for June 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Surface water sampling was conducted on June 22, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on June 30, 2016.
- Construction discharge sampling for the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was conducted on June 6, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on June 27, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on June 30, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was not utilized in June, 2016 due to equipment malfunctions.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on June 30, 2016 from the Process Plant and Crusher Area Sediment Ponds, on June 27 and 30, 2016 from In Pit Sumps 3 and 4, respectively, and on June 6, 2016 from the Mine Rock Sediment and Polishing Ponds. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on June 22, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron, total aluminum, total suspended solids, and turbidity at some sites in the Pinewood River, the Rainy River, West Creek,

Loslo Creek, and Teeple Drain (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.
- Method Blank exceeded ALS DQO for Total Aluminum. All associated sample results are at least 5 times greater than blank levels and are considered reliable.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

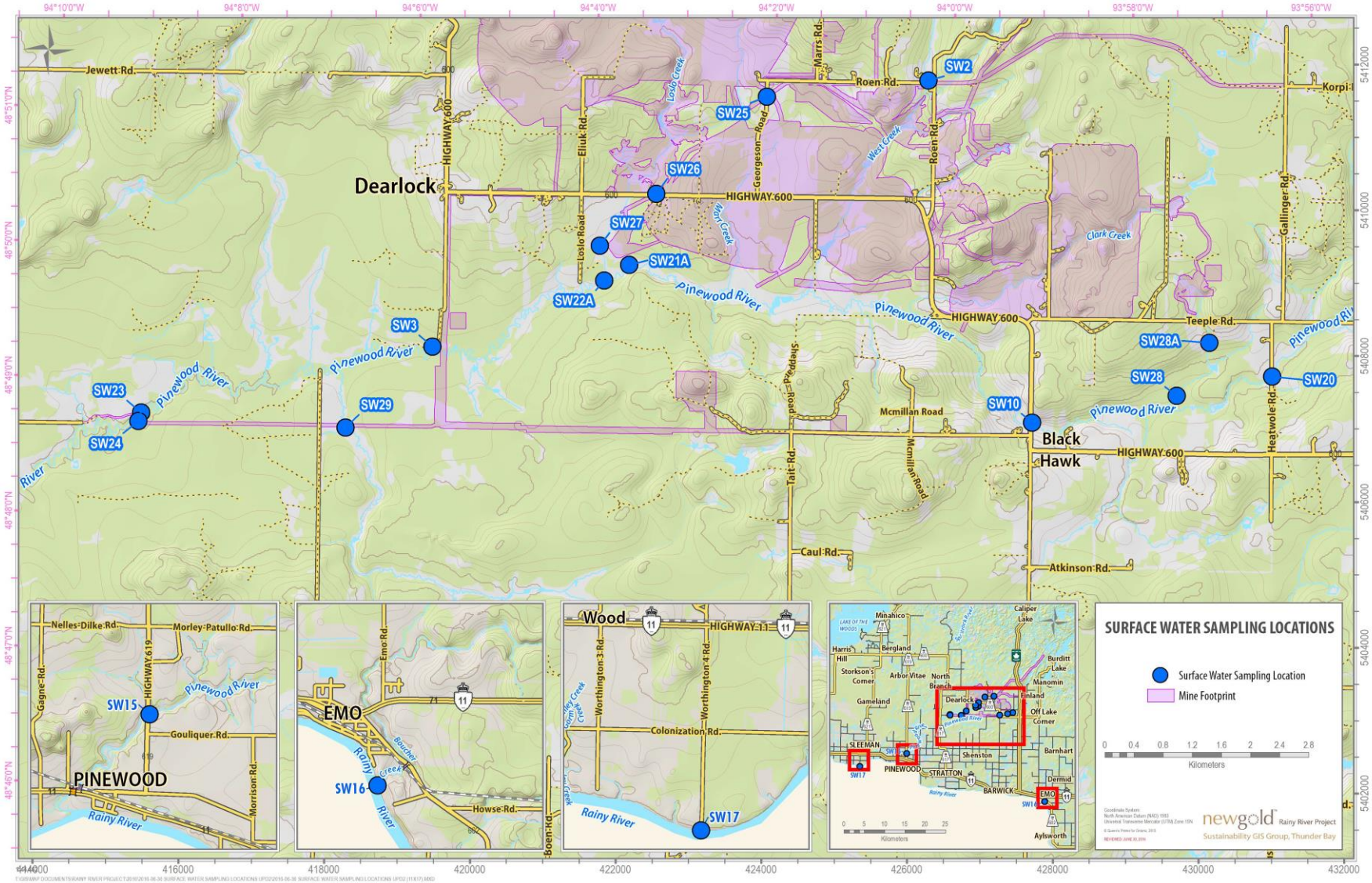
No bypass or upset conditions occurred during the reporting period.

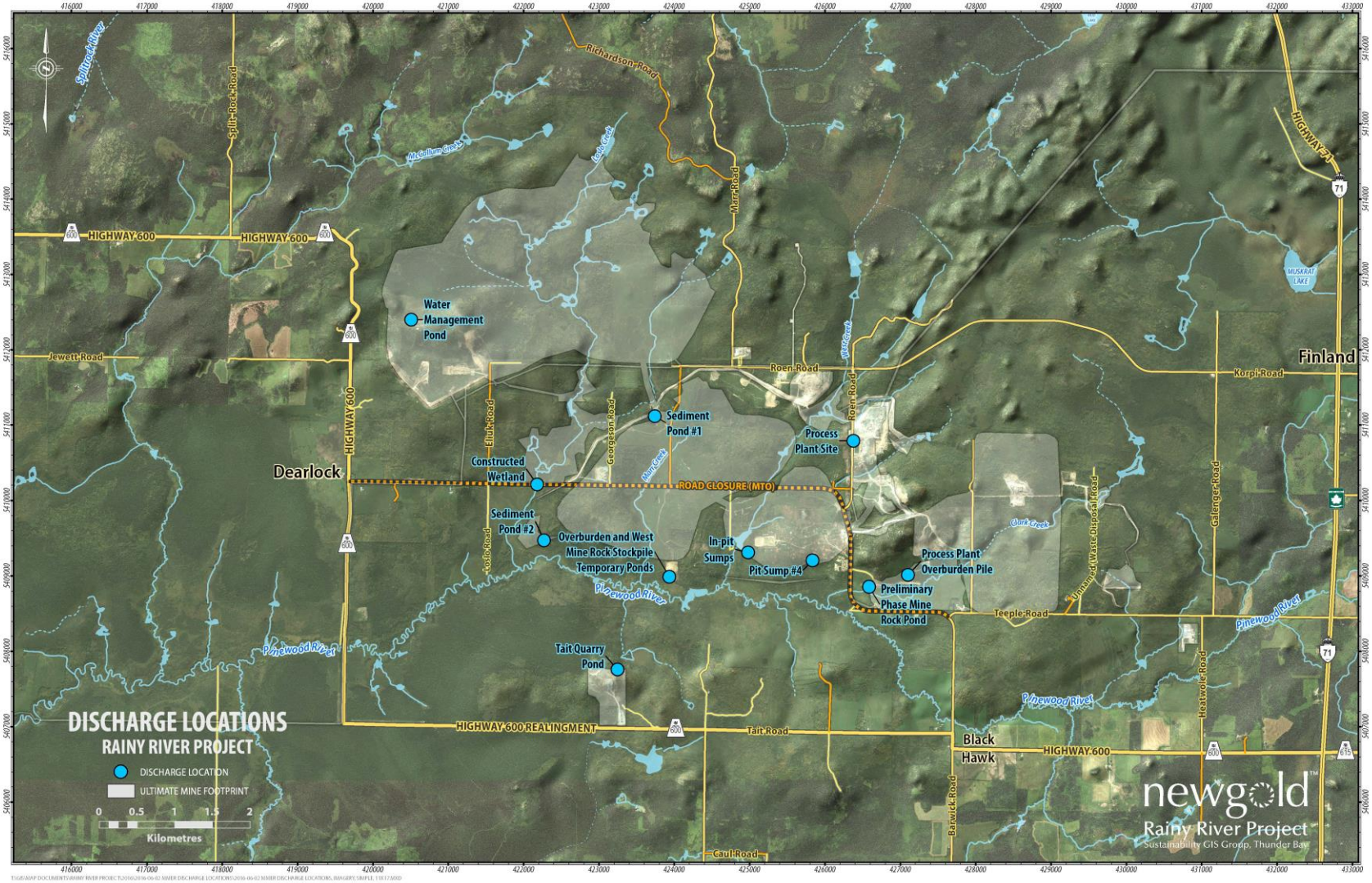
Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW28a	Teeple Drain	T-Al	0.33	0.075	0.1	-	-	-	-	-	-
SW28a	Teeple Drain	T-Fe	0.77	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Al	0.15	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW2	West Creek	T-Fe	0.36	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW27	Loslo Creek	T-Al	0.0805	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.33	0.3	0.3	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.191	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.46	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.355	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.68	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	TSS	33.5	-	-	30	-	24.66	243.0	2.0	12.0
SW15	Pinewood River	Turbidity	41.4 NTU	0	0	-	-	21.3	127.0	1.81	15.5
SW15	Pinewood River	T-Al	1.07	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.45	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW21a	Pinewood River	T-Al	0.125	0.075	0.1	-	-	-	-	-	-
SW21a	Pinewood River	T-Fe	0.41	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.11	0.075	0.1	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	0.42	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.224	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.36	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-Al	0.386	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.58	0.3	0.3	-	-	0.35	1.95	0.08	0.24

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	June 30, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	June 6, 2016 Process Plant Overburden Pile (Mine Rock Polishing Ponds)	June 27, 2016 In Pit Sump 3 (mg/L)	May 30, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	32.5	13.0	13.5	4.5
Total Arsenic	0.034	0.017	0.0017	0.0012	0.0027	0.0027
Total Copper	0.028	0.014	0.0046	0.0021	0.0013	0.0014
Total Nickel	0.094	0.047	0.0025	0.0016	0.0009	0.0017
Total Lead	0.030	0.015	0.00036	0.00011	0.00019	0.00012
Total Zinc	0.348	0.174	0.0090	0.0030	0.0040	0.0010
Un-ionized Ammonia	0.2	0.1	0.069	0.001	0.013	0.211
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.91	8.82	8.52	8.56


SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold Rainy River Project
Sustainability GIS Group, Thunder Bay
Dearlock
Black Hawk
PINEWOOD
EMO
Wood
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21A
SW22A
SW23
SW24
SW25
SW26
SW27
SW28
SW28A
SW29
HIGHWAY 600
HIGHWAY 11
HIGHWAY 619
Pinewood River
Rainy River
Jewett Rd.
Roen Rd.
Teeple Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Gouliquer Rd.
Howse Rd.
Colonization Rd.


DISCHARGE LOCATIONS
RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
0 0.5 1 1.5 2
Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
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ROAD CLOSURE (MTO)
HIGHWAY 600
HIGHWAY 600 REALIGNMENT
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Tait Road
Teeple Road
Caul Road
Richardson Road
Spillsbury Road
Elliott Road
Georgeson Road
Galanger Road
Heatwole Road
Barwick Road
Pinewood River
Clark Creek
Muskrat Lake
newgold™
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: August 13, 2016

Re: **Monthly Surface Water Quality Results Summary – July 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for June 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Surface water sampling was conducted on July 14 and 15, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on July 5, 18, 20, and 21, 2016.
- Construction discharge sampling for the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was conducted on July 5 and 25, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on July 15 and 27, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on July 20, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in July, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedances that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include proper drainage ditching around sump to prevent non-contact water from entering, a circulating flocculant system, topsoil and seed, and a three-tier splash pad at input. A sprinkler and dust suppression system will be implemented in the near future.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedance that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include a sprinkler and dust suppression framework and a circulating flocculant system.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on July 5, 18, 20, and 21, 2016 from the Process Plant and Crusher Area Sediment Ponds, on July 15 and 27, 2016 from In Pit Sump 3, on July 20, 2016 from In Pit Sump 4, and on July 5 and 25, 2016 from the Mine Rock Sediment and Polishing Ponds. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

In Pit Sump 4 discharge that occurred on July 20, 2016 had an Un-ionized Ammonia exceedance of 0.359 mg/L (SAC #4401-AC-J3CQ). In Pit Sump 3 discharge that occurred on July 27, 2016 had an Un-ionized Ammonia and Total Suspended Solids exceedance of 0.616 mg/L and 36.0 mg/L, respectively (SAC #5722-ACGJF8).

3.0 Surface Water Sampling

Surface water sampling was conducted on July 14 and 15, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron, total aluminum, and total suspended solids at some sites in the Pinewood River, the Rainy River, West Creek, Loslo Creek, and Teeple Drain (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

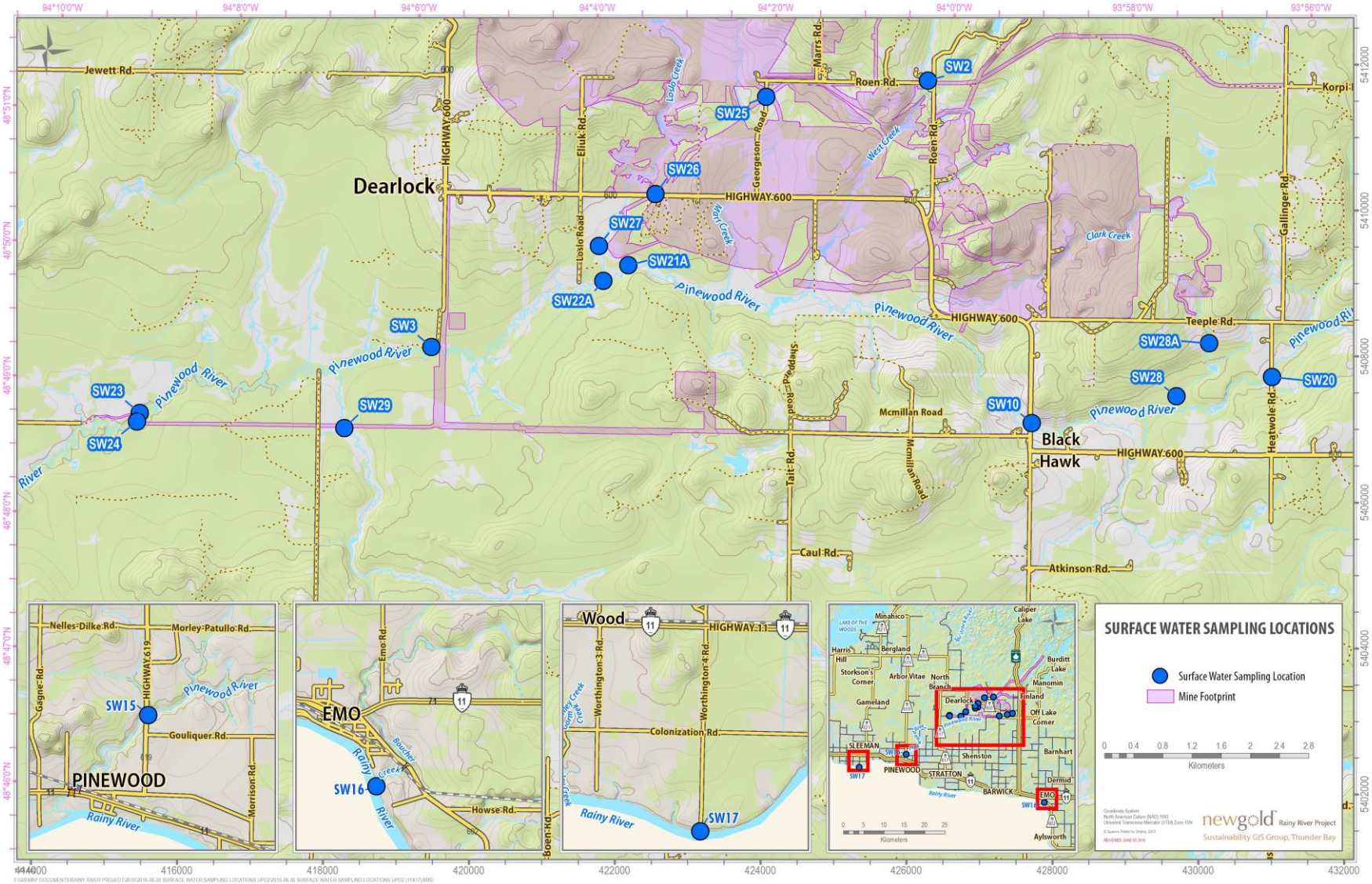
Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW28a	Teeple Drain	T-Al	0.154	0.075	0.1	-	-	-	-	-	-
SW28a	Teeple Drain	T-Fe	0.72	0.3	0.3	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.46	0.3	0.3	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.166	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.69	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.177	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.77	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.519	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.00	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.164	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.71	0.3	0.3	-	-	-	-	-	-
SW21a	Pinewood River	TSS	43.0	-	-	30 (Max)	-	-	-	-	-
SW21a	Pinewood River	T-Al	0.0805	0.075	0.1	-	-	-	-	-	-
SW21a	Pinewood River	T-Fe	0.59	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	0.54	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.18	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.33	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-Al	0.149	0.075	0.1	-	-	0.23	1.71	0.05	0.13

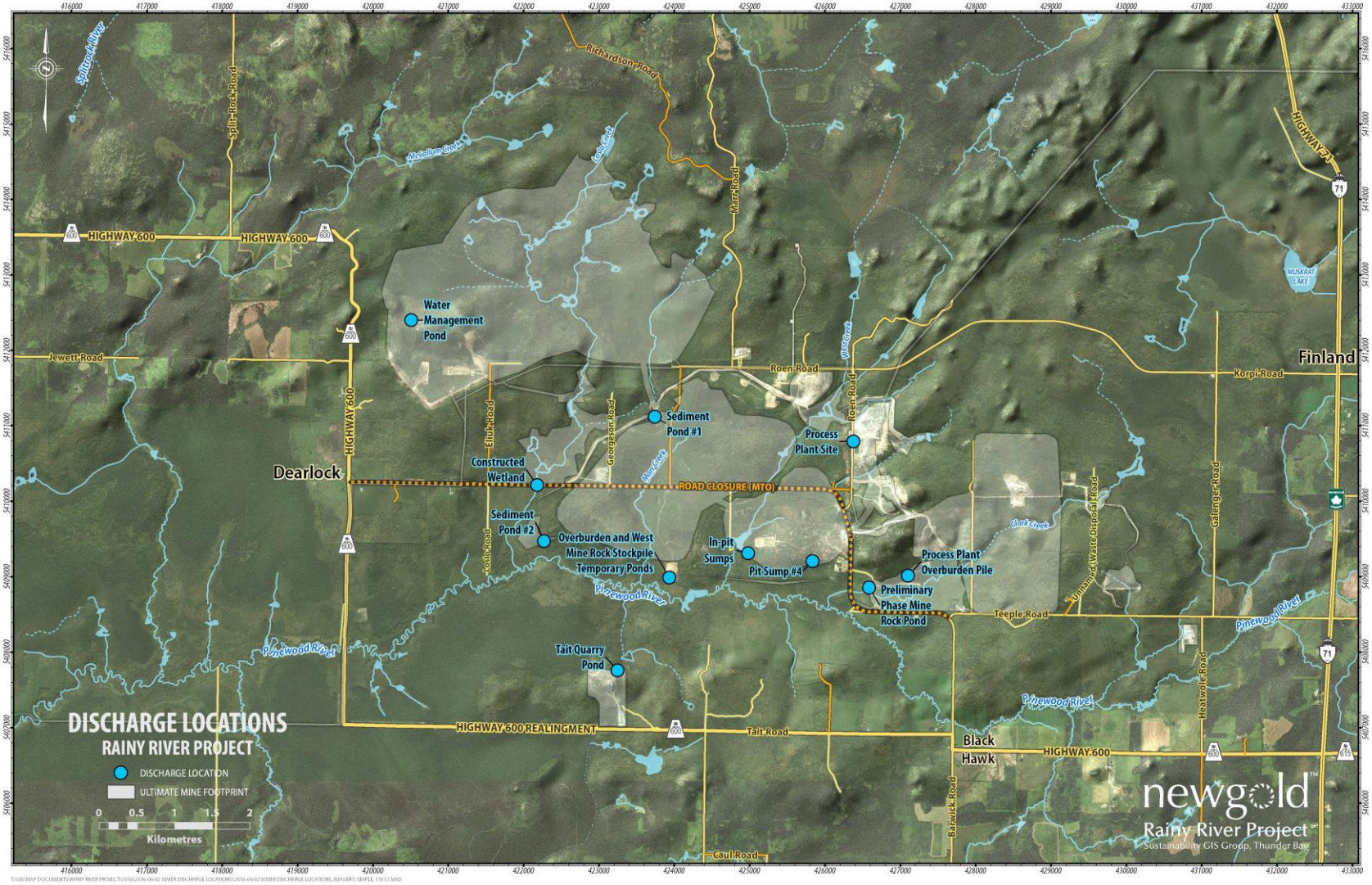
Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	July 5, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	July 18, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	July 18, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	July 20, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)
Total Suspended Solids	30	15	4.5	16.0	12.0	12.5
Total Arsenic	0.034	0.017	0.0014	0.0014	0.0014	0.0011
Total Copper	0.028	0.014	0.0019	0.0046	0.0046	0.0013
Total Nickel	0.094	0.047	0.0011	0.0022	0.0022	0.0007
Total Lead	0.030	0.015	0.00003	0.00030	0.00030	0.00049
Total Zinc	0.348	0.174	0.0016	0.0060	0.0060	0.0015
Un-ionized Ammonia	0.2	0.1	0.004	0.001	0.013	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.81	7.15	7.57	8.32

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	July 21, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	July 5, 2016 Process Plant Overburden Pile (Mine Rock Polishing Ponds)	July 25, 2016 Process Plant Overburden Pile (Mine Rock Polishing Ponds)	July 15, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	8.5	4.0	6.5	7.0
Total Arsenic	0.034	0.017	0.0013	0.0013	0.0016	0.0028
Total Copper	0.028	0.014	0.0122	0.0029	0.0022	0.0011
Total Nickel	0.094	0.047	0.0023	0.0013	0.0013	0.0014
Total Lead	0.030	0.015	0.00040	0.00007	0.00008	0.00013
Total Zinc	0.348	0.174	0.0145	0.0030	0.0015	0.0025
Un-ionized Ammonia	0.2	0.1	0.004	0.004	0.001	0.018
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.59	8.06	8.65	8.39

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	July 20, 2016 In Pit Sump 4 (mg/L)	July 27, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	4.5	36.0
Total Arsenic	0.034	0.017	0.0031	0.0030
Total Copper	0.028	0.014	0.0028	0.0028
Total Nickel	0.094	0.047	0.0025	0.0041
Total Lead	0.030	0.015	0.00005	0.00032
Total Zinc	0.348	0.174	0.0020	0.0040
Un-ionized Ammonia	0.2	0.1	0.359	0.616
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.69	8.08


Jewett Rd.
Dearlock
HIGHWAY 600
Eliuk Rd.
Loslo Road
Georgeson Road
Marris Rd.
Roen Rd.
Loslo Creek
West Creek
Mart Creek
Clark Creek
Pinewood River
Snappod Road
Tait Rd.
Mcmillan Road
Gallinger Rd.
Teeple Rd.
Heatwole Rd.
Caul Rd.
Atkinson Rd.
Black Hawk
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21A
SW22A
SW23
SW24
SW25
SW26
SW27
SW28
SW28A
SW29
Nelles Dilke Rd.
Morley Patullo Rd.
HIGHWAY 619
Gagne Rd.
Gouliquer Rd.
Morrison Rd.
PINEWOOD
Emo Rd.
EMO
Howse Rd.
Boen Rd.
Wood
HIGHWAY 11
Worthington 3 Rd.
Worthington 4 Rd.
Colonization Rd.
Minahico
Caliper Lake
Harris Hill
Bergland
Storkson's Corner
Arbor Vitae
North Branch
Burditt Lake
Manomin
Gameland
Finland
Off Lake Corner
SLEEMAN
Shenston
Barnhart
STRATTON
BARWICK
Dermid
Aylsworth
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold Rainy River Project
Sustainability GIS Group, Thunder Bay


DISCHARGE LOCATIONS
RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
0 0.5 1 1.5 2
Kilometres
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Constructed Wetland
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
Tait Quarry Pond
ROAD CLOSURE (MTO)
HIGHWAY 600
HIGHWAY 600 REALINGMENT
HIGHWAY 71
Dearlock
Finland
Black Hawk
Jewett Road
Richardson Road
Korpi Road
Teeple Road
Tait Road
Caul Road
Pinewood River
Split Rock River
McCallum Creek
Clark Creek
Galenga Road
Heatwole Road
Barwick Road
Muskrat Lake
newgold
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: October 4, 2016

Re: **Monthly Surface Water Quality Results Summary – August 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for June 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Surface water sampling was conducted on August 16, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on August 22 and 23, 2016.
- Construction discharge sampling for the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was conducted on August 24, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on August 28 and 29, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on August 14 and 24, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in July, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedances that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include proper drainage ditching around sump to prevent non-contact water from entering, flocculant blocks at input, topsoil and seed, and a three-tier splash pad at input. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedance that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include a sprinkler and dust suppression framework and a circulating flocculant system. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

Per approval letter received August 25, 2016 from the Ministry of Environment and Climate Change, these sumps are now being used to store excess water from the In Pit Sumps. This allows for additional capacity and retention time to protect the Pinewood River from the potential adverse effects posed by high un-ionized ammonia levels.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on August 22 and 23, 2016 from the Process Plant and Crusher Area Sediment Ponds, on August 28 and 29, 2016 from In Pit Sump 3, on August 14 and 24, 2016 from In Pit Sump 4, and on August 24, 2016 from the Mine Rock Sediment and Polishing Ponds. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on August 16, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.
- SW28A had insufficient sample volume.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron and total aluminum at some sites in the Pinewood River, the Rainy River, West Creek and Loslo Creek, and (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

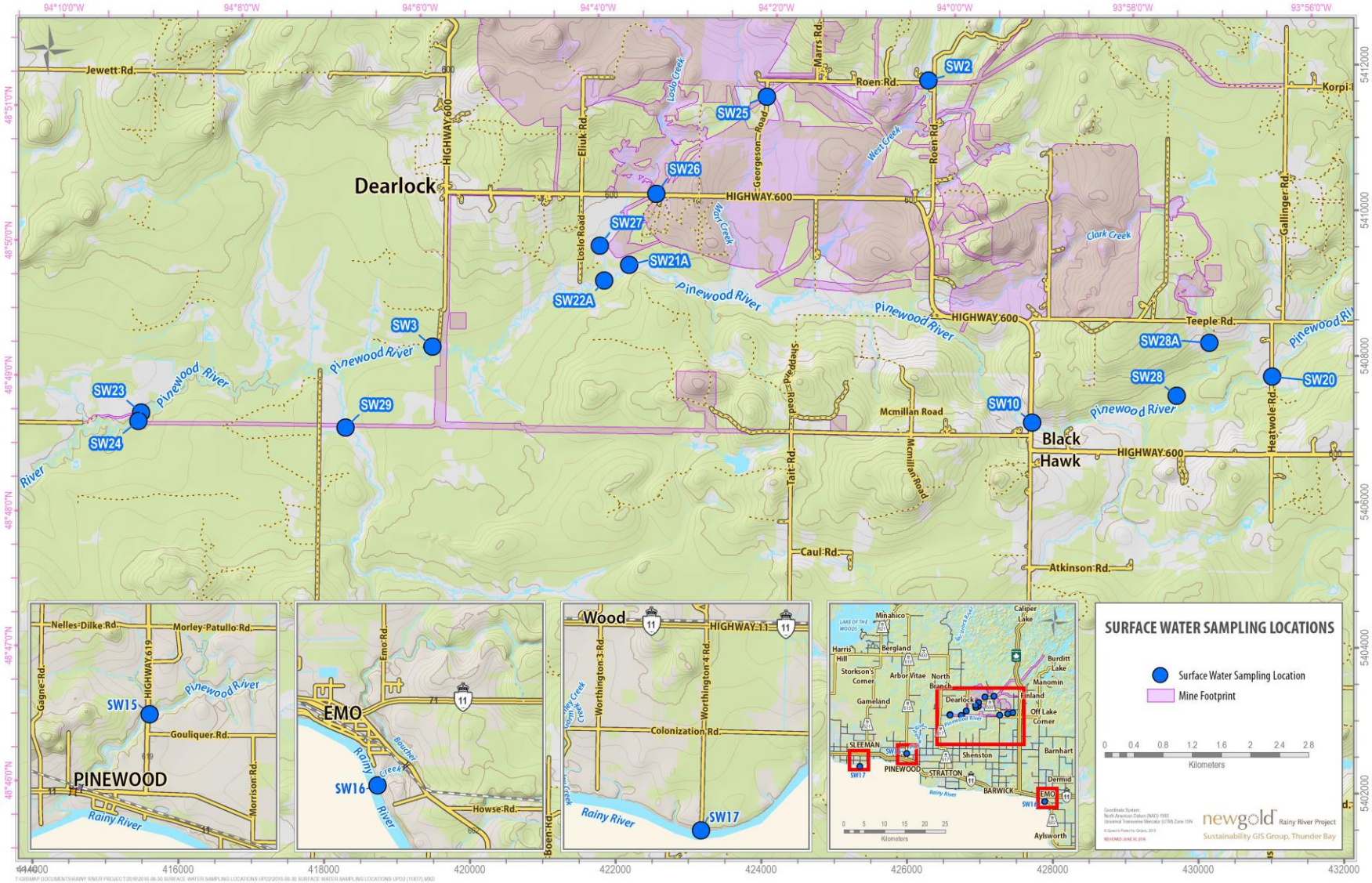
Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.158	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.61	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Fe	0.38	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW3	Pinewood River	T-Al	0.584	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.99	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.091	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.5	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.766	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.32	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Fe	0.72	0.3	0.3	-	-	-	-	-	-
SW21a	Pinewood River	T-Fe	0.38	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	0.37	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.286	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.44	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-Al	0.16	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.36	0.3	0.3	-	-	0.35	1.95	0.08	0.24

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	August 22, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	August 23, 2016 Process Plant and Crusher Area Sediment Ponds (mg/L)	August 24, 2016 Process Plant Overburden Pile (Mine Rock Polishing Ponds) (mg/L)	August 14, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	10.0	12.0	6.5	5.0
Total Arsenic	0.034	0.017	0.0013	0.0014	0.0020	0.0027
Total Copper	0.028	0.014	0.0020	0.0025	0.0019	0.0014
Total Nickel	0.094	0.047	0.0015	0.0005	0.0005	0.0028
Total Lead	0.030	0.015	0.00009	0.00010	0.00006	0.00010
Total Zinc	0.348	0.174	0.0020	0.0045	0.0015	0.0075
Un-ionized Ammonia	0.2	0.1	0.001	0.001	0.001	0.027
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.22	7.98	7.57	6.91

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	August 14, 2016 In Pit Sump 4 (mg/L)	August 14, 2016 In Pit Sump 4 (mg/L)	August 24, 2016 In Pit Sump 4 (mg/L)	August 24, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	5.5	11.0	6.5	11.0
Total Arsenic	0.034	0.017	0.0026	0.0027	0.0028	0.0029
Total Copper	0.028	0.014	0.0013	0.0016	0.0015	0.0023
Total Nickel	0.094	0.047	0.0027	0.0027	0.0032	0.0034
Total Lead	0.030	0.015	0.00009	0.00012	0.00014	0.00020
Total Zinc	0.348	0.174	0.0070	0.0070	0.0100	0.0110
Un-ionized Ammonia	0.2	0.1	0.028	0.020	0.128	0.091
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			6.93	6.79	7.73	7.58

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	August 24, 2016 In Pit Sump 4 (mg/L)	August 28, 2016 In Pit Sump 3 (mg/L)	August 28, 2016 In Pit Sump 3 (mg/L)	August 29, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	3.5	4.5	5.0	24.5
Total Arsenic	0.034	0.017	0.0027	0.0016	0.0016	0.0016
Total Copper	0.028	0.014	0.0012	0.0008	0.0008	0.001
Total Nickel	0.094	0.047	0.0032	0.0015	0.0014	0.0015
Total Lead	0.030	0.015	0.00012	0.00012	0.00012	0.00018
Total Zinc	0.348	0.174	0.0305	0.006	0.005	0.0045
Un-ionized Ammonia	0.2	0.1	0.087	0.034	0.067	0.102
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethat (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.56	7.18	7.47	7.67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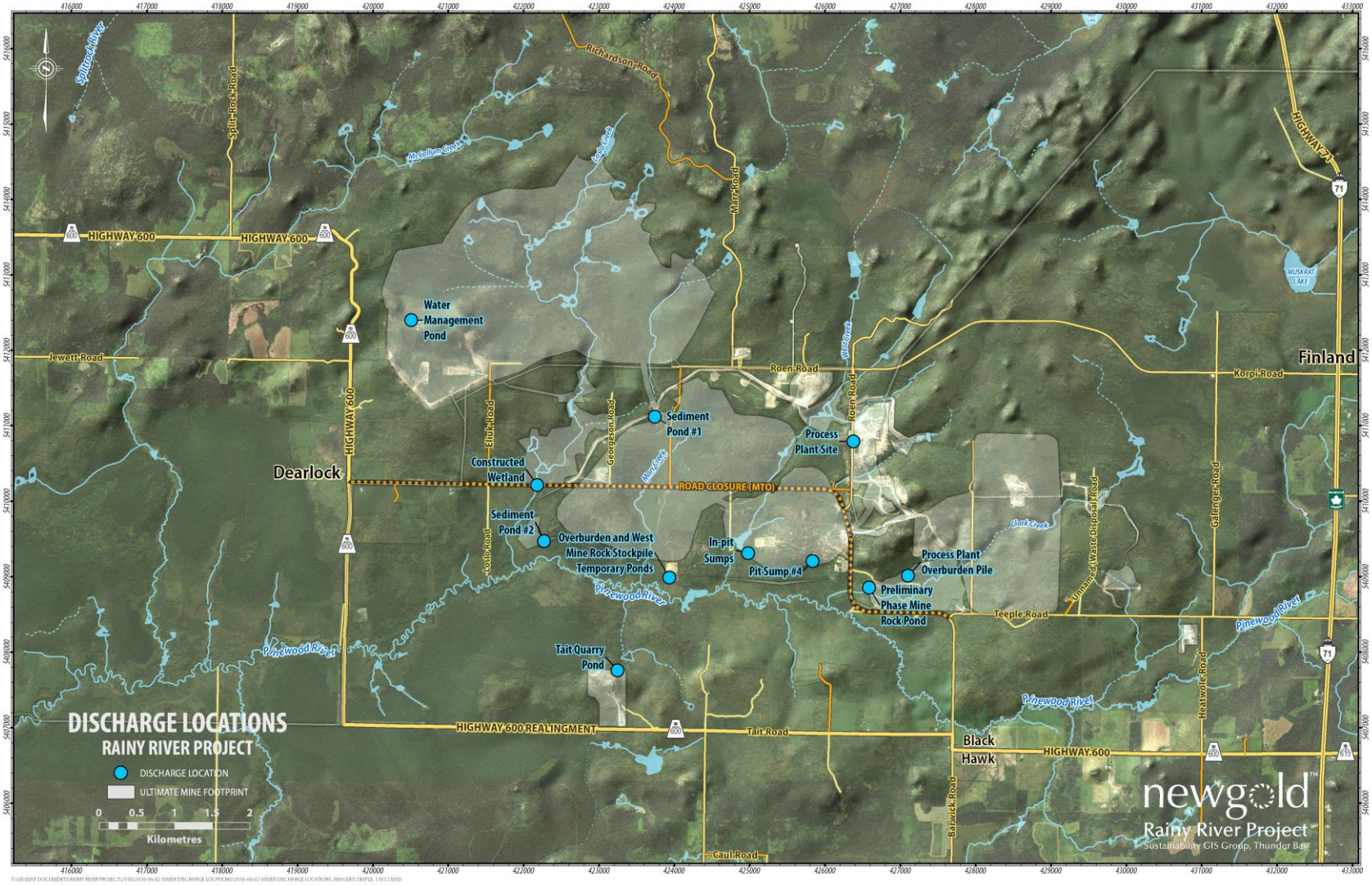
Caul Rd.
Atkinson Rd.
Tait Rd.
Heatwole Rd.
Black Hawk
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21A
SW22A
SW23
SW24
SW25
SW26
SW27
SW28
SW28A
SW29
Pinewood River
Loslo Creek
West Creek
Clark Creek
Rainy River
PINEWOOD
EMO
Wood
HIGHWAY 11
Colonization Rd.
Howse Rd.
Gouliquer Rd.
Morley Patullo Rd.
Nelles Dilke Rd.
Gagne Rd.
Morrison Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold Rainy River Project
Sustainability GIS Group, Thunder Bay


DISCHARGE LOCATIONS
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DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
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Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
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Muskrat Lake
newgold
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: November 7, 2016

Re: **Monthly Surface Water Quality Results Summary – September 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for September 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Construction on the WMP Excavated Pond (Borrow) was completed August 2016;
- Surface water sampling was conducted on September 21, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on September 17 and 18, 2016.
- Construction discharge sampling for the WMP Excavated Pond (Borrow) was conducted on September 12, 2016.
- Construction discharge sampling for the Overburden and West Mine Rock Stockpile Temporary Sump 1 was conducted on September 22, 2016.
- Construction discharge sampling for the Overburden and West Mine Rock Stockpile Temporary Sump 2 was conducted on September 4, 5, 16, 17, and 18, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on September 9, 10, 16, 17, 18, and 30, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on September 5, 6, 22, and 23, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included

silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in September, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedances that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include proper drainage ditching around sump to prevent non-contact water from entering, flocculant blocks at input, topsoil and seed, and a three-tier splash pad at input. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedance that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include a sprinkler and dust suppression framework and a circulating flocculant system. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

Per approval letter received August 25, 2016 from the Ministry of Environment and Climate Change, these sumps are now being used to store excess water from the In Pit Sumps. This allows for additional capacity and retention time to protect the Pinewood River from the potential adverse effects posed by high un-ionized ammonia levels.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.5 WMP Excavated Pond (Borrow)

WMP Excavated Pond (Borrow) commenced construction in 2015. The pond was reworked in August 2016 to allow all water from inside the Water Management Pond dams to drain to this collection system.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on September 17 and 18, 2016 from the Process Plant and Crusher Area Sediment Ponds, on September 9, 10, 16, 17, 18, and 30, 2016 from In Pit Sump 3, on September 5, 6, 22, and 23, 2016 from In Pit Sump 4, on September 22, 2016 from West Mine Rock Stockpile and OVB Sump 1, on September 4, 5, 16, 17, and 18, 2016 from West Mine Rock and OVB Sump 2, and September 12, 2016 from WMP Excavated Pond (Borrow). The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on September 21, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron, total aluminum and fluoride at some sites in the Pinewood River, the Rainy River, Loslo Creek, and Teeple Drain (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW27	Loslo Creek	T-Al	0.0845	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.33	0.3	0.3	-	-	-	-	-	-
SW28A	Teeple Drain	Fluoride	0.145	-	0.12	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.342	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.64	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.47	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW15	Pinewood River	T-Al	0.882	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.21	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.132	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.61	0.3	0.3	-	-	-	-	-	-
SW21a	Pinewood River	Nitrite	0.222	-	0.06	-	-	-	-	-	-
SW22a	Pinewood River	T-Al	0.086	0.075	0.1	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.193	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.31	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-Al	0.15	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.42	0.3	0.3	-	-	0.35	1.95	0.08	0.24

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 4, 2016 West Mine Rock Stockpile Sump 2 (mg/L)	September 4, 2016 West Mine Rock Stockpile Sump 2 (mg/L)	September 5, 2016 West Mine Rock Stockpile Sump 2 (mg/L)	September 5, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	1.5	0.5	17	2.0
Total Arsenic	0.034	0.017	0.0018	0.0018	0.0018	0.0024
Total Copper	0.028	0.014	0.0012	0.0013	0.0015	0.0014
Total Nickel	0.094	0.047	0.0013	0.0015	0.0016	0.0028
Total Lead	0.030	0.015	0.00006	0.00009	0.0002	0.00011
Total Zinc	0.348	0.174	0.006	0.002	0.0055	0.003
Un-ionized Ammonia	0.2	0.1	0.026	0.026	0.026	0.07
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.36	7.35	7.39	7.58

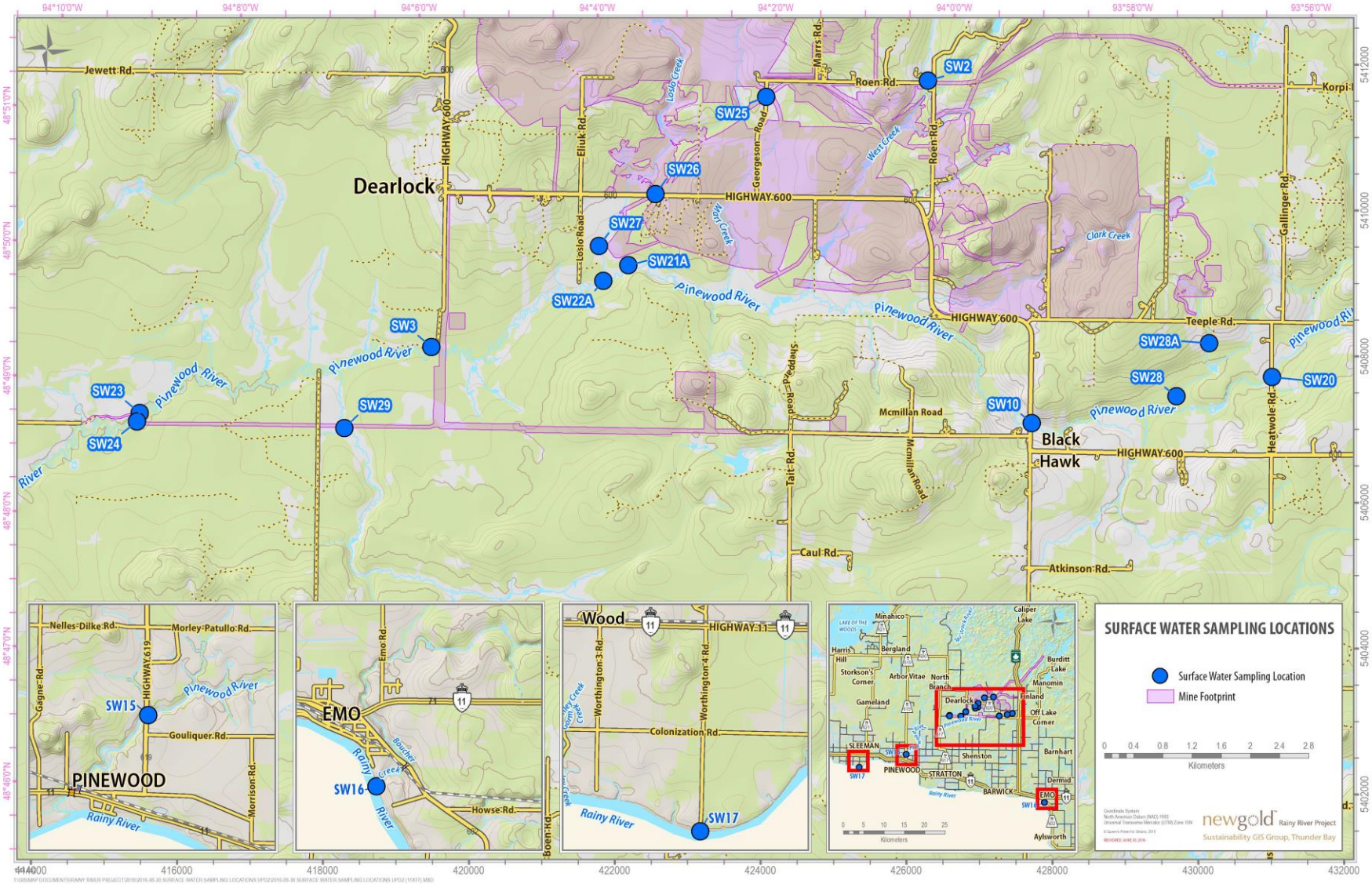
Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 5, 2016 In Pit Sump 4 (mg/L)	September 6, 2016 In Pit Sump 4 (mg/L)	September 9, 2016 In Pit Sump 3 (mg/L)	September 9, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	4.0	4.5	9.5	4.5
Total Arsenic	0.034	0.017	0.0024	0.0024	0.0026	0.0029
Total Copper	0.028	0.014	0.0053	0.0015	0.0012	0.0012
Total Nickel	0.094	0.047	0.0029	0.0031	0.0025	0.0025
Total Lead	0.030	0.015	0.00011	0.00007	0.00009	0.00008
Total Zinc	0.348	0.174	0.002	0.0035	0.0055	0.0040
Un-ionized Ammonia	0.2	0.1	0.122	0.117	0.109	0.114
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.81	7.82	7.63	7.70

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 10, 2016 In Pit Sump 3 (mg/L)	September 16, 2016 In Pit Sump 3 (mg/L)	September 17, 2016 In Pit Sump 3 (mg/L)	September 18, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	4.0	3.5	3.5	4.0
Total Arsenic	0.034	0.017	0.0026	0.0041	0.0040	0.0040
Total Copper	0.028	0.014	0.0010	0.0027	0.0017	0.0018
Total Nickel	0.094	0.047	0.0023	0.0024	0.0020	0.0020
Total Lead	0.030	0.015	0.00006	0.00011	0.00011	0.00009
Total Zinc	0.348	0.174	0.0025	0.0125	0.0100	0.0055
Un-ionized Ammonia	0.2	0.1	0.126	0.019	0.045	0.159
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.71	6.89	7.28	7.89

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 17, 2016 Plant Site and Crusher Area Sediment Ponds (mg/L)	September 18, 2016 Plant Site and Crusher Area Sediment Ponds (mg/L)	September 16, 2016 West Mine Rock and OVB Sump 2 (mg/L)	September 17, 2016 West Mine Rock and OVB Sump 2 (mg/L)
Total Suspended Solids	30	15	7.0	27.5	7.0	8.5
Total Arsenic	0.034	0.017	0.0011	0.0012	0.0022	0.0022
Total Copper	0.028	0.014	0.0024	0.0029	0.0019	0.002
Total Nickel	0.094	0.047	0.0012	0.0015	0.0018	0.0019
Total Lead	0.030	0.015	0.00015	0.00037	0.00012	0.00026
Total Zinc	0.348	0.174	0.0045	0.0065	0.003	0.0065
Un-ionized Ammonia	0.2	0.1	0.005	0.004	0.025	0.071
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.30	8.10	7.16	7.60

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 12, 2016 WMP Excavated Pond (mg/L)	September 18, 2016 West Mine Rock and OVB Sump 2 (mg/L)	September 22, 2016 In Pit Sump 4 (mg/L)	September 23, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	9.0	6.0	5.0	4.5
Total Arsenic	0.034	0.017	0.0025	0.0022	0.0039	0.0037
Total Copper	0.028	0.014	0.0090	0.002	0.0031	0.0025
Total Nickel	0.094	0.047	0.0025	0.0019	0.0039	0.0036
Total Lead	0.030	0.015	0.0005	0.00013	0.00028	0.00023
Total Zinc	0.348	0.174	0.0165	0.007	0.0095	0.005
Un-ionized Ammonia	0.2	0.1	0.031	0.065	0.013	0.022
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.68	7.58	6.94	7.21

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	September 23, 2016 In Pit Sump 4 (mg/L)	September 22, 2016 West Mine Rock and OVB Sump 1 (mg/L)	September 30, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	4.5	2.5	3.0
Total Arsenic	0.034	0.017	0.0037	0.0021	0.0035
Total Copper	0.028	0.014	0.0025	0.0016	0.0019
Total Nickel	0.094	0.047	0.0036	0.0016	0.0028
Total Lead	0.030	0.015	0.00022	0.00008	0.00007
Total Zinc	0.348	0.174	0.005	0.0005	0.0065
Un-ionized Ammonia	0.2	0.1	0.021	0.006	0.068
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.21	6.8	7.41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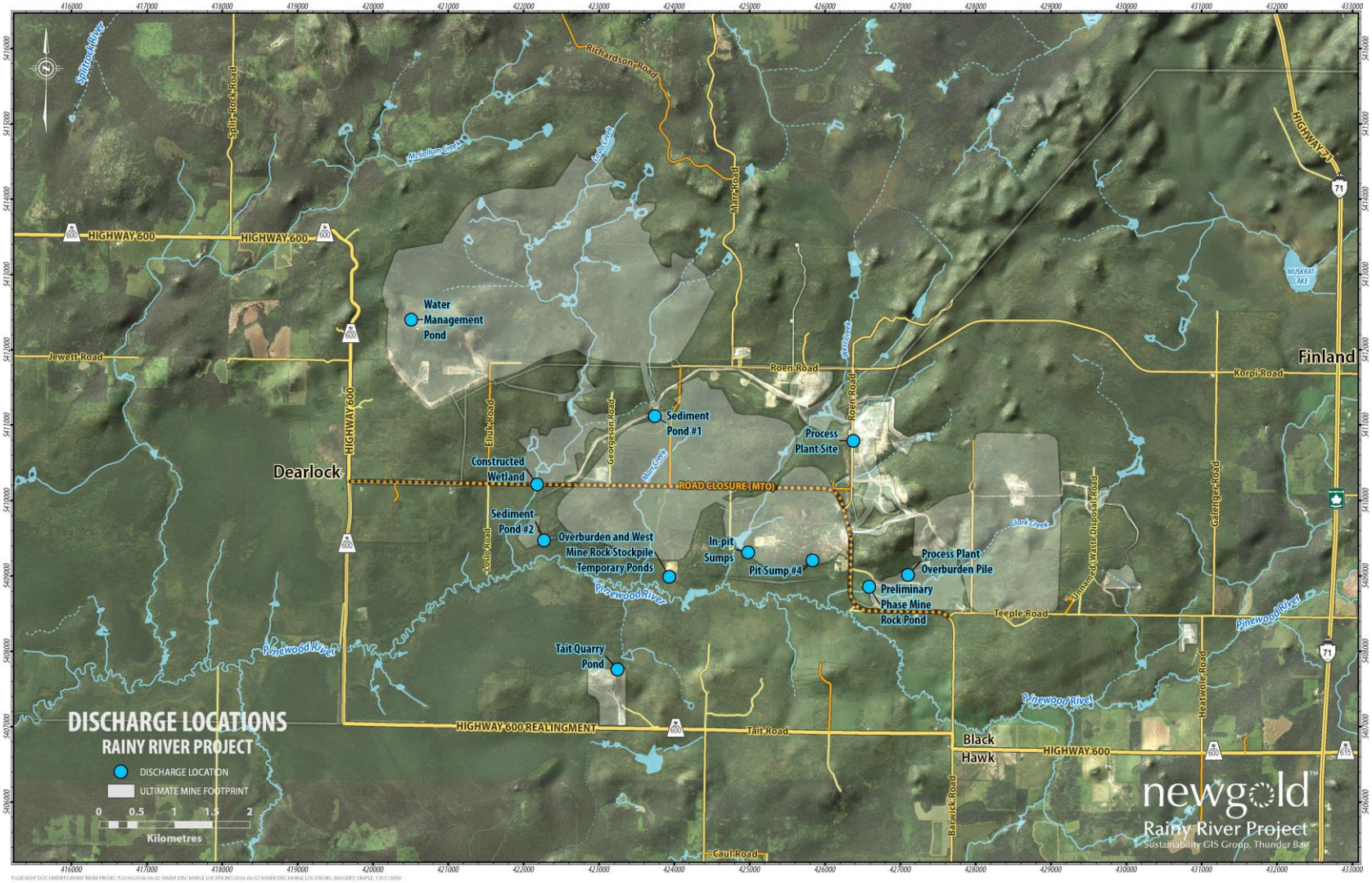
SW25
SW26
SW27
SW21A
SW22A
SW3
SW29
SW23
SW24
SW28A
SW28
SW20
SW10
Dearlock
Black Hawk
HIGHWAY 600
Pinewood River
Mcmillan Road
Caul Rd.
Atkinson Rd.
Teeple Rd.
Roen Rd.
Jewett Rd.
Korpi
Gallinger Rd.
Heatwole Rd.
Tait Rd.
Sheppard Road
Georgeson Road
Eliuk Rd.
Loslo Road
Marris Rd.
West Creek
Clark Creek
Nelles-Dilke Rd.
Morley-Patullo Rd.
HIGHWAY 619
Gagne Rd.
Gouliquer Rd.
PINEWOOD
Morrison Rd.
Rainy River
SW15
EMO
Emo Rd.
Howse Rd.
SW16
Wood
HIGHWAY 11
Worthington 3 Rd.
Worthington 4 Rd.
Colonization Rd.
SW17
Boen Rd.
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold Rainy River Project
Sustainability GIS Group, Thunder Bay


DISCHARGE LOCATIONS
RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
0 0.5 1 1.5 2
Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
Tait Quarry Pond
ROAD CLOSURE (MTO)
HIGHWAY 600
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Tait Road
Caul Road
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Spillsbury River
Split Rock Road
McGillivray Creek
Marr Road
Georgeson Road
Ehlk Road
Galanger Road
Heatwole Road
Barwick Road
HIGHWAY 71
MUSKRAT LAKE
newgold™
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: December 1, 2016

Re: **Monthly Surface Water Quality Results Summary – October 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for October 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Construction on the WMP Excavated Pond (Borrow) was completed August 2016;
- Surface water sampling was conducted on October 22, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds was conducted on October 11, 12, 13, and 16, 2016.
- Construction discharge sampling for the WMP Excavated Pond (Borrow) was conducted on October 3, 2016.
- Construction discharge sampling for the Overburden and West Mine Rock Stockpile Temporary Sump 1 was conducted on October 3, 4, and 21, 2016.
- Construction discharge sampling for the Overburden and West Mine Rock Stockpile Temporary Sump 2 was conducted on October 17, 18, and 28, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on October 1, 15, 16, 28, and 29, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on October 4 and 13, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust

suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in October, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedances that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include proper drainage ditching around sump to prevent non-contact water from entering, flocculant blocks at input, topsoil and seed, and a three-tier splash pad at input. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedance that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include a sprinkler and dust suppression framework and a circulating flocculant system. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

Per approval letter received August 25, 2016 from the Ministry of Environment and Climate Change, these sumps are now being used to store excess water from the In Pit Sumps. This allows for additional capacity and retention time to protect the Pinewood River from the potential adverse effects posed by high un-ionized ammonia levels.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.5 WMP Excavated Pond (Borrow)

WMP Excavated Pond (Borrow) commenced construction in 2015. The pond was reworked in August 2016 to allow all water from inside the Water Management Pond dams to drain to this collection system.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on October 11, 12, 13, and 16, 2016 from the Process Plant and Crusher Area Sediment Ponds, on October 1, 15, 16, 28, and 29, 2016 from In Pit Sump 3, on October 4, and 13, 2016 from In Pit Sump 4, on October 3, 4, and 21, 2016 from West Mine Rock Stockpile and OVB Sump 1, on October 17, 18, and 28, 2016 from West Mine Rock and OVB Sump 2, and October 3, 2016 from WMP Excavated Pond (Borrow). The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on October 22, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron and total aluminum at some sites in the Pinewood River, the Rainy River, and Teeple Drain (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW28A	Teeple Drain	T-Al	0.134	0.075	0.1	-	-	-	-	-	-
SW28A	Teeple Drain	T-Fe	0.37	0.3	0.3	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.126	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.41	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.47	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.53	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.59	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.11	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.096	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.51	0.3	0.3	-	-	-	-	-	-
SW21A	Pinewood River	T-Al	0.122	0.075	0.1	-	-	-	-	-	-
SW21A	Pinewood River	T-Fe	0.34	0.3	0.3	-	-	-	-	-	-
SW22A	Pinewood River	T-Al	0.086	0.075	0.1	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.105	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-Al	0.156	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.34	0.3	0.3	-	-	0.35	1.95	0.08	0.24

Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 11, 2016 Plant Site and Crusher Area Sediment Ponds (mg/L)	October 12, 2016 Plant Site and Crusher Area Sediment Ponds (mg/L)	October 13, 2016 Plant Site and Crusher Area Sediment Ponds (mg/L)	October 16, 2016 Plant Site and Crusher Area Sediment Pond (mg/L)
Total Suspended Solids	30	15	7.0	7.0	5.0	7.5
Total Arsenic	0.034	0.017	0.0011	0.0011	0.0012	0.0011
Total Copper	0.028	0.014	0.0041	0.0042	0.00017	0.0025
Total Nickel	0.094	0.047	0.0017	0.0018	0.0017	0.0012
Total Lead	0.030	0.015	0.00006	0.00009	0.00006	0.0001
Total Zinc	0.348	0.174	0.008	0.0065	0.006	0.0045
Un-ionized Ammonia	0.2	0.1	0.013	0.001	0.001	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.58	7.80	8.49	8.43

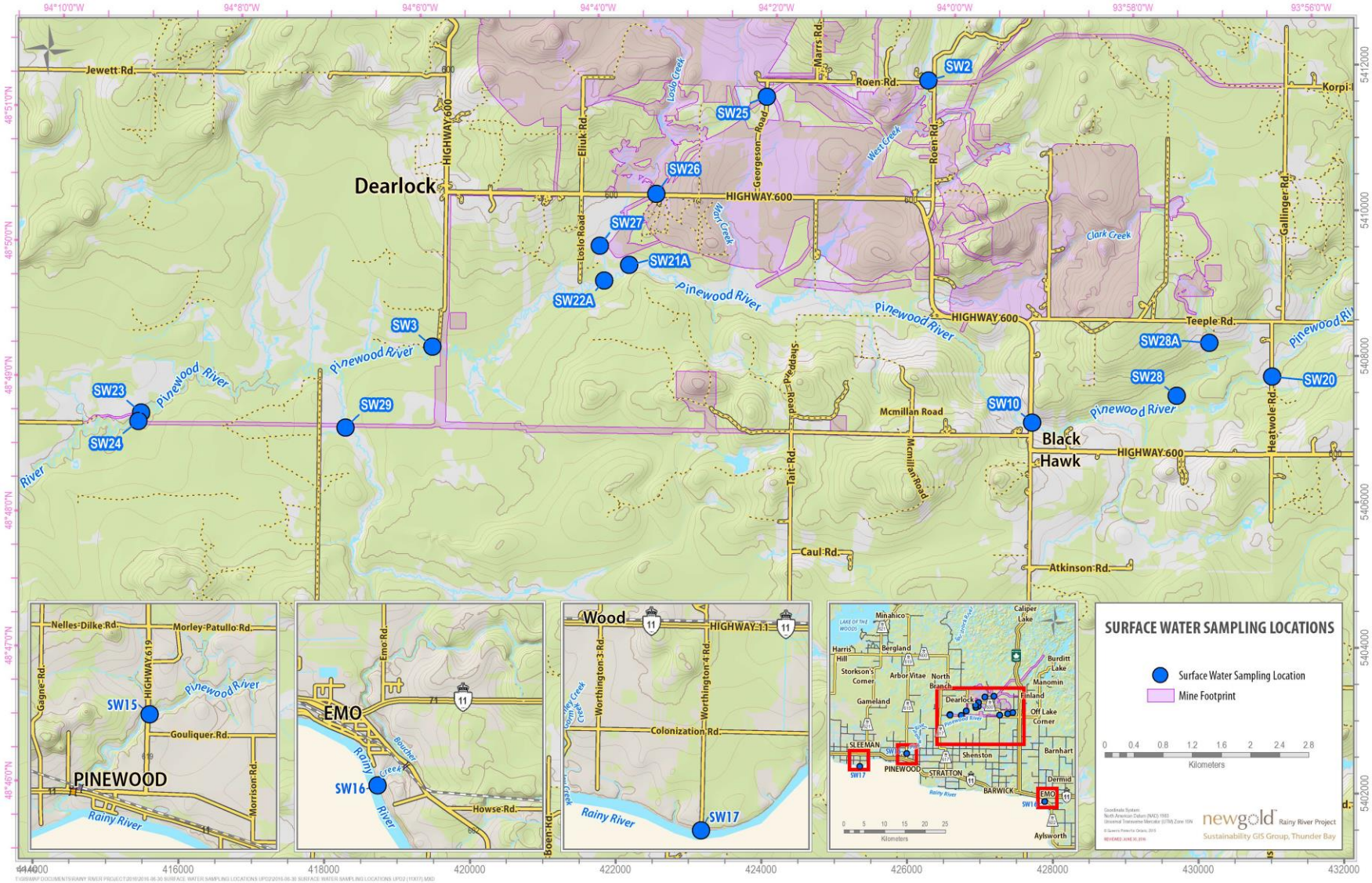
Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 1, 2016 In Pit Sump 3 (mg/L)	October 15, 2016 In Pit Sump 3 (mg/L)	October 16, 2016 In Pit Sump 3 (mg/L)	October 16, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	3.5	19.5	21.0	8.5
Total Arsenic	0.034	0.017	0.0034	0.0024	0.0025	0.0024
Total Copper	0.028	0.014	0.0019	0.0010	0.0012	0.0008
Total Nickel	0.094	0.047	0.0027	0.0025	0.0026	0.0023
Total Lead	0.030	0.015	0.00007	0.00016	0.00025	0.00011
Total Zinc	0.348	0.174	0.0045	0.0065	0.0045	0.0035
Un-ionized Ammonia	0.2	0.1	0.106	0.045	0.088	0.054
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.59	7.71	8.03	7.85

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 28, 2016 In Pit Sump 3 (mg/L)	October 28, 2016 In Pit Sump 3 (mg/L)	October 29, 2016 In Pit Sump 3 (mg/L)	October 4, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	7.5	10.5	7.5	9.5
Total Arsenic	0.034	0.017	0.0025	0.0026	0.0025	0.0025
Total Copper	0.028	0.014	0.0017	0.0018	0.0017	0.0022
Total Nickel	0.094	0.047	0.0038	0.004	0.0039	0.0046
Total Lead	0.030	0.015	0.00012	0.00015	0.00016	0.00002
Total Zinc	0.348	0.174	0.0035	0.004	0.015	0.01
Un-ionized Ammonia	0.2	0.1	0.131	0.093	0.011	0.031
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.30	8.17	7.24	7.35

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 4, 2016 In Pit Sump 4 (mg/L)	October 13, 2016 In Pit Sump 4 (mg/L)	October 3, 2016 West Mine Rock and OVB Sump 1 (mg/L)	October 4, 2016 West Mine Rock and OVB Sump 1 (mg/L)
Total Suspended Solids	30	15	6.5	3.0	7.5	18.5
Total Arsenic	0.034	0.017	0.0024	0.0020	0.0016	0.0017
Total Copper	0.028	0.014	0.0019	0.0012	0.0020	0.0022
Total Nickel	0.094	0.047	0.0046	0.0037	0.0016	0.0019
Total Lead	0.030	0.015	0.00006	0.00006	0.0001	0.0003
Total Zinc	0.348	0.174	0.0085	0.0030	0.0025	0.0035
Un-ionized Ammonia	0.2	0.1	0.049	0.057	0.017	0.047
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.56	7.69	7.62	8.18

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 21, 2016 West Mine Rock and OVB Sump 1 (mg/L)	October 21, 2016 West Mine Rock and OVB Sump 1 (mg/L)	October 17, 2016 West Mine Rock and OVB Sump 2 (mg/L)	October 18, 2016 West Mine Rock and OVB Sump 2 (mg/L)
Total Suspended Solids	30	15	6.5	4.5	8.0	6.0
Total Arsenic	0.034	0.017	0.0012	0.0011	0.0024	0.0024
Total Copper	0.028	0.014	0.0020	0.0017	0.0015	0.0014
Total Nickel	0.094	0.047	0.0017	0.0014	0.0031	0.0031
Total Lead	0.030	0.015	0.0002	0.00006	0.0001	0.0002
Total Zinc	0.348	0.174	0.0020	0.001	0.0055	0.0255
Un-ionized Ammonia	0.2	0.1	0.008	0.011	0.016	0.025
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.40	8.60	7.22	7.42

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	October 28, 2016 West Mine Rock and OVB Sump 2 (mg/L)	October 3, 2016 WMP Excavated Pond (Borrow) (mg/L)
Total Suspended Solids	30	15	3.0	15.0
Total Arsenic	0.034	0.017	0.0027	0.0023
Total Copper	0.028	0.014	0.0010	0.0035
Total Nickel	0.094	0.047	0.0024	0.0029
Total Lead	0.030	0.015	0.00012	0.0004
Total Zinc	0.348	0.174	0.0075	0.0055
Un-ionized Ammonia	0.2	0.1	0.0090	0.0080
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.24	8.34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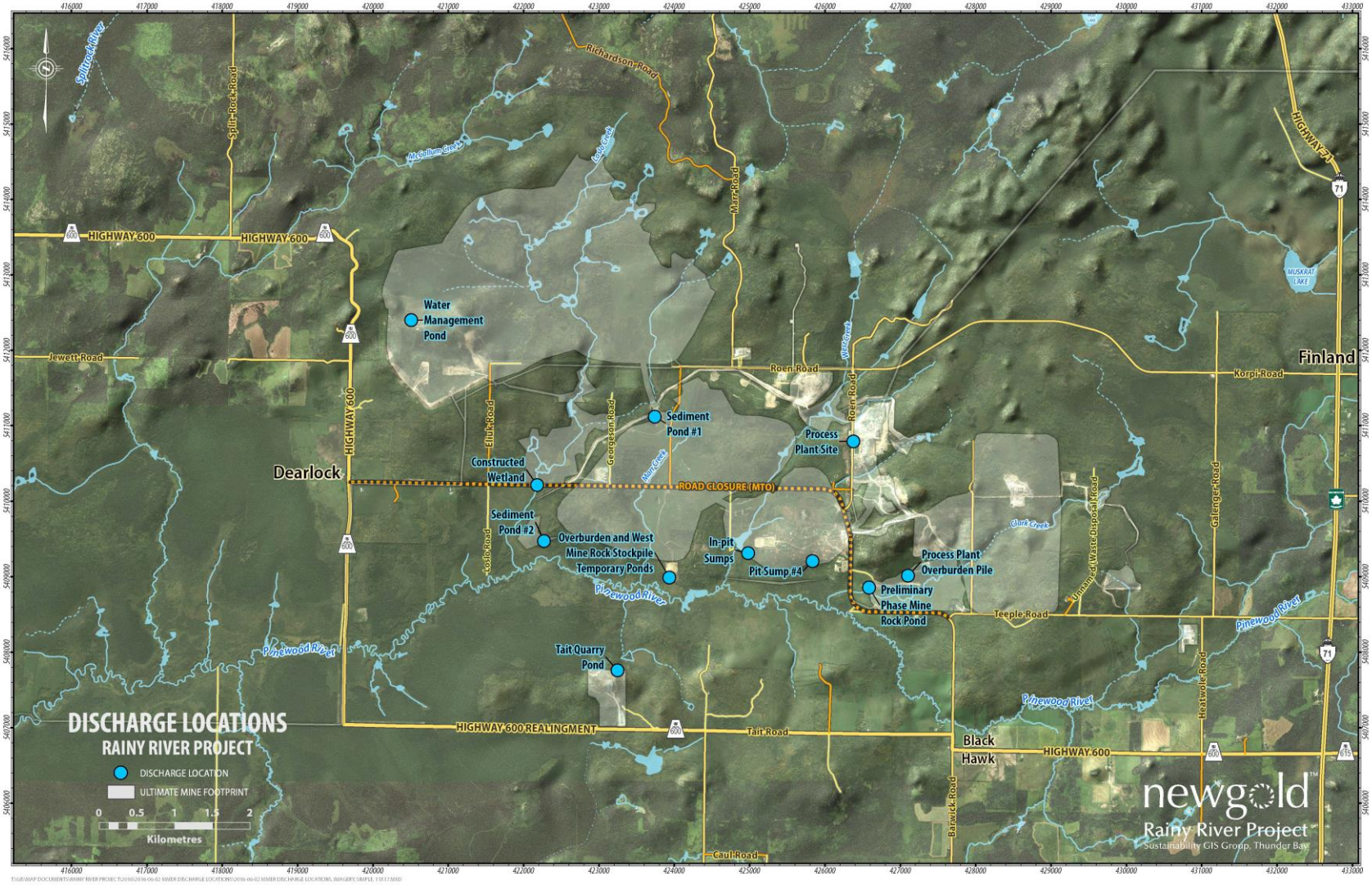
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Georgeson Road
Elub Road
Loblo Road
Clark Creek
Unnamed West Dispersal Road
HIGHWAY 71
MUSKRAT LAKE
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Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: January 4, 2017

Re: **Monthly Surface Water Quality Results Summary – November 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for November 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016 and commissioned in April, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 began in October, 2015;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Construction on the WMP Excavated Pond (Borrow) was completed August 2016;
- Surface water sampling was conducted on November 16, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds (Plant Site Polishing Pond) was conducted on November 23, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds (North Pond) was conducted on November 27 and 28, 2016.
- Construction discharge sampling for the Overburden and West Mine Rock Stockpile Temporary Sump 2 was conducted on November 11, 12, and 21, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on November 8, 21, and 23, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on November 6, 16, and 17, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in November, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedances that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include proper drainage ditching around sump to prevent non-contact water from entering, flocculant blocks at input, topsoil and seed, and a three-tier splash pad at input. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. Due to the exceedance that occurred in the month of July, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include a sprinkler and dust suppression framework and a circulating flocculant system. Additional sampling measures have also been implemented which consist of sampling all four corners before discharge and taking three different samples over time at discharge.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

Per approval letter received August 25, 2016 from the Ministry of Environment and Climate Change, these sumps are now being used to store excess water from the In Pit Sumps. This allows for additional capacity and retention time to protect the Pinewood River from the potential adverse effects posed by high un-ionized ammonia levels.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.5 WMP Excavated Pond (Borrow)

WMP Excavated Pond (Borrow) commenced construction in 2015. The pond was reworked in August 2016 to allow all water from inside the Water Management Pond dams to drain to this collection system.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on November 23, 2016 from the Process Plant and Crusher Area Sediment Ponds (Plant Site Polishing Pond), on November 27 and 28, 2016 from the Process Plant and Crusher Area Sediment Ponds (North Runoff Pond), on November 8, 21, and 23, 2016 from In Pit Sump 3, on November 6, 16, and 17, 2016 from In Pit Sump 4, on November 11, 12, and 21, 2016 from West Mine Rock and OVB Sump 2, and November 23 and 25, 2016 from Mine Rock Pond Polishing Pond. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on November 16, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Construction Phase Works Discharges met all Effluent Limits set out in the ECA except for the Process Plant and Crusher Area Sediment Ponds (Plant Site Polishing Pond) discharge that occurred November 23, 2016. The Total Suspended Solids (TSS) daily maximum limit was exceeded with a TSS of 46.0 mg/L. Please refer to letter addressing this incident sent on November 30, 2016 (SAC 6347-AG4JZH).

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron and total aluminum at some sites in the Pinewood River and the Rainy River (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW3	Pinewood River	T-Al	0.174	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.52	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.139	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.56	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-Al	0.697	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.17	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.186	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.7	0.3	0.3	-	-	-	-	-	-
SW22A	Pinewood River	T-Al	0.103	0.075	0.1	-	-	-	-	-	-
SW22A	Pinewood River	T-Fe	0.31	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.107	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-Al	0.165	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.31	0.3	0.3	-	-	0.35	1.95	0.08	0.24

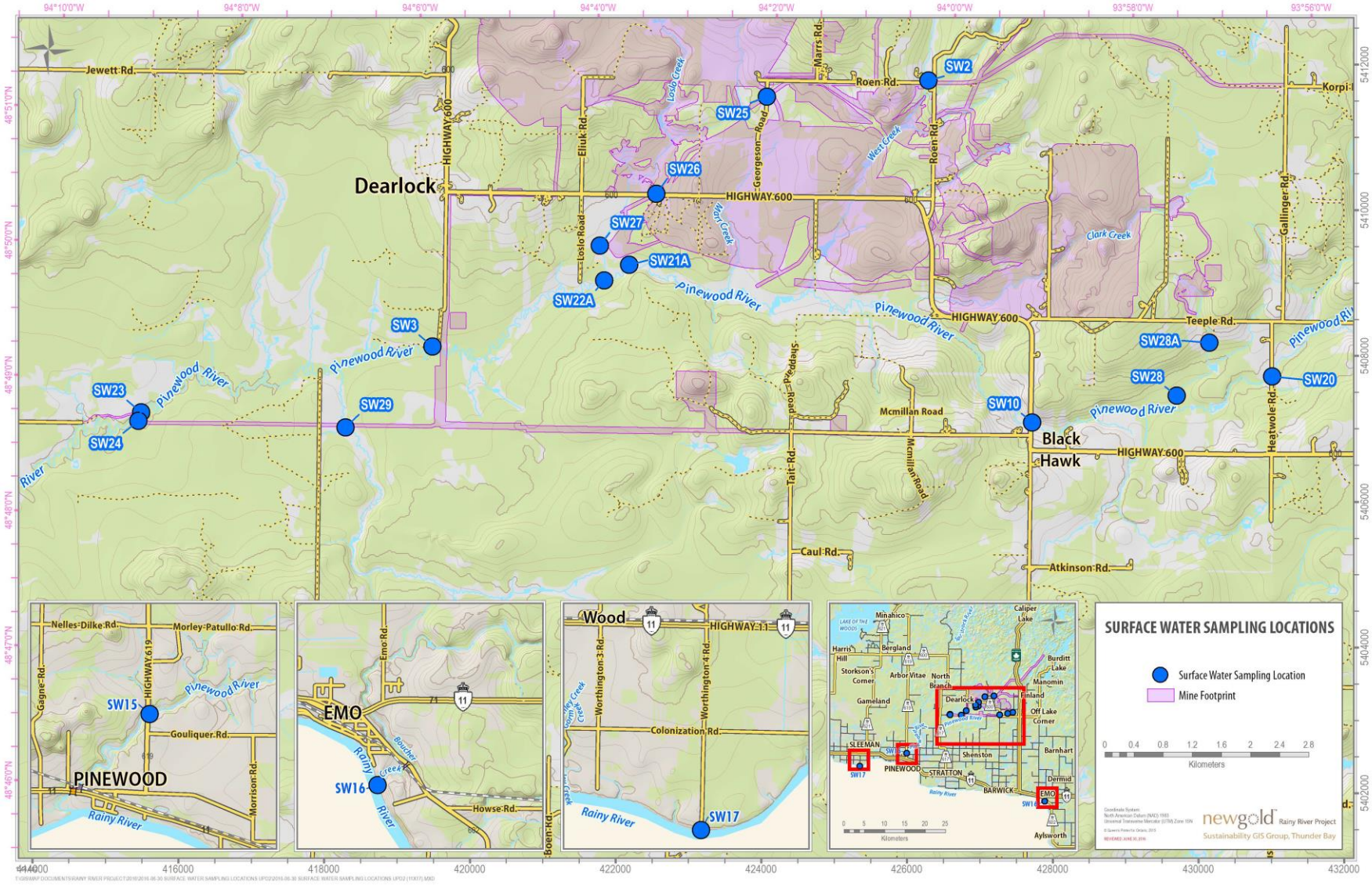
Table 2: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	November 23, 2016 Plant Site and Crusher Area Sediment Ponds (Plant Site Polishing Pond) (mg/L)	November 27, 2016 Plant Site and Crusher Area Sediment Ponds (North Runoff Pond) (mg/L)	November 28, 2016 Plant Site and Crusher Area Sediment Ponds (North Runoff Pond) (mg/L)	November 23, 2016 Plant Site Overburden Pile (Mine Rock Pond Polishing Pond) (mg/L)
Total Suspended Solids	30	15	46.0	3.5	16.5	3.5
Total Arsenic	0.034	0.017	0.001	0.0007	0.0007	0.0014
Total Copper	0.028	0.014	0.0033	0.0023	0.0024	0.0022
Total Nickel	0.094	0.047	0.0027	0.0043	0.0063	0.0013
Total Lead	0.030	0.015	0.0002	0.00017	0.00019	0.00003
Total Zinc	0.348	0.174	0.0085	0.0115	0.0085	0.002
Un-ionized Ammonia	0.2	0.1	0.002	0.002	0.002	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.10	8.21	8.16	8.13

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	November 25, 2016 Plant Site Overburden Pile (Mine Rock Pond Polishing Pond) (mg/L)	November 6, 2016 In Pit Sump 4 (mg/L)	November 8, 2016 In Pit Sump 3 (mg/L)	November 16, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	2.0	5.0	3.5	6.5
Total Arsenic	0.034	0.017	0.0014	0.0026	0.0025	0.003
Total Copper	0.028	0.014	0.0024	0.0007	0.0014	0.0018
Total Nickel	0.094	0.047	0.0033	0.0049	0.0047	0.0041
Total Lead	0.030	0.015	0.00004	0.00007	0.00017	0.00013
Total Zinc	0.348	0.174	0.0025	0.005	0.011	0.006
Un-ionized Ammonia	0.2	0.1	0.001	0.027	0.016	0.005
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.45	7.51	0.016	6.88

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	November 17, 2016 In Pit Sump 4 (mg/L)	November 21, 2016 In Pit Sump 3 (mg/L)	November 23, 2016 In Pit Sump 3 (mg/L)	November 11, 2016 West Mine Rock and OVB Sump 2 (mg/L)
Total Suspended Solids	30	15	6.5	8.0	9.5	7.5
Total Arsenic	0.034	0.017	0.0028	0.0024	0.0024	0.002
Total Copper	0.028	0.014	0.0016	0.0007	0.0008	0.0011
Total Nickel	0.094	0.047	0.004	0.0039	0.0039	0.0034
Total Lead	0.030	0.015	0.00013	0.0001	0.0001	0.00011
Total Zinc	0.348	0.174	0.0045	0.0105	0.0115	0.006
Un-ionized Ammonia	0.2	0.1	0.007	0.008	0.005	0.004
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.30	7.23	7.11	7.35

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	November 12, 2016 West Mine Rock and OVB Sump 2 (mg/L)	November 21, 2016 West Mine Rock and OVB Sump 2 (mg/L)	November 21, 2016 West Mine Rock and OVB Sump 2 (mg/L)
Total Suspended Solids	30	15	11.5	7.5	3.5
Total Arsenic	0.034	0.017	0.002	0.002	0.002
Total Copper	0.028	0.014	0.0013	0.0009	0.0007
Total Nickel	0.094	0.047	0.0036	0.0029	0.0031
Total Lead	0.030	0.015	0.00013	0.00007	0.00008
Total Zinc	0.348	0.174	0.0045	0.0045	0.0045
Un-ionized Ammonia	0.2	0.1	0.004	0.004	0.004
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			6.86	6.92	6.91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SW28A
SW29
HIGHWAY 600
HIGHWAY 11
HIGHWAY 619
Pinewood River
Rainy River
Jewett Rd.
Roen Rd.
Eliuk Rd.
Loslo Road
Georgeson Road
Marrs Rd.
Teeple Rd.
Gallinger Rd.
Heatwole Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Howse Rd.
Colonization Rd.
Gouliquer Rd.
Morrison Rd.
Nelles Dilke Rd.
Morley Patullo Rd.
Gagne Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
Boen Rd.
Clark Creek
West Creek
Loslo Creek
Barchet Creek
Rainy River
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
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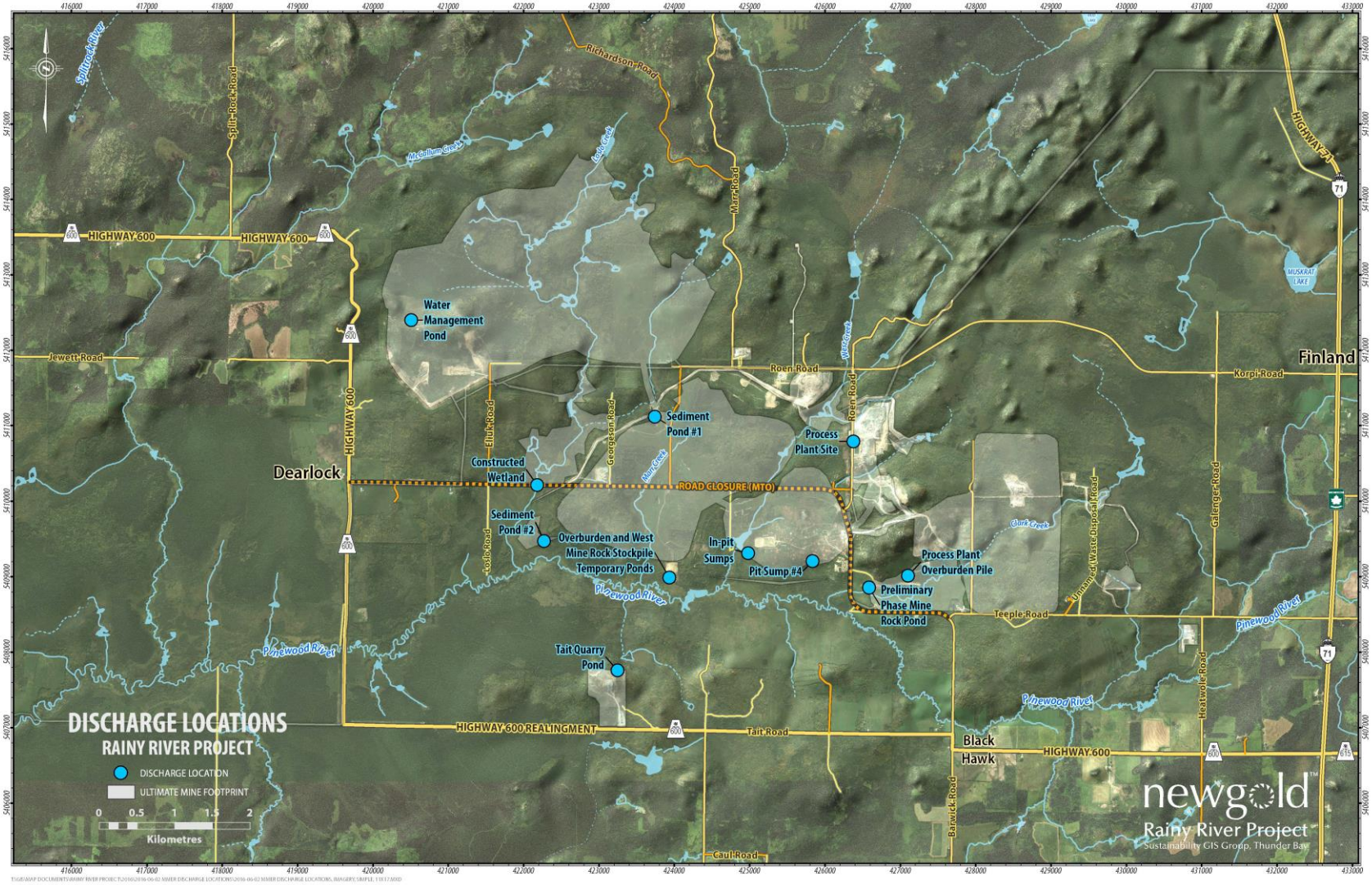
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RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
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Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
Tait Quarry Pond
ROAD CLOSURE (MTO)
HIGHWAY 600
HIGHWAY 600 REALINGMENT
Dearlock
Finland
Black Hawk
Jewett Road
Richardson Road
Korpi Road
Teeple Road
Tait Road
Caul Road
Pinewood River
Pinewood River
Pinewood River
Split Rock Road
Elub Road
Georgeson Road
Roen Road
Galenga Road
Heatwole Road
Barwick Road
Clark Creek
Unnamed West Dispersal Road
McCallum Creek
Loch Creek
Muskrat Lake
HIGHWAY 71
newgold
Rainy River Project
Sustainability GIS Group, Thunder Bay

Memorandum

To: Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

From: Darrell Martindale, Manager, Environment

Date: January 31, 2017

Re: **Monthly Surface Water Quality Results Summary – December 2016**

The following document has been provided consistent with Environmental Compliance Approval (ECA) # 5781-9VJQ2J, section 13(3) issued May 8, 2015. The purpose of the report is to provide a summary of monitoring activities related to the approved works.

Monitoring for November 2016 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Temporary Treatment Ponds was completed at the end of July, 2015;
- Construction on In-Pit Sump 3 was completed at the beginning of September, 2015;
- Construction on In-Pit Sump 4 was completed at the beginning of March, 2016;
- Construction on Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2 was completed at the end of August, 2016;
- Construction on the Process Plant Overburden Pile (Mine Rock Pond Polishing Pond) was completed at the end of July 2015;
- Construction on the WMP Excavated Pond (Borrow) was completed August 2016;
- Surface water sampling was conducted on December 21, 2016.
- Construction discharge sampling for the Plant Site and Crusher Area Treatment Ponds (South Runoff Pond) was conducted on December 11 and 12, 2016.
- Construction discharge sampling for In-Pit Sump 3 was conducted on December 7 and 20, 2016.
- Construction discharge sampling for In-Pit Sump 4 was conducted on December 2, 3, 11, 12, and 29, 2016.

1.0 Plant Site and Crusher Area Sediment Ponds

The Plant Site and Crusher Area Sediment Ponds commenced construction on May 17, 2015. Prior to that time sediment and erosion control measures were put in place beginning on 5 May which included silt fencing and settling ponds. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA. A single-polymer flocculant system was installed and commissioned on 15 July, 2015. This system was utilized in December, 2016 in the form of flocculant blocks.

1.1 In-Pit Sump 3

In-Pit Sump 3 commenced construction on August 20, 2015. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

In 2016, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include flocculant blocks and a three-tier splash pad at input. Additional sampling measures have also been implemented which consist of sampling all corners before discharge as well as taking an average of three samples over time at discharge.

At the end of December, In Pit Sump 3 was decommissioned as the Open Pit progressed to the West.

1.2 In-Pit Sump 4

In-Pit Sump 4 commenced construction beginning of January, 2016. Prior to that time sediment and erosion control measures were put in place which included silt fencing. As part of site preparation, water was released and used for dust suppression from the site consistent with section 7(5) of the ECA.

In 2016, systems have been put in place to assist with treatment for un-ionized ammonia and total suspended solids. These systems include multiple structures to fill vehicles for dust suppression and a circulating flocculant system. Additional sampling measures have also been implemented which consist of sampling all corners before discharge and taking an average of three samples over time at discharge.

Per approval letter received November 8, 2016 from the Ministry of Environment and Climate Change, a temporary portable ammonia treatment facility was installed at the end of December with the purpose of reducing un-ionized ammonia at In-Pit Sump 4. If proven to be effective, this system will be used at all sumps receiving mine effluent.

1.3 Overburden and West Mine Rock Stockpile Temporary Sumps 1 and 2

Sumps 1 and 2 commenced construction in October, 2015 as part of the ditching system to catch runoff from the Overburden and West Mine Rock Stockpiles. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

Per approval letter received August 25, 2016 from the Ministry of Environment and Climate Change, these sumps are now being used to store excess water from the In Pit Sumps. This allows for additional capacity and retention time to protect the Pinewood River from the potential adverse effects posed by high un-ionized ammonia levels.

1.4 Process Plant Overburden Pile (Mine Rock Sediment and Polishing Ponds)

Mine Rock Sediment and Polishing Ponds commenced construction at the beginning of 2015 as part of the ditching system to catch runoff from the Process Plant Overburden Stockpile. Prior to that time sediment and erosion control measures were put in place which included silt fencing.

1.5 WMP Excavated Pond (Borrow)

WMP Excavated Pond (Borrow) commenced construction in 2015. The pond floor was reworked in August, 2016 to allow all water from inside the WMP dams to collect to a single location for water management.

2.0 Effluent Sampling and Results

Sampling of the construction phase works occurred at discharge on December 11 and 12, 2016 from the Process Plant and Crusher Area Sediment Ponds (South Runoff Pond), on December 7 and 20, 2016 from In Pit Sump 3, and on December 2, 3, 11, 12, and 29, 2016 from In Pit Sump 4. The sampling is to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs.

3.0 Surface Water Sampling

Surface water sampling was conducted on December 21, 2016. The following sites were not sampled for the given reasons;

- SW23, SW24, and SW29 do not require sampling as the triggering milestones have not yet been reached with construction.
- SW25 and SW26, although identified as requiring sampling within one month of the receipt of the ECA, are located along the planned route of the West Creek Diversion which has yet to be commissioned.
- SW22A due to unsafe ice conditions.
- SW2 and SW28A due to waterway being frozen to bottom.

Sampling was conducted at the remaining sites following MISA protocols.

3.1 Summary of Analysis

Construction Phase Works Discharges met all Effluent Limits in December 2016 set out in section 7(2) of ECA 5781-9VJQ2J.

Surface water sampling results met PWQO, CEQG and ECA levels except for total iron, total aluminum and total zinc at some sites in the Pinewood River, the Rainy River, and Loslo Creek (Table 1). The sites were both upstream and downstream of the Project site and results are consistent with baseline results.

QA/QC procedures met expected controls (e.g., 20 % relative percent difference) except;

- Some field duplicate parameter pairs exceeded the RPD limit of 40%, although none of these parameter pairs exhibited concentrations greater than three times the detection limit. As a result, no implications to data quality are expected based on these exceedances.

4.0 Non-Routine Procedures

There were no non-routine calibration or maintenance procedures carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the sewage works during the reporting period.

5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

Table 1: Summary of Surface Water Sampling Results Where PWQO, CEQG, or ECA Were Exceeded

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	ECA (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW3	Pinewood River	T-Al	0.256	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.88	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-Al	0.2	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.9	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW10	Pinewood River	T-Zn	0.022	0.02	-	-	-	0.02	0.34	0.0025	0.0046
SW15	Pinewood River	T-Al	0.545	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.09	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.291	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	1.03	0.3	0.3	-	-	-	-	-	-
SW21A	Pinewood River	T-Al	0.146	0.075	0.1	-	-	-	-	-	-
SW21A	Pinewood River	T-Fe	0.6	0.3	0.3	-	-	-	-	-	-
SW21A	Pinewood River	T-Zn	0.0225	0.02	-	-	-	-	-	-	-
SW27	Loslo Creek	T-Al	0.099	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	1.11	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.0795	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-Al	0.139	0.075	0.1	-	-	0.23	1.71	0.05	0.13

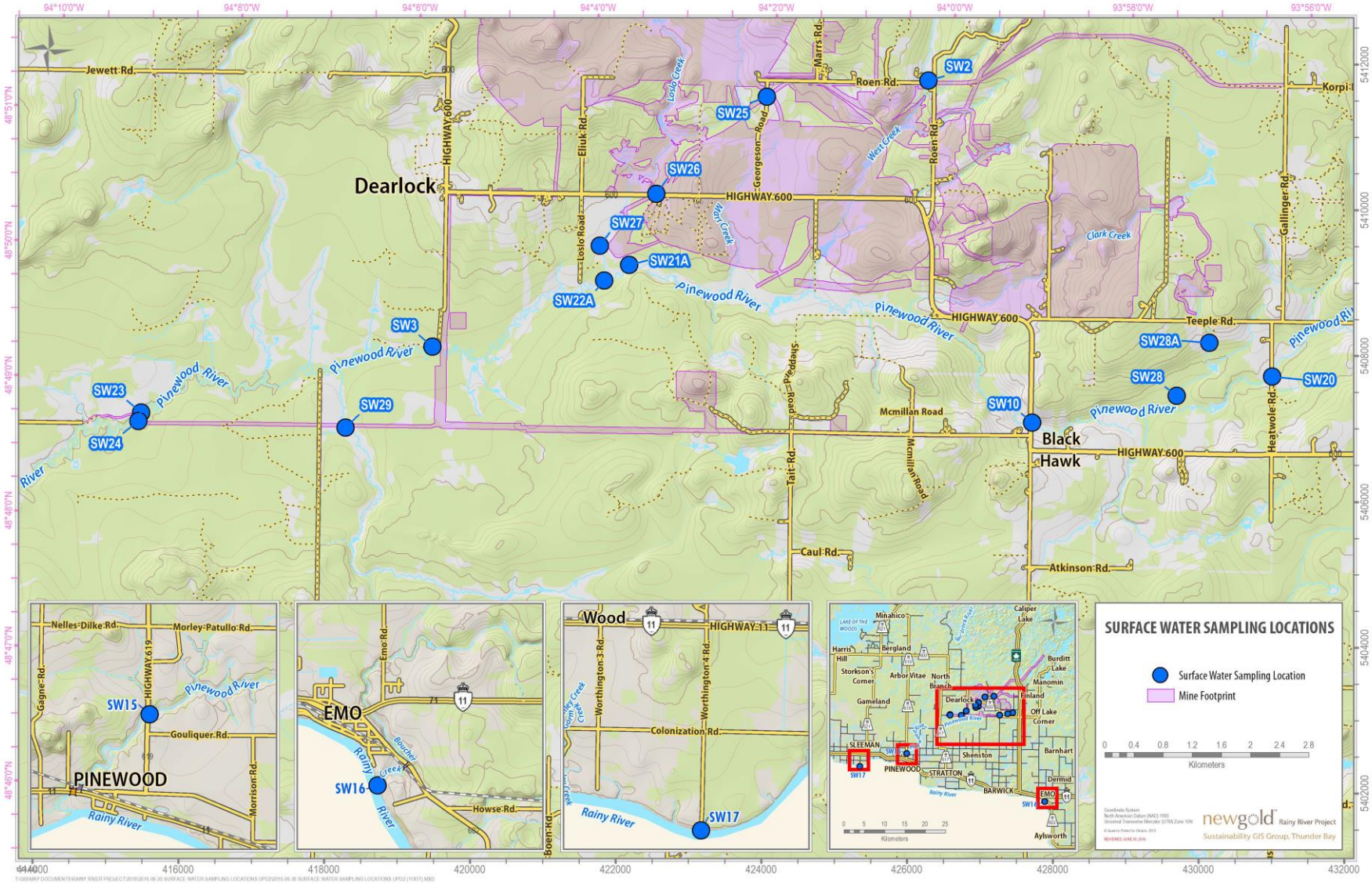
Table 2: Summary of Effluent Results for Construction Phase Works Discharge

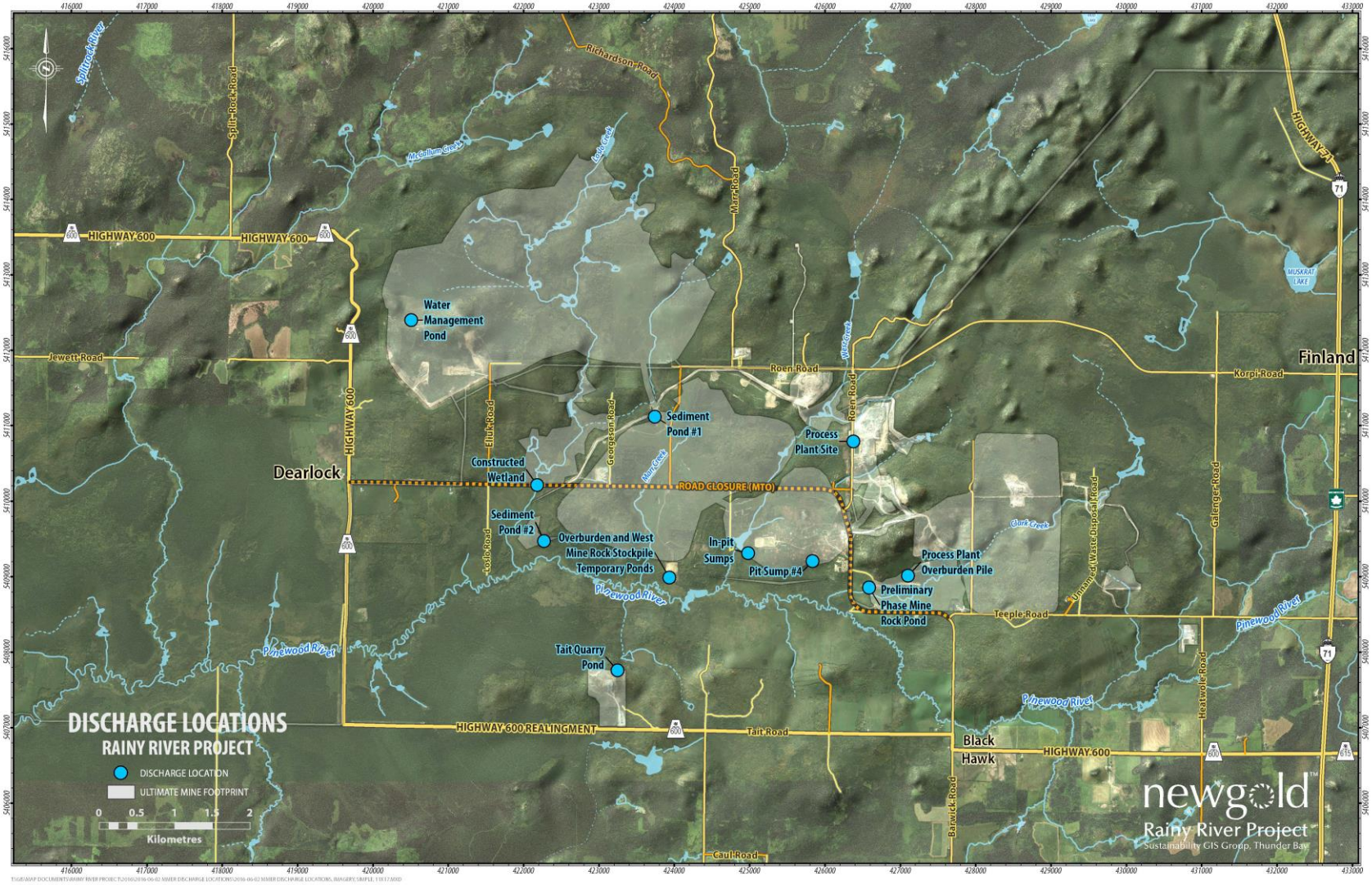
Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	December 2, 2016 In Pit Sump 4 (mg/L)	December 2, 2016 In Pit Sump 4 (mg/L)	December 3, 2016 In Pit Sump 4 (mg/L)	December 7, 2016 In Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	4.0	3.5	2.5	3.5
Total Arsenic	0.034	0.017	0.0027	0.0028	0.0026	0.0026
Total Copper	0.028	0.014	0.0018	0.0017	0.0016	0.0018
Total Nickel	0.094	0.047	0.0041	0.004	0.0038	0.0039
Total Lead	0.030	0.015	0.0001	0.00009	0.00006	0.0001
Total Zinc	0.348	0.174	0.011	0.007	0.0055	0.0105
Un-ionized Ammonia	0.2	0.1	0.007	0.015	0.011	0.008
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pas	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.21	7.50	7.39	7.25

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	December 7, 2016 In Pit Sump 3 (mg/L)	December 11, 2016 In Pit Sump 4 (mg/L)	December 12, 2016 In Pit Sump 4 (mg/L)	December 12, 2016 In Pit Sump 4 (mg/L)
Total Suspended Solids	30	15	4.0	2.5	0.5	1.5
Total Arsenic	0.034	0.017	0.0025	0.0023	0.0023	0.0023
Total Copper	0.028	0.014	0.0027	0.001	0.0147	0.0011
Total Nickel	0.094	0.047	0.0039	0.0052	0.0051	0.0053
Total Lead	0.030	0.015	0.00015	0.00007	0.00078	0.00006
Total Zinc	0.348	0.174	0.011	0.013	0.025	0.016
Un-ionized Ammonia	0.2	0.1	0.008	0.01	0.01	0.01
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.25	7.15	7.17	7.18

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	December 20, 2016 In Pit Sump 3 (mg/L)	December 29, 2016 In Pit Sump 4 (mg/L)	December 11, 2016 Process Plant and Crusher Area Sediment Ponds (South Runoff Pond) (mg/L)	December 11, 2016 Process Plant and Crusher Area Sediment Ponds (South Runoff Pond) (mg/L)
Total Suspended Solids	30	15	5.5	19.0	5.5	4.0
Total Arsenic	0.034	0.017	0.0028	0.0024	0.001	0.001
Total Copper	0.028	0.014	0.0018	0.0007	0.0051	0.0058
Total Nickel	0.094	0.047	0.0055	0.007	0.0032	0.0026
Total Lead	0.030	0.015	0.0001	0.00014	0.00016	0.00013
Total Zinc	0.348	0.174	0.015	0.02	0.0225	0.0225
Un-ionized Ammonia	0.2	0.1	0.009	0.013	0.001	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.19	7.28	8.05	7.78

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	December 12, 2016 Process Plant and Crusher Area Sediment Ponds (South Runoff Pond) (mg/L)
Total Suspended Solids	30	15	6.5
Total Arsenic	0.034	0.017	0.001
Total Copper	0.028	0.014	0.0054
Total Nickel	0.094	0.047	0.0029
Total Lead	0.030	0.015	0.00013
Total Zinc	0.348	0.174	0.0225
Un-ionized Ammonia	0.2	0.1	0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethality (not greater than 50% mortality in undiluted effluent)		Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			8.14


Dearlock
Black Hawk
PINEWOOD
EMO
Wood
SW2
SW3
SW10
SW15
SW16
SW17
SW20
SW21A
SW22A
SW23
SW24
SW25
SW26
SW27
SW28
SW28A
SW29
HIGHWAY 600
HIGHWAY 11
HIGHWAY 619
Pinewood River
Rainy River
Jewett Rd.
Roen Rd.
Eliuk Rd.
Loslo Road
Georgeson Road
Marrs Rd.
Teeple Rd.
Gallinger Rd.
Heatwole Rd.
Mcmillan Road
Caul Rd.
Atkinson Rd.
Howse Rd.
Colonization Rd.
Gouliquer Rd.
Morrison Rd.
Nelles Dilke Rd.
Morley Patullo Rd.
Emo Rd.
Worthington 3 Rd.
Worthington 4 Rd.
Boen Rd.
Tait Rd.
Sheppard Road
Clark Creek
West Creek
Loslo Creek
SURFACE WATER SAMPLING LOCATIONS
Surface Water Sampling Location
Mine Footprint
Kilometers
newgold Rainy River Project
Sustainability GIS Group, Thunder Bay


DISCHARGE LOCATIONS
RAINY RIVER PROJECT
DISCHARGE LOCATION
ULTIMATE MINE FOOTPRINT
0 0.5 1 1.5 2
Kilometres
Water Management Pond
Sediment Pond #1
Process Plant Site
Constructed Wetland
ROAD CLOSURE (MTO)
Sediment Pond #2
Overburden and West Mine Rock Stockpile Temporary Ponds
In-pit Sumps
Pit Sump #4
Process Plant Overburden Pile
Preliminary Phase Mine Rock Pond
Tait Quarry Pond
HIGHWAY 600
HIGHWAY 600 REALIGNMENT
Dearlock
Finland
Black Hawk
Jewett Road
Richardson Road
Roen Road
Korpi Road
Tait Road
Teeple Road
Caul Road
Pinewood River
Clark Creek
Galenga Road
Heatwole Road
Barwick Road
Elub Road
Georgeson Road
Split Rock Road
Mar Road
HIGHWAY 71
MUSKRAT LAKE
newgold
Rainy River Project
Sustainability GIS Group, Thunder Bay

newgold™ Rainy River Project

February 2nd 2017

Adam Scheepers, Fishery Inspector
Environmental Enforcement Directorate
Enforcement Branch – Ontario Region
Environment Canada
335 River Rd
Ottawa, Ontario K1V 1C7
Canada

Ray Boivin, Senior Environmental Officer
Ministry of the Environment
and Climate Change
808 Robertson St.
Kenora, Ontario P9N 1X9
Canada

Dear Mr. Scheepers and Mr. Boivin,

RE: Exceedance of MMER Rainbow Trout Acute Toxicity (SAC Ref#7425-AHBTWL)

Further to the letters provided on Jan 6th and 20th 2017, regarding an exceedance of water quality in acute lethality, and causation analysis, the following report is being submitted to Environment Canada.

Analyses and Results

Though the sample for the second (2) acute lethality analysis was frozen in transit, making the result invalid, the analysis was completed. There were no mortalities in rainbow trout or daphnia magna.

A third (3) sample for acute lethality was taken when notification of the frozen sample was received on 14th Jan 2017. Sample 3 was sent to the lab regularly used and the acute lethality analysis was completed; no mortalities in rainbow trout or daphnia magna were found. The field parameters (temperature, pH, conductivity, dissolved oxygen, and turbidity with unionized ammonia being calculated) were taken and were within regular operating levels and below regulatory limits.

A Toxicity Identification Evaluation (TIE) test was set up to run in the event that either the second (2) or third (3) acute lethality analysis found mortalities. As there were no mortalities from neither the second nor third acute lethality analysis, a TIE test could not be completed.

Based on the findings of acute toxicity analyses, the field analyses and the normal pre-discharge testing (including metals), the water in Sump 4 was within the New Gold Rainy River Project discharge limits and it has been discharged.

Causation Analysis

At this time, we cannot confirm the cause of the initial failed acute toxicity analysis as we have been unable to duplicate the results. Previous acute toxicity analyses have shown no indication of issue and have been within the discharge limits.

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F 807-482-2834
www.newgold.com

The New Gold Rainy River Project will continue with the increased frequency requirements for acute toxicity testing as prescribed in the Metal Mining Effluent Regulations adjusted to the frequency of Sump 4 discharge. Please note under the current operating conditions Sump 4 is discharged approximately once per month.

Conclusion

To eliminate the possibility of the Baker Ammonia Treatment Unit being the cause of the failed acute toxicity analysis, prior to the next discharge of treated Baker Unit water, an acute toxicity analysis will be run and enough water to run a TIE test will be stored. Should the acute toxicity analysis fail, you will be provided with notification and another causation analysis will be conducted.

If you have any questions regarding this report of the completion of the causation analysis, please contact the undersigned or Darrell Martindale (Environment Department Manager) at darrell.martindale@newgold.com.

Kind Regards,

<Original signed by>

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newgold™ Rainy River Project

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Federal Condition 4: Migratory Birds

Condition 4.1

The Proponent shall carry out all phases of the Designated Project in a manner that avoids harming or killing migratory birds, or disturbing, destroying or the taking of nests or eggs, with consideration of guidance provided in:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis 4.1.1 to 4.1.2

Condition 4.1.1

Environment Canada's policy on Incidental Take of Migratory Birds in Canada; and

Status: Ongoing

Supporting Analysis:

The Rainy River Project Environmental Team has implemented site wide notices regarding the bird breeding window, requirements for bird sweeps in new construction areas or areas that have been inactive for periods of time. The department is also the primary contact for any incidents or mortalities to birds, nests or eggs. In 2016, there was one incident of damage to a robin nest resulting in a loss of eggs. The cause was a lack of pre-inspection on a drill located in the open pit.

The Environmental Team will continue to implement monitoring programs and employee awareness in 2017.

Condition 4.1.2

Environment Canada's avoidance guidelines on General Nesting Periods of Migratory Birds in Canada.

Status: Ongoing

Supporting Analysis:

Members of the Rainy River Project Environmental Team have been trained by qualified professionals on conducting bird sweeps and identifying Species at Risk bird species. 233 bird sweeps were conducted between April and August in construction areas to ensure the absence of nesting birds or species at risk prior to excavation.

In areas where nests were found, appropriate buffers were flagged off around the perimeter of the buffer zone and the nests were monitored on a weekly basis until the nests were abandoned. Buffer zones were established based on input from New Gold RRP's consulting experts in conjunction with discussions from the Ministry of Natural Resources and Forestry. Vegetation clearing was prohibited during these months. This program will continue in 2017.

Condition 4.2

The Proponent shall, at all times, implement noise reduction measures to control sound levels from machinery to avoid harassing migratory birds.

Status: Ongoing

Supporting Analysis:

During the 2016 Construction Phase noise reduction measures employed were compliant with the EIS commitments. Reducing the size of blasts where appropriate and maintaining tree buffers where applicable provided other solutions to noise mitigation. Furthermore, vegetation clearing and constructing development in known nesting areas and mature forests was prohibited through the breeding bird window (May 1 to August 15).

Reporting during 2016 was completed as required by the Endangered Species Act permit for the Rainy River Project. As New Gold has been directed in the past by the Ontario Ministry of Natural Resources and Forestry that the Species at Risk information associated with the Rainy River Project is sensitive, copies of associated report(s) are not included herein. Please contact New Gold or the Ontario Ministry of Natural Resources and Forestry if you require further information.

Results indicated that there were no exceedances of the hourly sound criteria threshold at either receptor that were attributable to Project related activities.

Condition 4.3

The Proponent shall install and use site lighting fixtures in a manner that reduces light pollution in the surrounding environment to avoid disturbance to nocturnal species, such as the Common Nighthawk (Chordeiles minor).

Status: Ongoing

Supporting Analysis:

During the construction phase there are limited permanent lightning fixtures installed on the project site. Some temporary light plants are solar powered as shown in Figure 1: Example of Solar Light Plant, October 2016.

Temporary light plants are used only in areas where employees are working a night shift or if required for safety purposes. Light plants are designed so that lights can be angled toward the ground. During routine field inspections members of the Rainy River Environmental Department check light plants to ensure they are angled appropriately and used only when necessary. Monitoring and consideration to this condition will continue to be implemented as the project advances.

Figure 1: Example of Solar Light Plant, October 2016

Condition 4.4

The Proponent shall deter migratory birds from using the tailings management area.

Status: Not applicable at this time

Supporting Analysis:

During 2016 the Tailings Management Areas was not constructed due to permit delays. In mid-2017 a starter cell will be constructed in the TMA at which time tailings will be deposited and a plan to deter migratory birds from using the facility will be implemented.

Condition 4.5

The Proponent shall provide comparable replacement artificial nesting structures for Barn Swallows (Hirundo rustica) prior to the removal of existing nesting structures.

Status: Completed

Supporting Analysis:

Four artificial nesting structures were put in place in April 2015, prior to the 2015 breeding season. Information related to the success of these structures can be found in condition 4.8.

Figure 2: Barn Swallow Nest Box A, July 2016

Figure 3: Barn Swallow Nest Box B, July 2016

The four artificial nesting structures, called barn swallow nest boxes, are located in Overall Benefit Land on the following roads:

- Barn Swallow Nest Box A – Loslo Road, Figure 2
- Barn Swallow Nest Box B – Seven Bends, Figure 3
- Barn Swallow Nest Box C – Gallinger Road, Figure 4
- Barn Swallow Nest Box D – Teeple Road, Figure 5

Figure 4: Barn Swallow Nest Box C, July 2016

In the early spring of 2016 prior to the breeding bird window New Gold was required to eliminate one barn structure from the property due to safety and construction needs. As the project advances there will be additional homes and outbuildings that will be demolished or relocated. At that time the need to develop additional artificial nesting structures will be investigated.

Figure 5: Barn Swallow Nest Box D, July 2016

Condition 4.6

The Proponent shall monitor migratory birds, breeding activity and mortality, to evaluate the effectiveness of mitigation measures under conditions 4.1 to 4.3. If monitoring demonstrates an inconsistency with those conditions, then document how this has been rectified. Monitoring starts at construction and ceases at the end of the decommissioning phase.

Status: Ongoing

Supporting Analysis:

During 2016 the RRP obtained the professional assistance of AMEC Foster Wheeler to conduct appropriate monitoring of migratory birds and breeding activity in addition to site activities. Studies and activities included;

- Ongoing visual inspections of four artificial barn swallow nesting structures 2016. The structures were installed on April 2015. Nesting in a structure occurred in 2016.
- Development of a detailed Wildlife Monitoring Plan, included in SD 4.6a and 4.6b, that is currently under review by the MNRF which was implemented in 2016. The plan includes Species at Risk Monitoring and includes monitoring during the construction and operations phase as well as post mine closure.
- Acoustic monitoring in areas where Whip-poor-will were not known to be present to ensure sound decibels are within an appropriate range.
- Targeted point count surveys for diurnal SAR including Golden-winged Warbler, Barn Swallow and Bobolink and for woodland area-sensitive breeding birds in suitable habitat. Point counts will be based on standardized survey protocols described for the Ontario Breeding Bird Atlas Guide for Participants (OBBA 2001) so as to be consistent with baselines study methodology (Section 5.2.12);
- Incidental data collection for SAR and provincially rare species which are currently present at lower abundance including: Canada Warbler, Olive-sided Flycatcher, Short-eared Owl, American Pelican, Bald Eagle and Black-billed Magpie;
- Targeted twilight surveys for Eastern Whip-poor-will in suitable habitat. Whip-poor-will monitoring efforts will follow standardized survey protocols as outlined in the whip-poor-will Roadside Survey Participant's Guide (BSC 2012);
- Concurrent data collection for Common Nighthawk to be undertaken during targeted Eastern Whip-poor-will surveys as described above as no standardized survey protocols have been developed specifically for this species;
- Annual monitoring of active Bald Eagle nests which occur in close proximity the RRP site. Monitoring will attempt to establish fledging success;
- Implementation of a wildlife log of general breeding bird observations at the RRP site by employees (focused on raptors and raptor nests, and SAR species); and

In regard to mitigation strategies that are being implemented on the project to assist in monitoring and reduce adverse effects these include;

- Acquiring of 1468 hectares of lands to provide Eastern Whip-poor-will breeding territories and 348 hectares of field habitat suitable for Bobolink breeding habitat. These offset benefit lands are to compensate for habitat lost during the construction of the mine. Monitoring the success of these areas and potential impacts to the bird species is conducted through three phases; visual monitoring, monitoring of habitat use in the offset benefit lands and monitoring or rehabilitation plans during mine closure. In 2016 monitoring of phase 3 was completed.
- Reduction of speed limits on the project to reduce vehicle collisions with birds
- Restricting habitat displacement for mine infrastructure to periods outside the breeding bird season (May 1 to August 15).

In order to track mortality New Gold RRP has an onsite reporting system for employees to report any road collisions with birds and wildlife. During 2016 there were no bird mortalities reported.

Condition 4.7

The Proponent shall monitor use of the tailings management area by migratory birds under condition 4.4 from the start of the operations phase to the end of the decommissioning phase.

Status: Not applicable at this time.

Supporting Analysis:

Construction of the Tailings Management Area did not occur in 2016 therefore the need to monitor the area for use by migratory birds was not necessary.

When reviewing the 2016 New Gold RRP Wildlife Monitoring database there were reported sightings of pelicans in Marr Creek within the footprint of the Tailings Management Area.

Condition 4.8

The Proponent shall monitor the effectiveness of the artificial nesting structures created for Barn Swallows (Hirundo rustica).

Status: Ongoing

Supporting Analysis:

During the 2016 breeding season New Gold RRP Environmental team implemented the Bird Studies Canada Nest Watch protocol for monitoring the four artificial nesting structures located on site. Routine bi-weekly monitoring was completed between May and August 2016. Figure 6 shows the one nest built in a nesting structure, Barn Swallow Nest Box C, located on Gallinger Road.

Figure 6: Barn Swallow Nest in Nest Box C, July 2016

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Supporting Documentation

SD 4.6a: RRP WMP Ver5 (June.7.2016)
SD 4.6b: RRP WMP Ver5 Appendices (June.7.2016)

RAINY RIVER PROJECT
FOLLOW-UP MONITORING PLAN
FOR
TERRESTRIAL SYSTEMS AND HABITAT RESTORATION
(INCLUDING MONITORING FOR SPECIES AT RISK)

PER PROVINCIAL ENVIRONMENTAL ASSESSMENT
NOTICE OF APPROVAL CONDITION 5

EA File No: EA 05-09-02 / EAIMS File No: 13102

VERSION 5

Date	Rev. #	Revision(s)	Originator
Jan. 22, 2015	0	None	Matt Evans, Amec Foster Wheeler
Apr. 20, 2015	1	From MNRF	Matt Evans, Amec Foster Wheeler
July 9, 2015	2	From MNRF and Nigel Fisher	Matt Evans, Amec Foster Wheeler
July 30, 2015	3	From Nigel Fisher	Matt Evans, Amec Foster Wheeler
Feb. 3, 2016	4	From MNRF	Matt Evans, Amec Foster Wheeler
May 25, 2016	5	From MNRF	Matt Evans, Amec Foster Wheeler

May 2016
TC111504

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1.0 PROJECT BACKGROUND

New Gold Inc. (NG; formerly Rainy River Resources Limited) is planning to construct, operate and eventually reclaim a new open pit and underground gold mine, the Rainy River Project (RRP) to produce doré bars (gold with silver) for sale.

Physical works related to the RRP will consist primarily of:

- Open pit;
- Underground mine;
- Overburden, mine rock and low grade ore stockpiles;
- Primary crusher and process plant;
- Tailings management area;
- 230 kilovolt transmission line;
- Relocation of a portion of gravel-surfaced Highway 600; and
- Associated buildings, facilities and infrastructure, supported by related piping and power infrastructure as needed.

Environmental baseline studies for the RRP have been ongoing since 2009 and have established a comprehensive understanding of the composition of local plant and wildlife communities within the Project footprint as well as on surrounding lands. Annual baseline reports have been produced in addition to annual Species at Risk (SAR) assessments. The assessment of potential environmental impacts was summarized in the RRP Final Environmental Assessment Report (Environmental Impact Statement) Version 2 (AMEC 2014a) submitted to the Federal and Provincial Governments, including for Aboriginal and public review.

Development of the RRP was initiated in 2015 following completion of the EA process and receipt of applicable environmental approvals. The entire RRP site will be under development through to the proposed 2017 Project production start date. NG has committed to considering environmental aspects, such as bird nesting seasons in the scheduling of RRP development activities. Tree clearing is to take place outside of the breeding bird nesting season (May 1 to August 15) and clearing or modification of known Trumpeter Swan breeding habitat will also be restricted to outside their respective breeding season (March 15 to August 15). Other RRP EA commitments are listed in Appendix 1.

2.0 REGULATORY FRAMEWORK

2.1 Environmental Assessment

The RRP involves activities listed in the Regulations Designating Physical Activities and was therefore subject to the *Canadian Environmental Assessment Act, 2012*. The Canadian Environmental Assessment Agency (CEA Agency) determined on October 18, 2012, that an EA was required. Rainy River Resources Ltd. (predecessor to New Gold Inc.; NG) also volunteered to be subject to an individual EA under the Ontario *Environmental Assessment Act*.

On January 17, 2014, NG submitted documentation intended to fulfill the EA requirements as defined by the Federal Environmental Impact Statement (EIS) Guidelines and Provincially-approved Terms of Reference:

- AMEC. 2014a. Rainy River Project, Township of Chapple, Final Environmental Assessment Report (Environmental Impact Statement), Version 2. Prepared for Rainy River Resources Ltd.

On January 12, 2015 the Rainy River Project was approved by the Federal Government and on January 28, 2015 it was approved by the Ontario Government. NG is committed throughout all phases of the RRP to inform its actions in meeting the Federal and Provincial Environmental Assessment (EA) Conditions by using the best available information and knowledge, based on validated methods and models, undertaken by qualified individuals using the best available technologies economically achievable for mitigation strategies.

2.2 Other Environmental Approvals

2.2.1 Other Federal Environmental Approvals

With respect to wildlife and wildlife habitats, no additional Federal environmental approvals are required beyond the Federal EA (under the *Canadian Environmental Assessment Act, 2012*).

The Federal *Migratory Birds Convention Act* (MBCA) nonetheless regulates the protection and conservation of migratory birds and prevents the disturbance or destruction of these birds, their nests, eggs and habitats. The MBCA makes it unlawful to pursue, hunt, take, capture, kill or sell birds listed therein. The statute does not discriminate between live or dead birds and also grants full protection to any bird parts including feathers, eggs and nests. Over 700 species are currently on the migratory bird list in Canada.

Compliance with the MBCA regulations and guidelines has been and will be undertaken during the RRP construction, operation and closure phases

2.2.2 Other Provincial Environmental Approvals

A Provincial *Endangered Species Act* (*ESA*) permit for Species at Risk (SAR; Eastern Whip-poor-will and Bobolink) is required and is described in Sections 6.2.1 and 6.3.1.3.

Compliance with regulations and guidelines for noise emissions, as recommended by the Ministry of the Environment and Climate Change in their *Environmental Noise Guideline NPC-300* (MOECC 2013) has been and will be undertaken during the RRP construction, operation and closure phases, as discussed in detail in the RRP Final EA Report / EIS (AMEC 2014a).

3.0 FOLLOW-UP MONITORING PLAN

3.1 Background and Context

In accordance with the *Canadian Environmental Assessment Act, 2012 (CEAA, 2012)* the purpose of the follow-up monitoring plan (FMP) is to verify the accuracy of the predictions made in the EA about the Project's impacts on wildlife and wildlife habitat, and to monitor the effectiveness of rehabilitation efforts for wildlife habitat and terrestrial environments. The FMP framework outlined herein is designed around four central principles of environmental protection:

- Do no harm culture;
- Respect for Aboriginal culture and values;
- Continuous improvement; and
- Compliance with all environmental approvals and authorizations.

The Provincially-approved Amended Terms of Reference (ToR) and the Federal EIS Guidelines provide for the development of a monitoring framework for compliance and effects monitoring, as part of the EA, with consideration being given to comments put forward by government agencies, Aboriginal groups and other stakeholders, including any FMPs developed through the Federal EA process. The approved Amended ToR also recognizes that monitoring details will be defined in part through the environmental approvals and permitting process that would follow EA approval.

In addition, the FMP is expected to:

- Provide for adaptive management in the event environmental effects are different from expected, new information becomes available, or mitigation measures prove to be less effective than anticipated; and

- Communicate the FMP results to RRP stakeholders and Aboriginal groups who are party to the program and to provide for their input into program results.

The FMP applies to the construction, operation, active closure and decommissioning, and post-closure phases of the RRP, as appropriate. NG will be responsible for carrying out the FMP but Federal and Provincial agencies and authorities will have a review and monitoring role regarding implementation of the FMP and will require NG to take corrective action for non-compliance as appropriate. Local Aboriginal groups are considered by NG to be involved parties for the purposes of the FMP, and accordingly, local First Nations and Métis will be provided with the annual results of the FMP. It is expected that the FMP will be reviewed from time to time to determine whether or not changes are required.

3.2 FMP Objectives

The RRP Final EA Report / EIS (AMEC 2014a) determined that approximately 2,170 hectares (ha) of terrestrial habitat will be directly displaced by RRP developments over the life of the mine. This 2,170 ha includes 1,352 ha of woodland habitat that will be cleared, with 1,090 ha consisting of second growth aspen-birch hardwood forest which is the dominant forest community type in the natural environment local study area (NLSA, as defined in AMEC 2014a). Forest clearing will impact 42 woodland features, 15 of which provide area sensitive woodland breeding bird habitat. Other community types comprising the largest areas of removal are active agricultural lands (277 ha), open wetland habitat (261 ha), coniferous swamp (16.5 ha) and cultural meadows or fallow fields (10.8 ha). Portions of 27 different community types will be removed, with 11 of these community types expected to experience displacements of less than 10 ha.

It is recognized that the NLSA supports a variety of wildlife species including species that are hunted and trapped, as well as breeding populations of nine SAR and three Provincially rare species (listed in Section 4.2). Species of greatest concern include two SAR: Eastern Whip-poor-will and Bobolink, which are both designated Federally and Provincially as Threatened. These two SAR are likely to be the species most impacted, both directly and indirectly, by the RRP.

The principal mitigation measures designed to limit adverse effects to terrestrial systems and to SAR are to develop as small an overall project footprint as practicable, and to avoid disturbance to SAR territories, such as known Eastern Whip-poor-will and Bobolink territories, where reasonably feasible. Where it is not reasonably feasible to avoid displacement or disturbance to known SAR territories, compensation through an *Endangered Species Act* (ESA) permit is being provided.

A FMP will monitor Project-related impacts and will ensure that the predicted effects on Valued Ecosystem Components (VECs; focusing on targeted species) were accurate and that they are properly mitigated. FMP monitoring will be based, where possible, on standard survey protocols used during baseline studies so that any changes in target species' populations may be detected.

The objectives of the FMP are to:

- Confirm and monitor the direct loss of habitat resulting from RRP activities for targeted species including SAR and area-sensitive species, and to monitor the expected recolonization of these habitats post closure;

- Monitor for any unanticipated reductions in habitat suitability for various targeted species resulting from disturbances caused by the RRP such as from sound and artificial lighting;

- Monitor and assess the use of alternate habitats within the NLSA or natural environment regional study area (NRSA) by targeted species displaced from the RRP footprint;

- Determine whether or not changes in vegetation structure, such as the construction of wetlands, promote new colonization by targeted species or provide alternate habitat for displaced individuals;

- Determine whether or not SAR compensatory habitat established under the Provincial ESA Permit (No. F-C-001-14) provides suitable habitat for the intended SAR (Eastern Whip-poor-will and Bobolink) and other species such as migratory birds;

- Monitor expected colonization and annual use of four artificial nest structures by Barn Swallows;

- Monitor indirect effects on SAR and Provincially rare species which are dependent on existing agricultural practices in the NLSA, such as Barn Swallow and Black-billed Magpie, which feed on insects attracted to the NLSA by livestock; and

- Monitor biodiversity (number of species present) as per Provincial Environmental Assessment Notice of Approval Conditions 14.1 and 14.2, including the production of a pre-construction biodiversity baseline report.

Except as defined otherwise below (e.g., for Eastern Whip-poor-will and Bobolink, winter aerial surveys for mammals and mammal tissue sampling), monitoring will occur:

- During the first two years of construction (2015 and 2016);

- In the first year following the completion of construction (2018) and at three year intervals thereafter, until completion of operations; and

- In years 1, 4, 7, 10 and 15 post closure, except for Eastern Whip-poor-will and Bobolink surveys which will be conducted until disturbed habitats have been recolonized (described in detail below in Section 6.3.1).

The FMP will be an outcome-based program and will be evaluated regularly. When predictions described in the RRP Final EA Report / EIS (AMEC 2014a) have been met (e.g., a focus species or habitat has returned to baseline conditions, or has returned to within 85% of the baseline conditions), or the objectives listed above have been met, discussions will be held with regulators regarding the cessation of that particular component of the monitoring program. New Gold has committed to conducting monitoring until year 15 post closure. A part of the evaluation process will be to determine if future monitoring is required beyond year 15 post closure and will be based on whether or not EA / EIS predictions or FMP objectives have been sufficiently met at this time.

4.0 SPECIES RECORDED IN THE PROJECT AREA

Environmental baseline studies for the RRP have been ongoing since 2009 and have established a comprehensive understanding of the composition of local plant and wildlife communities including SAR, within the Project footprint as well as on surrounding lands. Annual baseline reports have been produced (KCB 2011a; AMEC 2011a, 2012a, 2013a, 2013c, 2013d, 2013e, 2014b) in addition to SAR assessments (KCB 2011b; AMEC 2011b, 2012b, 2013b, 2014b). The assessment of potential environmental impacts was summarized in the RRP Final EA Report / EIS (AMEC 2014a), as well as the earlier drafts of the document, submitted to the Federal and Provincial Governments, and provided for an Aboriginal and public review periods.

4.1 Migratory Birds

Various types of breeding bird surveys were conducted between 2009 and 2014 to determine the diversity, density and distribution of breeding bird species utilizing the RRP site area, as described in detail in the various baseline reports, annual SAR assessments and in the RRP Final EA Report / EIS (AMEC 2014a).

A total of 167 bird species (Appendix 2) were observed during the RRP field investigations. Species diversity recorded during RRP investigations mirrored that of North American Breeding Birds Survey results occurring near the defined NLSA. Desktop analyses using high resolution aerial imagery coupled with baseline ground surveys indicated that bird habitat occurring within the NLSA is consistent with habitat occurring elsewhere in the NRSA. The strong diversity recorded in the area reflects the diversity of available habitat both in the NLSA and throughout the NRSA. This diversity derives in part from the proximity of the NRSA to the intersection of the Boreal Forest Region, the Great Lakes – St. Lawrence Forest Region, and the Prairie Grasslands Region, as well as the effect of Lake Superior on avian migration routes.

4.2 Species at Risk

Table 1 lists the 16 Federal and Provincial SAR that were recorded within the RRP NLSA during the 2009 to 2014 baseline surveys. The RRP Final EA Report / EIS (AMEC 2014a) provides detailed descriptions of these 16 SAR, where they were recorded within the NLSA and assesses potential Project-related effects on each.

Table 1: Federal and Provincial SAR Recorded within the RRP NLSA between 2009 and 2014

Species	Conservation Status		
	Provincial ESA	Federal SARA	Provincial S-Rank
BIRDS			
American White Pelican	Threatened	--	S2B
Bald Eagle *	Special Concern	--	S4
Barn Swallow *	Threatened	--	S4B
Bobolink *	Threatened	Threatened	S4B
Canada Warbler *	Special Concern	Threatened	S4B
Common Nighthawk *	Special Concern	Threatened	S4B
Eastern Whip-poor-will *	Threatened	Threatened	S4B
Golden-winged Warbler *	Special Concern	Threatened	S4B
Olive-sided Flycatcher *	Special Concern	Threatened	S4B
Peregrine Falcon	Special Concern	Special Concern	S4B
Red-headed Woodpecker *	Special Concern	Special Concern	S4B
Rusty Blackbird	--	Special Concern	S4B
Short-eared Owl	Special Concern	Special Concern	S4
REPTILES			
Snapping Turtle *	Special Concern	Special Concern	S5
MAMMALS			
Little Brown Myotis *	Endangered	--	S4
Northern Myotis *	Endangered	--	S3

Note:
* species known to breed or likely to breed within the NLSA

Appendix 3 lists 25 Federal and Provincial SAR that could potentially occur within the RRP NLSA and provides an assessment of the likelihood of occurrence within the NLSA based on several factors including the presence of appropriate habitat types.

No Federally or Provincially listed aquatic SAR were captured during baseline studies within the RRP NLSA. Three Lake Sturgeon were captured in the lower Pinewood River, approximately 27 km downstream of the RRP open pit and within the NRSA. COSEWIC has proposed six population Designatable Units (DU) for Lake Sturgeon within the Province of Ontario, but the Lake of the Woods – Rainy River populations currently have no schedule of status under the Federal *SARA*.

No plant SAR were recorded in the NLSA nor NRSA during the 2009 to 2014 baseline surveys. A review of the Natural Heritage Information Centre (MNR 2012) database revealed that two plant SAR are known to occur in the greater Rainy River area. Small-flowered Lipocarpha, listed Provincially as a Threatened Species and Federally as an Endangered Species, is confined to moist sandy beaches which have some protection from waves (COSEWIC 2002). This habitat does not exist within the NLSA. Western Silvery Aster, listed Provincially as Endangered and Federally as Threatened, grows in open bur oak savannahs on shallow soils over bedrock (MNR 2008) and this habitat does not exist within the NLSA either.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS ON WILDLIFE AND THEIR HABITATS

The potential for effects on migratory birds, SAR, local mammals and their habitats was assessed as part of the Federal and Provincial EA process and detailed results of this assessment are presented in the RRP Final EA Report / EIS (AMEC 2014a). Potential RRP-induced adverse effects to migratory bird communities, SAR, local mammal communities and their habitats include:

- Direct loss of habitat;
- Habitat abandonment due to chronic disturbance or a decrease in habitat quality;
- Decreased reproduction due to habitat loss or a decrease in habitat quality; and
- Mortality.

These effects may be incurred directly or indirectly through mine activities by means of land clearing, changes to habitat quality / suitability related to increased human presence and increased sound, light and dust emissions, and collisions with Project vehicles or structures.

As per the above, approximately 2,170 ha of terrestrial habitat will be directly displaced by RRP developments over the life of the mine, including 1,352 ha of woodland habitat that will be cleared resulting in a loss of habitat that could be used by migratory birds, SAR and other wildlife. Approximately 1,265 ha of woodlands providing deer yarding habitat, as well as the removal of bordering agricultural and shrub lands (277 ha and 79 ha, respectively) which provide foraging habitat will be lost, along with 10.2 ha of Moose late winter habitat.

Eastern Whip-poor-will and Bobolink individuals will be impacted through habitat loss and noise production associated with the RRP. The woodland and agricultural habitats identified above are habitats used by these species and it has been predicted that these species will likely be the species most impacted by the RRP.

Barn Swallow nests were recorded in four farm buildings occurring on rural properties near each of these locations. Buildings on six rural properties providing suitable nesting structures within the RRP footprint may be removed during operations in order that they do not pose a public safety hazard (due to lack of use / ongoing maintenance).

RRP construction, operation and decommissioning will likely result in increased traffic both within the RRP site, the NLSA and along Highway 71 which is expected to provide the primary access route of local workers to the mine. Given the high density of White-tailed Deer occurring within the NLSA and their desensitization to road traffic, collisions with deer may affect both local deer as well as humans. Project development will also result in decreased connectivity between local ungulate habitat areas; particularly between areas to the north and south of the RRP site. This will force ungulates to move around the site either to the east or to the west.

Noise disturbance can cause adverse effects on wildlife, particularly birds and bats, in a variety of ways, most notably interference with important signals such as communications by mates (e.g., Songs of territorial males, calls of females), begging or communication by offspring, and blockage of sounds made by competitors or approaching predators or prey (Dooling and Popper 2007, USFWS 2012). Chronic noise disturbance can decrease breeding success, increase mortality rates and lead to an overall decrease in population density and/or species diversity. Sound emissions at the RRP will be greatest in areas of heavy equipment operation, most notably in association with the open pit and stockpiling operations, as well as in association with process plant and crusher operations. Sound disturbance will have lesser adverse effects in areas of low traffic such as the proposed transmission line and the tailings management area.

The effects of dust on wildlife and their habitats is expected to be minimal and confined to narrow strips of habitat along roads. Dust will accumulate on roadside plants and this may affect the ability of a plant to produce seeds and berries, potentially decreasing food sources for some species in the affected areas. If seeds and berries are produced by plants affected by dust and are ingested by individuals, then the dust would also be ingested. Considering the availability of various types of habitat located throughout the NRSA and the region in general, it is expected that wildlife will forage mainly in higher quality, undisturbed habitats located away from road noise and away from plants influenced by dust accumulation.

6.0 MEASURES TO AVOID, MINIMIZE OR MANAGE ENVIRONMENTAL EFFECTS TO WILDLIFE AND THEIR HABITATS

6.1 Measures to Avoid Environmental Effects to Wildlife and their Habitats

As indicated in the RRP Final EA Report / EIS (AMEC 2014a; e.g., Table 11-1), NG has made considerable efforts to avoid migratory birds, SAR, mammals and their habitats. The strategies proposed to avoid impacts to migratory birds, SAR, mammals and their habitats include:

- Minimizing loss of migratory bird and SAR foraging and nesting habitat and critical mammal habitat by developing a compact RRP site to reduce overall habitat loss;
- Limiting potential adverse effects related to sound and dust emissions, to the extent practicable.
- Restricting habitat clearing to periods outside of the breeding bird season which extends between May 1 and August 15;
- Developing a compact RRP site to limit the extent of removal of Barn Swallow foraging habitat or nesting structures (i.e., farm buildings, bridges); and
- Altering the RRP footprint through consultation with the MNRF in order to further avoid known whip-poor-will territories where feasible, including maintenance of forest buffers between RRP components and whip-poor-will nesting and foraging habitat where practical.

6.2 Measures to Minimize or Manage Environmental Effects on Wildlife and their Habitats

The RRP Final EA Report / EIS (AMEC 2014a) considered many alternatives to the location and size of various Project components to minimize negative affects to wildlife including SAR. The RRP Final EA Report / EIS also considered numerous mitigation measures that will assist in minimizing negative effects, to the extent practicable, where avoidance was not possible.

General mitigation strategies for limiting adverse effects to SAR and their habitats within the NLSA include the following (specific mitigation measures and compensation activities related to the RRP *ESA* permit for Eastern Whip-poor-will and Bobolink are provided further below in Sections 6.2.1 and 6.3.1.3):

- Implementing sound abatement strategies where necessary to dampen sound infiltrating habitats surrounding high traffic areas of the mine;

- Maintaining forest buffers between RRP components and SAR nesting and foraging habitat where practical;

- Managing dust through dust suppression activities (best management practices);

- Where feasible, managing of site lighting fixtures to reduce excess light production near Eastern Whip-poor-will and Common Nighthawk foraging areas so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered);

- Identifying active and potential Barn Swallow nesting colonies prior to mine construction and if necessary, removing these nesting structures outside of the breeding bird season which occurs from May 1 to August 15. Creating artificial nesting structures to replace any removed Barn Swallow nesting sites, to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed;

- Avoiding the use of herbicides and pesticides in areas that could impact SAR (herbicides and pesticides will not be used along the transmission line ROW);

- Enforcement of speed limits along mine-controlled roads to reduce the potential adverse effects and/or collisions with ungulates of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;

- Conducting environmental induction of RRP personnel, including training for SAR awareness, identification, sensitivities and knowledge of the RRP ESA permit conditions, and workers and contractors will be made aware of seasonal changes in wildlife behaviour or presence in proximity to the mine;

- Implementing a SAR monitoring plan for all SAR populations that may be present in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas;

- Restoring disturbed habitats at mine closure and encouraging development of habitat types capable of supporting a diversity of wildlife species, including migratory birds, SAR, ungulates and other mammals;

- Limiting hunting, and in some cases restricting hunting, on lands owned by RRR around or contiguous with the mine site;

- Treatment of the tailings slurry for cyanide destruction and heavy metal precipitation before deposition in the tailings management;

- Fencing the tailings management area to prevent access;

- Covering the exposed tailings beach at closure with a layer of overburden and flooding the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond waters remain of high quality, such that they will not pose a threat to wildlife. The margins of the tailings pond will develop as wetland habitat; and

- Disposing of food wastes generated on site in a manner that limits the attraction of wildlife, such as Black Bear (a potential predator to ungulates).

6.2.1 Additional Measures to Minimize or Manage Environmental Effects Specific to Species at Risk

As per Section 11 of the RRP ESA permit, if a regulated SAR (presently listed by *SARA* or the *ESA*, or listed in the future) is encountered on the Project site:

- Any activities that may adversely impact the regulated species (that harm or harass the species or removes the species' habitat) will cease immediately;

- The MNRF will be contacted immediately to discuss how and when activities shall resume; and

- A Species Encounter Report will be provided to the MNRF within 30 days of the encounter.

If a regulated SAR (presently listed by *SARA* or the *ESA*, or listed in the future) is injured on the Project site, Project personnel will:

- Ensure that the individual is protected from further harm;

- Seek veterinary advice/care for the individual;

- Contact the MNRF by the next business day; and

- Submit a Species Encounter Report to MNRF within 30 days of the encounter.

If a regulated SAR (presently listed by *SARA* or the *ESA*, or listed in the future) is found dead within the Project site, Project personnel will:

- Collect the individual and store it in a safe and cool place;

- Contact MNRF within one business day;

- Comply with any instructions provided by MNRF regarding the handling of the dead individual; and

- Submit a Species Encounter Report to MNRF within 30 days of the encounter.

Implementation of Artificial Nesting Structures for Barn Swallows

NG has committed to identifying active and potential Barn Swallow nesting colonies prior to mine construction (Figure 2) and if necessary, removing these nesting structures outside of the breeding bird season which occurs from May 1 to August 15.

Artificial nesting structures will be developed to replace any removed Barn Swallow nesting sites, to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed. Four free standing nesting structures have been placed in locations near Barn Swallow foraging habitat (Figure 2) and will be monitored annually for occupancy (e.g., nesting birds present) nest density and fledging success.

Additional Provincial Requirements (ESA) for Eastern Whip-poor-will and Bobolink

The RRP Final EA Report / EIS (AMEC 2014a) found that local Eastern Whip-poor-will and Bobolink individuals will be impacted through habitat loss and sounds associated with the RRP. As a result, NG has obtained an ESA 17(2)(c) Overall Benefits Permit (Permit No. FF-C-001-14).

Since 2012, considerable discussions have taken place between NG and the MNRF (Fort Frances District) on how best to accommodate the Eastern Whip-poor-will and Bobolink, where adverse effects are unavoidable and how best to develop compensation strategies to support these species and to achieve overall benefits for them. Through ongoing consultation with the MNRF, NG has agreed to the following components as part of overall benefits compensation packages required by Permit No. FF-C-001-14 for Eastern Whip-poor-will and Bobolink:

- Altering the RRP footprint through consultation with the MNRF in order to further avoid known Eastern Whip-poor-will territories where feasible;

- Providing over 1,530 ha of Eastern Whip-poor-will compensatory habitat (representing the equivalent of at least 37 whip-poor-will territories) and 348 ha of Bobolink compensatory habitat that protect known territories and other identified suitable habitat, and protects habitat used by other species such as Common Nighthawks and other sensitive grassland species;

- Developing and implementing a management plan for Eastern Whip-poor-will compensatory habitat areas (also known as overall benefit areas);

- Implementing a management plan for Bobolink compensatory habitat areas including maintaining compensatory habitats as hayfields in conditions suitable for Bobolink; consisting of late maturing grasses typical for the area, with at least one grass species that exceeds 50 cm in height under normal growing conditions, void of woody species and no haying shall occur between May 1 and July 31;

- Implementing monitoring plans for Eastern Whip-poor-will and Bobolink populations (and thus for Common Nighthawk populations and all grassland species as well) nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas, for the life of the Project including the post-closure phase;

- Developing Site Rehabilitation Plans for Eastern Whip-poor-will and Bobolink that will be implemented during progressive reclamation and at closure; and

- Implementing a multi-year Eastern Whip-poor-will habitat research program in collaboration with the MNRF, beginning in 2015, in order to further our understanding of this species, as part of a larger overall benefits compensation package required by the RRP ESA permit (leading to the publication of at least one government technical report).

6.3 Approach to Monitoring Wildlife and their Habitats

6.3.1 Monitoring the Effectiveness of Mitigation Measures and Predictions for Migratory Birds, SAR and Mammals

The RRP FMP for breeding migratory birds, SAR and their habitats follows EC's guidelines for surveys as outlined in *Mining Project Baseline Desktop Assessment and Survey Requirements* (EC 2014a) as well as other pertinent information found in *Incidental Take of Migratory Birds in Canada* (EC 2014b) and *General Nesting Periods of Migratory Birds in Canada* (EC 2014c).

Migratory bird and SAR surveys (with the exception of Eastern Whip-poor-will and Bobolink) will be conducted during the first two years of construction (2015 and 2016) and post construction monitoring surveys will be carried out in the first year following the completion of construction (2018) and at three year intervals during operations, as well as during the first 15 years after operations (in years 1, 4, 7, 10 and 15). This long term monitoring of migratory birds, SAR and wildlife habitats will be conducted concurrently at the same impact and control sites using survey techniques as detailed below.

6.3.1.1 Migratory Birds

Methods for monitoring adverse effects to migratory birds and their habitats following the implementation of proposed mitigation measures will include the following:

- Tracking habitat removal for development and operation of the RRP, in comparison to the proposed removal of habitats defined in the RRP Final EA Report / EIS (AMEC 2014a);

- Point count surveys for breeding migratory birds (including SAR) at long term monitoring control and impact survey stations.

- Habitat assessments of migratory bird breeding habitat at established long term monitoring point count stations (same locations as those described in the previous bullet);

- Additional SAR monitoring for Bobolink and Eastern Whip-poor-will as defined in the RRP *ESA* permit and/or outlined in Sections 6.2.1 and 6.3.1.3;

- Collecting incidental data during other wildlife monitoring surveys; and

- Implementation of a wildlife log (SAR, large mammals, raptors and raptor nests, frogs, turtles and snakes).

Long term monitoring of migratory birds and their habitats will be conducted at impact and control sites located in and around the periphery of the RRP footprint (Figure 1) to support a Before-After Control-Impact (BACI) study design to quantify Project-related effects on birds and their habitats. The BACI design is statistically powerful and defensible and this design will allow for comparisons across years and provides the ability to assess any changes in species occurrence, abundance, distribution and richness over time within the impact areas compared to areas located outside the impact zone.

Impact sites around the periphery of the mine site were selected from point count stations surveyed at least once during the 2009 to 2014 baseline breeding bird studies, and are located within an area where noise from mine operation is expected to be greater than the average ambient noise level of approximately 40 decibels (dB). During data analyses, these impact sites will be paired with control sites located at least 5 km from the proposed mine (Figure 1), chosen to reflect a similar representation of ecosites found at impact sites, but in areas further from mine components where the average ambient noise level is approximately 40 dB or less. Also during data analyses, the impact sites along the transmission line ROW will been paired with control sites located at least 1 km from the ROW (Figure 1).

Point count surveys will be conducted twice during the breeding bird season and follow standardized protocols (Fuller and Langslow 1994; EC 2014a).

6.3.1.2 Species at Risk

Methods for monitoring adverse effects to SAR and their habitats following the implementation of proposed mitigation measures will include the following:

- Conducting multi-year point count surveys for SAR (and migratory birds) at permanent control and impact survey stations;

- Conducting SAR habitat assessments at established long term monitoring point count stations (same locations as those described in the previous bullet);

- Monitoring Eastern Whip-poor-will and Common Nighthawk populations nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas, for the life of the Project including the post-closure phase (monitoring schedule outlined in Table 2);

- Monitoring Bobolink populations (and thus all grassland species) nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas, for the life of the Project including the post-closure phase (monitoring schedule outlined in Table 3);

- Monitoring management activities within the approximately 1,900 ha of Eastern Whip-poor-will and Bobolink compensatory habitat;

- Implementing a multi-year Eastern Whip-poor-will habitat research program starting in 2015, in order to further our understanding of this species;

- Implementing and monitoring Eastern Whip-poor-will and Bobolink Site Rehabilitation Plans;

- Monitoring Barn Swallow nesting at artificial nesting structures placed outside of the RRP footprint (Figure 2);

- Collecting incidental data during other wildlife monitoring surveys; and

- Implementing a wildlife log (focused on SAR, large mammals, raptors and raptor nests, frogs, turtles and snakes).

Barn Swallow

Four artificial nesting structures created for Barn Swallows will be monitored annually for occupancy, nest density and fledging success and the results of these surveys will be included in annual monitoring reports. The expectation is to maintain an active nesting population of Barn Swallows within these nesting structures through the life of the Project, and to return to a post closure population size within the rehabilitated Project footprint that is similar in size to the baseline population (29 individuals were recorded between 2009 and 2014).

Bald Eagle

Any known Bald Eagle nests will be monitored to determine annual and seasonal eagle activity at the nest site and to attempt to establish fledging success when active. Currently, a Bald Eagle nest is located east of the RRP footprint (Figure 3). No other Bald Eagle nests were located within 5 km of the RRP footprint. If new Bald Eagle nests are recorded during any phase of the RRP, the nest(s) will be monitored annually. If monitoring indicates that Project activities are having a negative effect on any nests or on the behaviour of the nesting eagles, Project works will be adjusted appropriately to reduce adverse effects.

6.3.1.3 Additional Monitoring Requirements for Eastern Whip-poor-will and Bobolink

Eastern Whip-poor-will Monitoring Plan

A long term RRP monitoring plan for Eastern Whip-poor-will has been designed in consultation with the MNRF (Fort Frances District) and is included in the RRP ESA permit (survey stations are shown in Figure 1). Eastern Whip-poor-will monitoring began in 2015 and will continue into the post closure phase until monitoring indicates that Project areas rehabilitated for Eastern Whip-poor-will are occupied by at least 13 territorial males for two consecutive years (in accordance with the conditions of the RRP ESA permit). The monitoring plan will have three phases, consisting of the following:

Phase 1: Monitoring will occur during and after construction and operation activities to determine whether areas within and peripheral to the Project footprint are occupied by Eastern Whip-poor-will. Phase 1 monitoring will also include an assessment of sound levels during the breeding season in three designated Eastern Whip-poor-will receptor habitats.

Phase 2: Monitoring will occur within the Eastern Whip-poor-will OB Areas to determine which areas are occupied by Eastern-Whip-poor-will and to assess their occupancy and distribution relative to habitat management actions implemented through the life of the RRP ESA permit (to be defined in the Management Plan with MNRF for Eastern Whip-poor-will OB Areas).

Phase 3: After implementation of the Eastern Whip-poor-will Site Rehabilitation (ESR Plan) at closure, monitoring for Eastern Whip-poor-will will be conducted in areas of the Project site that are rehabilitated for Eastern Whip-poor-will to determine:

- Which areas become re-occupied by Eastern Whip-poor-will;
- The effectiveness of rehabilitation actions outlined in the ESR Plan; and
- Whether the Project site is re-occupied by Eastern-Whip-poor-will at levels equal to or greater than levels prior to habitat clearing for construction.

All Eastern Whip-poor-will surveys will be conducted during the breeding season in May and June and will be conducted in accordance with the protocols described by the *Whip-poor-will Roadside Survey Participant's Guide* (BSC 2012) as well as protocols described by the Center for Conservation Biology Nightjar Survey Network (nightjars.org).

Table 2: Monitoring Schedule for Eastern Whip-poor-will in the Project Site, Areas around the Periphery of the Project Site and in OB Areas

Year	Project Site	Peripheral Areas	OB Areas
2015	Phase 1 Monitoring Sequence 1	Phase 1 Monitoring Sequence 1	
2016			Phase 2 Monitoring Sequence 1
2017			
2018			
2019	Implementation of the Management Plan for Eastern Whip-poor-will OB Areas		
2020		Phase 1 Monitoring Sequence	
2021			
2022	Phase 1 Monitoring Sequence 2	Phase 1 Monitoring Sequence	
2023			
2024		Phase 1 Monitoring Sequence	
2025			
2026			Phase 2 Monitoring Sequence 2
2027			
2028			
2029			
2030			
2031			
2032	Mine Closure		
2033	Phase 3 monitoring is conducted over three year periods recurring as necessary until Project areas rehabilitated for Eastern Whip-poor-will are occupied by at least 13 territorial males for two consecutive years (in accordance with condition 6.2(d) and 9.1(a) of the RRP ESA Permit).		
2034			
2035			
2033			
2034			
2035			
2036			
2037			
2038			
			Phase 2 monitoring continues in OB Areas until the RRP ESA permit expires. Surveys for three concurrent years followed by seven years of no monitoring. Repeat as necessary in accordance with condition 6.1(b), 6.2(b) and 9.1(a) of the RRP ESA Permit.

Eastern Whip-poor-will Research Program

The ultimate objective of the Eastern Whip-poor-will research program is to assess whip-poor-will breeding habitat selection in the area of the RRP and to use this information to enhance Whip-poor-will habitat utilization of the OB Areas, as well as to guide the restoration of disturbed Project lands at mine closure. If successful, the results of this study are expected to provide a solid prescriptive management framework for maintaining, enhancing, and restoring local whip-poor-will breeding habitat, directed at maximizing habitat functionality that will allow for long term occupancy and increased local reproductive output. In doing so, this study will provide additional overall benefits to the species, above and beyond those provided by protecting and monitoring compensatory habitats by way of: i) furthering our understanding of breeding habitat selection by this species; ii) developing sound breeding habitat management strategies, based on observational studies and scientific experimentation; and iii) disseminating this information to the scientific community through a technical report or a peer-reviewed journal publication.

To achieve this ultimate objective, several proximate objectives have been set for this study, designed to complement and inform OB habitat management objectives and other monitoring commitments already specified in the RRP ESA permit and in the RRP Final EA Report / EIS (AMEC 2014a). These proximate objectives are to:

1) Compare macro- and microhabitat features found within in areas occupied by Whip-poor-will, at both higher and lower densities, to areas that remain unoccupied, both within OB Areas and areas elsewhere in the RRP NLSA. Results from this aspect of the proposed study are expected to provide valuable information to be used in the development of the Management Plan for Eastern Whip-poor-will OB Areas and the RRP overall Eastern Whip-poor-will Site Rehabilitation Plan;

2) Conduct a whip-poor-will habitat reclamation study beginning with the reclamation of Tait Quarry, taking into consideration data on species utilization of the existing NG Roen Road aggregate pit site, which can be used to help guide quarry restoration plans. Results from this aspect of the proposed study could provide valuable information to be used in the development of the Management Plan for Eastern Whip-poor-will OB Areas and the RRP overall Eastern Whip-poor-will Site Rehabilitation Plan;

3) Assess management activities in OB Areas that are designed to enhance unoccupied Whip-poor-will habitat by monitoring responses in occupancy and density of these areas to experimental treatments (habitat manipulations) within the unoccupied OB Areas, through the life of the Project and the RRP ESA permit; and

4) Experiment with a variety of methods of restoring disturbed whip-poor-will habitat patches during progressive reclamation and post-closure, in an attempt to assess whip-poor-will breeding habitat selection by monitoring responses in occupancy and density of these areas through the life of the Project and the RRP ESA permit.

Habitat management strategies for whip-poor-will OB Areas will be developed within the RRP Management Plan for Eastern Whip-poor-will OB Areas and will be submitted to the MNRF for approval within four years of the effective date of the RRP ESA permit, as specified in the permit. This management plan will be based on the best available scientific information collected on site during this proposed study and from studies conducted elsewhere in North America, where applicable. The nature of a habitat management plan is to manage or alter designated habitat areas to achieve a particular goal.

The first goal of the Management Plan for Eastern Whip-poor-will OB Areas will be to maintain occupied areas in a state such that the habitat remains suitable for whip-poor-will for the life of the RRP ESA permit and remains occupied by the species. A second goal of the Management Plan for Eastern Whip-poor-will OB Areas will be to enhance unoccupied areas to make them more attractive to whip-poor-will and thus encourage colonization and annual occupancy, based in part on research findings linked to the study program defined herein. However, in order to achieve either of these goals NG first needs to determine, if possible, what the Eastern Whip-poor-will breeding habitat preferences are and at what scale they occur (e.g., at the forest stand scale, at the nest site scale, or a combination of the two). Ultimately, the proposed research program will provide valuable information to be used in the management plan and would lead to:

- An increase in the quality and amount of suitable habitat for the species;
- An increase in the number of breeding pairs located within the study area;
- An increase in the distribution of the species within the OB areas; and
- An increase in the local distribution of the species, within the OB Areas during Project operations, and around the Project site post-closure.

This research will build on the M.Sc. thesis results produced by Greg Rand at Trent University (Rand 2014) and will result in a government technical publication to be reviewed by government biologists and external whip-poor-will experts. The proposed actions and outcomes of this research could also contribute to the recovery and protection of this species by providing valuable information for guiding province-wide species recovery plans and by promoting increased public education and awareness.

To date, NG has acquired and protected compensatory habitat for the equivalent of 37.5 Whip-poor-will territories resulting in 1,562 ha of whip-poor-will OB areas, at a cost of over $5 million. NG has also contributed $150,000 to a Trent University study (2011 to 2012) that has resulted in the publication of a M.Sc. thesis (Rand 2014) and will likely result in the publication of at least one peer-reviewed scientific journal article. This partnership with Trent University (and the MNRF) has already resulted in assessing the merits of various methodologies used to study this species including the use of infra-red cameras, radio-transmitters, nest searching and the use of blood

stress hormones (corticosteroids) to assess stress physiology as it relates to habitat selection by this species. From 2011 to 2014, NG has also spent over $400,000 to employ AMEC Environment & Infrastructure (AMEC) to: i) research Whip-poor-will in the proposed Project NLSA; ii) locate suitable compensatory OB areas; and iii) to consult with the MNRF in obtaining an ESA 17(2)(c) Overall Benefits Permit. The research program proposed will serve as an effective tool to tie together the results of previous studies and to continue to provide new information regarding the ecology a species that is not well understood.

Bobolink Monitoring Plan

A long term RRP monitoring plan for Bobolink has been designed in consultation with the MNRF (Fort Frances District) and is included in the RRP ESA permit (survey stations are shown in Figure 1). Bobolink monitoring will begin in 2015 and will continue into the post closure phase until monitoring indicates that Project areas rehabilitated for Bobolink are occupied by territorial males for two consecutive years (in accordance with the conditions of the RRP ESA permit).

Monitoring will occur in areas within and around the periphery of the Project's footprint during all Project phases (for the life of the RRP ESA permit) and in protected compensatory habitat areas known as Bobolink OB Areas. The monitoring plan will have three phases, consisting of the following:

Phase 1: Monitoring will be conducted during and after construction and operation activities within the Project site and in peripheral occupancy areas in order to assess the response of Bobolink to the construction and operation activities.

Phase 2: Monitoring will occur within the Bobolink OB Areas to determine which areas are occupied by Bobolink and how many individuals are present.

Phase 3: After implementation of the Bobolink Site Rehabilitation (BSR Plan; in accordance with the conditions of the RRP ESA permit) at closure, monitoring for Bobolink will be conducted in areas of the Project site that are rehabilitated for Bobolink to determine:

- Which areas become re-occupied by Bobolink;
- The effectiveness of rehabilitation actions outlined in the BSR Plan; and
- Whether the Project site is re-occupied by Bobolink at levels equal to or greater than levels prior to habitat clearing for construction in.

Bobolink surveys will be conducted as morning point count surveys, occurring twice between mid-June and early July, at least 10 days apart, and will follow standardized protocols (Fuller and Langslow 1994, EC 2014a).

Table 3: Monitoring Schedule for Bobolink in the Project Site and in OB Areas

Year	Project Site	Overall Benefit Areas
2015	Phase 1 Monitoring Sequence 1	
2016		
2017		Phase 2 Monitoring Sequence 1
2018		
2019		
2020		
2021		
2022		
2023		
2024		
2025		
2026		Phase 2 Monitoring Sequence 2
2027		
2028		
2029		
2030		
2031		
2032	Mine Closure	
2033	Phase 3 Monitoring is conducted over three year periods following rehabilitation, recurring every three years as necessary until areas rehabilitated for Bobolink are occupied by territorial males for two consecutive years (in accordance with conditions 6.4(c) and 9.2(a) of the RRP ESA Permit).	
2034		
2035		
2036		Phase 2 Monitoring in OB Areas continues until RRP ESA permit expires, in accordance with conditions 6.3(b), 6.4(b) and 9.2(a) of the RRP ESA Permit.
2037		
2038		

Approach to Tracking Updates to Status of Listed Species

The status of species listed as a Schedule 1 SAR in SARA and/or listed in the Provincial ESA will be monitored on a regular basis, and no less frequently than annually, during the construction, operation and active closure phases of the RRP.

EC and the MNRF will be consulted should NG determine through this tracking of updates and/or ongoing field investigations / wildlife logs that:

- An unlisted species has become listed that is known to be present in the NLSA; and/or
- A new SAR should be recorded in the NLSA.

6.3.1.4 Mammals

Winter Aerial Surveys for Ungulates and Furbearers

Aerial surveys in early winter (late January – early February) and late winter (late February – early March) will be conducted to document numbers and distributions of White-tailed Deer, Moose, Wolves and other furbearers at locations representing suitable habitat directly adjacent to the RRP site and across control sites. As suggested by the MNRF, such surveys will be conducted every 10 years beginning in the first winter of the operation phase (2017) and continuing until the end of the active mine reclamation phase. Survey transects will be similar to those surveyed during the baseline studies (Figure 4) and will also co-ordinate with the MNRF's regional surveys.

Collecting White-tailed Deer Tissue and Organ Samples for Analyses

Wildlife exposure to potential contaminants such as metals (e.g., cadmium, copper, zinc) may come from ingestion of effected plants, soil or water, or by consuming animals that have been exposed to the contaminants. A White-tailed Deer tissue and organ sampling program will be implemented with the intent of determining exposure and ecological risk to local wildlife from mine-related contaminants and confirming the low risks to humans that consume local wildlife.

During White-tailed Deer hunting season, tissue collection stations will be set up to collect deer tissue and organ samples from hunters on a voluntary basis, in order to test for metal concentrations in deer in the immediate vicinity of the mine and at various distances away from the mine as control sites. Tissues collected in 2016 will serve as baseline levels and will be compared to tissues collected midway through Project operations and at closure.

Working with Aboriginal Hunters

NG will work closely with Aboriginal hunters with the objective of documenting, to the extent feasible, White-tailed Deer, Moose, Wolf and Black Bear harvesting activities in and around the

RRP site area. Hunting and trapping records across several years can provide useful information on the presence and distribution of mammals and changes in the number of individuals harvested are often indicative of changes in the relative abundance of individuals of a particular species. Therefore, monitoring annual Aboriginal hunting and trapping records in and around the RRP during all phases of the Project will be conducted to the extent feasible and data will be analyzed for patterns that may indicate a change in abundance or distribution of species has occurred.

Bat Acoustic Monitoring

Methods for monitoring adverse RRP-induced effects on bats following the implementation of proposed mitigation measures will include the use of acoustic monitoring devices placed at representative locations around the periphery of the mine site (Figure 5).

Nocturnal bat activity will be monitored from 30 minutes before sunset to 30 minutes after sunrise in May and June Detectors will be positioned 2 to 4 m above ground at locations where higher levels of bat activity are likely to occur, such as woodland and/or wetland edges (Furlonger et al. 1987). Bat detectors will be configured to begin recording when ultrasonic signals greater than 20 dB above the noise floor rolling average are detected. Upon trigger, a recording with a maximum duration of 8 seconds will be saved. Recordings will be identified to species using Sonobat or equivalent software. Data gathered from the recordings will provide information on species presence / absence, density and distribution which will be monitoring through all phases of the RRP.

Wildlife Observation Logs

Wildlife observation logs will be posted on bulletin boards in commonly used areas (e.g., cafeterias, lunch rooms, main hallways, etc.) in selected buildings so that Project personnel can report observations of large mammals (including collisions with vehicles) (as well as SAR, raptors, raptor nests, frogs, turtles and snakes) within the RRP footprint. These logs will be collected by on site NG environmental staff at the end of every month.

All Project personnel will undergo regular safety and environmental inductions that will include presentations outlining the importance of maintaining wildlife observation logs, how to properly maintain a wildlife log and who to contact when certain species such as SAR are observed or if road kills occur.

Wildlife information boards will also be installed in commonly used areas in selected buildings to notify Project personnel of local bear or wolf observations and all other pertinent wildlife awareness issues such as ESA permit conditions and annual reminders regarding the sensitivity of the breeding bird season and work restrictions in place between May 1 and August 15.

Monitoring of Black Bear Activity Related to Waste Disposal

The RRP Final EA Report / EIS (AMEC 2014a) outlines how food wastes generated on site will be disposed of by a means that limits the attraction of wildlife to the mine site, especially potentially nuisance or dangerous species such as bears, wolves, foxes, martens, ravens, magpies, vultures and Bald Eagles. The presence of bears and other wildlife species in the RRP footprint due to waste disposal and other issues will be monitored continuously as this is a safety concern for Project personnel and local residents, and can have adverse effects on wildlife.

If bears and other species become attracted to waste disposal sites, appropriate mitigation plans will be implemented, all Project personnel will be informed of the issue and the importance of avoiding attracting wildlife to the site, and the MNRF will be notified and consulted.

6.3.2 Using Baseline Levels to Determine the Effectiveness of Post Closure Rehabilitation Activities and the Accuracy of Recolonization Predictions for Migratory Birds and SAR

As discussed above in Sections 3.1 and 3.2, the purpose of the FMP is to verify the accuracy of the predictions made in the EA about the Project's impacts on wildlife and habitat, and to monitor the effectiveness of rehabilitation efforts for wildlife habitat and terrestrial environments. The RRP Final EA Report / EIS (AMEC 2014a) predicted that the restoration of disturbed habitats at mine closure and the development of habitat types capable of supporting migratory birds and SAR (and other wildlife species) would result in no significant long-term effects to migratory birds, SAR and their habitats. Therefore, it was predicted that the number of migratory bird species (species richness) and the number of individual migratory birds (bird density) and the number of SAR species would eventually return approximately to baseline conditions recorded prior to disturbance (Figures A2-a to A2-h in Appendix 2).

Based on the annual baseline studies the following calculations of bird species richness, abundance and density can be used as an indication when recolonization by migratory birds has reached baseline conditions.

The four year average number of migratory bird species (average species richness) recorded within individual point count plots ranges from 10.4 to 18.7 species per plot. Therefore, this is the target number of species to indicate that post closure recolonization by migratory birds has reached baseline conditions that existed prior to disturbance.

The four year average number of migratory birds (average species density) recorded within individual point count plots ranges from 12.4 to 31.2 birds per plot. Therefore, this is the target number of species to indicate that post closure recolonization by migratory birds has reached baseline conditions that existed prior to disturbance.

Additionally the baseline density and abundance of the five most common species recorded within the study area (NRSA) can be used as an indicator, or target, to measure recolonization success during the post closure phase. The five species with the highest recorded density across impact sites included Bobolink (0.41 ± 0.91 birds/ha), Common Yellowthroat (0.37 ± 0.81 birds/ha), Sedge Wrens (0.37 ± 0.78 birds/ha), Song Sparrow (0.30 ± 0.64 birds/ha), and American Goldfinch (0.28 ± 0.96 birds/ha). The five species with the highest recorded density across control sites included Nashville Warbler (0.57 ± 0.80 birds/ha), and Red-eyed Vireo (0.45 ± 0.64 birds/ha), Ovenbird (0.42 ± 0.80 birds/ha), Song Sparrow (0.26 ± 0.62 birds/ha), and American Goldfinch (0.20 ± 0.72 birds/ha).

The five most abundant species recorded across impact sites included Canada Goose (3.4 ±11.99 birds/count), Ovenbird (1.29 ±0.99 birds/count), White-throated Sparrow (1.27 ±1.07 birds/count), Red-eyed Vireo (1.27 ±0.92 birds/count), and Common Yellowthroat (1.10 ±1.10 birds/count). Similarly, the five most abundant species recorded across control sites included Ovenbird (1.38 ±1.23 birds/count), Nashville Warbler (1.32 ±1.05 birds/count), Red-eyed Vireo (1.28 ±0.97 birds/count), White-throated Sparrow (1.24 ±1.15 birds/count), and Song Sparrow (0.64 ±1.06 birds/count).

6.3.3 Monitoring the Effectiveness of Mitigation Measures and Predictions for Migratory Bird, SAR and Mammal Habitats.

Habitat assessments will be conducted at each of the long term impact and control point count stations described above each year that point count surveys are conducted. This will allow NG to monitor any changes in migratory bird, avian SAR (Table 1), or mammal habitats near the Project site during construction and operations. Habitat areas that are to be cleared during construction, as outlined in the RRP Final EA Report / EIS (AMEC 2014a), are considered to be destroyed and will not be monitored until reclamation activities begin when mining operations cease.

During construction, operations and active closure, winter aerial surveys (described in Section 6.3.1.4) around the periphery of the RRP footprint will be used to monitor habitat use by large mammals.

Post closure habitat assessments will be conducted in years 1, 4, 7, 10 and 15 post-operations and will monitor revegetation activities designed to restore disturbed habitats to the extent practical. Various habitat variables will be recorded during monitoring surveys to allow for multi-year comparisons between impact sites and control sites, in order to determine if migratory bird, SAR or mammal habitats around the periphery of cleared Project sites are being impacted and to what extent. The following habitat variables will be recorded:

- Vegetation species present (species composition) in the canopy and understory;
- Species density;
- Species richness;

- Percent canopy closure; and
- Percent ground cover.

7.0 TURTLES AND SNAKES

All Project personnel will be made aware of the importance of not harming or harassing turtles (especially Snapping Turtles which are Provincially listed as a species of Special Concern) and snakes through wildlife awareness training during environmental inductions performed by NG environmental staff. Project personnel will also be given information regarding on site environmental staff to contact when turtles or snakes are observed on site. Periodic surveys for turtles will also take place while conducting other aquatic monitoring activities such as water sampling. Other opportunistic surveys for turtles will be conducted during all terrestrial biological monitoring programs when in appropriate turtle habitat.

Where possible, turtles and snakes recorded within the RRP footprint will be captured and relocated outside of the footprint (designated release areas to be determined through consultation with the MNRF). If turtles or snakes are found to be common to a certain area of the RRP footprint, then localized fencing will be constructed in order to keep these animals from entering the Project site and weekly monitoring of these sites will be conducted during the active turtle season (April to October).

8.0 AMPHIBIANS

In addition to monitoring amphibian presence within the RRP footprint through wildlife observation logs, NG environmental technicians will conduct periodic annual surveys for amphibians along Highway 600 and the East Access Road during the amphibian migration and breeding seasons. These monitoring surveys will consist of driving along these two roadways and looking for amphibians on the road (dead or alive).

9.0 BIODIVERSITY

Biodiversity, in the form of animal and plant species present (e.g., species richness), will be monitored and compared to baseline conditions (Appendices 4 and 5), as per Provincial Environmental Assessment Notice of Approval Condition 14.1 and 14.2. Species lists will be created for each annual monitoring report and will be compared to the results of the 2009 to 2014 baseline studies.

10.0 PROPOSED HABITAT RESTORATION MEASURES

NG is committed to encouraging and, as practical, restoring the RRP site to productive, naturalized vegetation communities on cessation of mining, encouraging development of habitat types capable of supporting target species and other wildlife. This will involve the active revegetation of peripheral tailings management areas, mine rock stockpiles and remaining portions of the overburden stockpile, as well as the general mine site area.

Revegetation efforts associated with reclamation will use a combination of hydroseeding and hand planting of tree seedlings. Native seed mixes, where reasonably available commercially, will be used for hydroseeding, together with a nurse crop of oats, or equivalent (if necessary). General revegetation of the RRP site is readily achievable with current technologies, as demonstrated by revegetation efforts previously employed at other mine sites in Ontario.

Vegetation (and wildlife) recovery times will vary depending on the species / communities involved. Through active revegetation programs, early successional plant and wildlife communities would be expected to become established within three to five years of mine closure. The development of semi-mature aspen-birch and/or spruce woodlands (the most common forest community types currently in the area) would be expected to occur over a period of approximately 30 to 40 years. Intermediate community types would develop during the intervening period and would also provide habitat to various wildlife species at early seral stages of natural ecological succession.

A commitment was made by NG through the Federal and Provincial EA process to develop habitats that would be likely to support breeding migratory birds, SAR such as Whip-poor-will, Common Nighthawk and Bobolink, and White-tailed Deer. Specific habitat planning details will be developed during the period of mine operations and will be informed by monitoring, research programs linked to Whip-poor-will and Bobolink, and ongoing consultation with the MNRF, EC and Aboriginal group representatives. Such details will be included in future Closure Plan amendments developed toward the end of mine operations.

11.0 ADAPTIVE MANAGEMENT MEASURES

Adaptive management methods will be developed in consultation with EC and MNRF staff and Aboriginal group representatives, on a case-by-case basis as required. Analysis of monitoring data and observed wildlife behaviour in reaction to identified stressors and applied mitigation measures will be used to determine whether or not further corrective actions beyond those already planned are required to lessen impacts.

The FMP will be an outcome-based program and will be evaluated regularly. When predictions described in the EA have been met, or the objectives listed in Section 3.2 have been met, discussions will be held with regulators regarding the cessation of that particular component of the monitoring program.

12.0 REPORTING

Monitoring results will be provided to the CEA Agency, EC, MNRF and Aboriginal groups each monitoring year starting in 2016. Each report will present an analysis and summary of the implementation of the monitoring plan for the preceding year. Additional reporting to the MNRF on avian SAR has been prescribed in the Provincial *ESA* permit and may also be required by other Provincial and Federal environmental approvals. All SAR reporting is subject to confidentiality requirements of the Province of Ontario.

12.1 Reporting for the Provincial Eastern Whip-poor-will and Bobolink Monitoring Programs

In accordance with the RRP ESA permit, NG will submit a formal Eastern Whip-poor-will and Bobolink monitoring report to the MNRF following the completion of each monitoring sequence. The Eastern Whip-poor-will and Bobolink monitoring report shall contain the following:

- A summary of survey protocols used, survey dates, survey conditions and all observation data and corresponding shapefiles;
- An analysis of the monitoring results for the specified survey sequence including an estimate and illustration of site occupancy; and
- A summary of any habitat management activities taken.

Specifically with respect to Eastern Whip-poor-will, the monitoring report will provide:

- An assessment of the quality and functionality of habitat rehabilitated, created, enhanced or managed, including an estimate and illustration of the number of occupancy areas located at the Project site, and the Eastern Whip-poor-will OB Areas; and
- A description of Acoustic Audits and any abatement measures implemented.

Specifically with respect to Bobolink, the monitoring report will provide a summary of Bobolink OB Area occupancy, nesting periods and fledgling dates.

The Eastern Whip-poor-will and Bobolink monitoring report will be provided to the MNRF no later than six months following the last survey of each survey sequence.

12.2 Reporting for the Provincial Eastern Whip-poor-will Research Program

A detailed science design will be provided to the MNRF for review prior to the studies being undertaken. The science design will include a detailed account of the methods and approach.

Within two years following the completion of field data collection for the Eastern Whip-poor-will research program, NG will submit a technical report to the MNRF that includes:

- An abstract describing key results;
- An introduction that incorporates key background information;
- A detailed description of the methodology;
- Results and analysis;
- Discussion and conclusions; and
- References to key relevant literature.

Both the science design and the technical report will be peer reviewed by a minimum of two qualified reviewers who are experts in the field of study. NG will obtain approval from the MNRF on the manner that the sensitive SAR results of the technical report are made available to the public.

13.0 REFERENCES

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5425000 5420000 5415000 5410000 5405000

1-4

1-1

1-2

1-3

TRANSMISSION LINE

MUSKRAT LAKE

EAST ACCESS ROAD

Korpi Road

Highway 599

Highway 599

Gullwing Road

Highway 71

Temple Road

Hardwoods Road

OPEN PIT

McMILLAN CREEK

WATER MANAGEMENT PIPELINE

PINEWOOD RIVER

TAIT CREEK

HIGHWAY 600 RE-ALIGNMENT

Path: P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Bird_monitoring_Plan_Nov2014\MXD\SAR_monitoring_stations_key_map_6.mxd

LEGEND

- Proposed Principal Project Facilities
- 230 kV Transmission Line

Long Term Monitoring Bird Locations

- Monitoring Control Stations
- Monitoring Impact Stations
- Monitoring Stations Located on Bobolink Compensation Lands
- Monitoring Stations Located on Whip-poor-will Compensation Lands
- Additional Whip-poor-will Stations (Periphery of Mine Site)

- Bobolink Compensation Areas
- Whip-poor-will Compensation Areas

NOTES:
- Pleiades imagery August 2014
- Site Plan from AMEC CAD drawing May 3, 2013, derived from BBA drawing 3098003-003000-41-D20-0001, April 29, 2013
- NOTES:
- Road data extracted from Land Information Ontario, Ontario Road Network, MNR
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets

Datum: NAD83
Projection: UTM Zone 15N

0 4 8 16 24 32 Kilometres

newgold™ Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Avian Monitoring Stations Key Map

DRAFT

PROJECT N°: TC111504 | **FIGURE: 1**

SCALE: 1:125,000 | DATE: July 2015

425000 426000 427000 428000 429000 430000 431000 432000 433000 434000 435000 436000 437000 438000 439000 440000 441000

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MC-01 MC-02 MC-03 MC-04 MC-05 MC-06 MC-07 MC-08 MC-09 MC-10 MC-11 MC-12 MC-16 MC-17 MC-20 MC-21 MC-22 MC-23 MC-24 MC-25 MC-26 MC-27 MC-28 MC-29 MC-30 MC-51 MC-52 MC-53 MC-54 MC-55 MC-56 MC-57 MC-58 MC-59 MC-60 MC-62 MC-63 MC-64 MC-65 MC-66 MC-67 MC-68 MC-69 MC-70

TL-09 TL-10 TL-11 TL-12 TL-13 TL-14 TL-15 TL-16 TL-17 TL-18 TL-19 TL-20 TL-21 TL-22 TL-23 TL-24 TL-25 TL-26 TL-27 TL-28 TL-29 TL-30 TL-31 TL-32 TL-33 TL-34 TL-35 TL-36 TL-37 TL-38 TL-39 TL-40 TL-41 TL-42 TL-43 TL-44 TL-45 TL-46 TL-47 TL-48 TL-49 TL-50

W-19 W-23 W-24 MI-43

Fisher Rd Hwy 71 Mary Rd Manmuth Rd Fleming Rd Hwy 645 TRANSMISSION LINE MUSKRAT

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LEGEND

- Proposed Principal Project Facilities
- 230 kV Transmission Line

Long Term Monitoring Bird Locations

- Monitoring Control Stations
- Monitoring Impact Stations
- Additional Whip-poor-will Stations (Periphery of Mine Site)

NOTES:
- Pleiades imagery August 2014
- Site Plan from AMEC CAD drawing May 3, 2013, derived from BBA drawing 3098003-003000-41-D20-0001, April 29, 2013
- NOTES:
- Road data extracted from Land Information Ontario, Ontario Road Network, MNR
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets

Datum: NAD83
Projection: UTM Zone 15N

0 1.25 2.5 5 7.5 10 Kilometres

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RAINY RIVER PROJECT

Avian Monitoring Stations

DRAFT

PROJECT N°: TC111504 | **FIGURE: 1-1**

SCALE: 1:42,000 | DATE: July 2015

423000 424000 425000 426000 427000 428000 429000 430000 431000 432000

5416000 5415000 5414000 5413000 5412000 5411000 5410000 5409000 5408000 5407000 5406000 5405000 5404000 5403000 5402000

Richardson Rd
Hwy 71
Hwy 600
Caul Rd
Tait Rd
Barrick Rd
Angus Rd

W-22 W-24 W-21 W-19 W-23 W-20 W-18 W-17 W-10 W-15 W-13 W-14 W-16 W-11 W-12 W-7 W-8 W-9

TL-19 TL-22 TL-25 TL-18 TL-21 TL-23 TL-20 TL-24 TL-17 TL-15 TL-16 TL-14 TL-13 TL-11 TL-10 TL-12 TL-09 TL-07 TL-08 TL-06 TL-05 TL-02 TL-03 TL-04 TL-01

MI-43 MI-44 MI-03 MI-07 MI-29 MI-21 MI-22 MI-05 MI-24 MI-23 MI-30 MI-25 MI-26 MI-09 MI-02 MI-28 MI-10 MI-19 MI-11 MI-27 MI-36 MI-32 MI-31

B-44 B-43 B-42 B-41 B-39 B-40

MC-45 MC-46 MC-47 MC-48 MC-44 MC-43 MC-42 MC-41

Path: P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Bird_monitoring_Plan_Nov2014\MXD\SAR_monitoring_stations_key_mapseries_Port_6.mxd

LEGEND

- Proposed Principal Project Facilities
- Monitoring Control Stations
- Monitoring Impact Stations
- Monitoring Stations Located on Bobolink Compensation Lands
- Additional Whip-poor-will Stations (Periphery of Mine Site)
- Bobolink Compensation Areas

0 1 2 3 Kilometres

NOTES:
- Pleiades imagery August 2014
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

DRAFT

Avian Monitoring Stations

PROJECT N°: TC111504 | **FIGURE: 1-2**

SCALE: 1:40,000 | DATE: July 2015

410000 411000 412000 413000 414000 415000 416000 417000 418000 419000 420000 421000 422000 423000

5414000 5413000 5412000 5411000 5410000 5409000 5408000 5407000

MCW-97 MCW-99 MCW-96 MCW-94 MCW-87 MCW-85 MCW-98 MCW-93 MCW-91 MCW-86 MCW-100 MCW-92 MCW-88 MCW-82 MCW-81 MCW-83 MCW-84

Hwy 600

Highway 600

B-12 W-1 B-13 B-14 W-2 W-4 W-3 B-15 B-17 B-18 MI-13 B-16 B-19 B-20 B-22 B-23 MI-18 MI-03 MI-14 B-21 B-25 MI-15 B-24 B-26 MI-01 W-5 MI-16 MI-17 B-29 W-6 B-28 MI-04 B-35 B-30 B-37 B-32 B-27 B-36 B-38 B-33 MI-12 B-31 MI-33 B-34

MC-34 MC-35 MC-40 MC-36 MC-31 MC-32 MC-39 MC-37 MC-38 MC-33

Hwy 617

MEGALLUM CREEK

WATER MANAGEMENT PIPELINE

LOSLO CREEK

PIWEYSOD RIVER

B-8 B-9 B-7 B-10 B-6 B-11

JET CREEK

HIGHWAY 600 RE-ALIGNMENT

W-7

Path: P:\EMP\projects\2011\TC111504 Rainy River\GIS\Terrestrial\Bird_monitoring_Plan_Nov2014\MXD\SAR_monitoring_stations_key_mapseries_Landscape6.mxd

LEGEND

- Proposed Principal Project Facilities
- 230 kV Transmission Line

Long Term Monitoring Bird Locations

- Monitoring Control Stations
- Monitoring Impact Stations
- Monitoring Stations Located on Bobolink Compensation Lands
- Monitoring Stations Located on Whip-poor-will Compensation Lands
- Additional Whip-poor-will Stations (Periphery of Mine Site)

- Bobolink Compensation Areas
- Whip-poor-will Compensation Areas

NOTES:
- Pleiades imagery August 2014
- Site Plan from AMEC CAD drawing May 3, 2013, derived from BBA drawing 3098003-003000-41-D20-0001, April 29, 2013
- NOTES:
- Road data extracted from Land Information Ontario, Ontario Road Network, MNR
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets

Datum: NAD83
Projection: UTM Zone 15N

0 1 2 4 6 8 Kilometres

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RAINY RIVER PROJECT

Avian Monitoring Stations

DRAFT

PROJECT N°: TC111504 | **FIGURE: 1-3**

SCALE: 1:36,000 | DATE: July 2015

414000 415000 416000 417000 418000 419000

5427000 5426000 5425000 5424000 5423000 5422000 5421000 5420000

MCW-32 MCW-34 MC-13 MCW-A MCW-33 MC-14 MCW-35 MCW-29 MC-15 MCW-28 MCW-B MCW-39 MCW-71 MC-18 MCW-75 MCW-25 MCW-70 MC-19 MCW-76 MCW-68 MCW-69 MCW-22 MCW-04 MC-71 MCW-C MCW-05 B-4 MCW-10 MCW-42 MCW-03 MCW-06 MCW-08 Strachan Rd MC-72 MC-73 B-1 B-2 MCW-02 MCW-40 MCW-41 MCW-01 MCW-09 MCW-21 MCW-14 MCW-63 MCW-12 B-5 MCW-66 MC-76 MCW-76A MCW-65 B-3 MCW-13 MC-74 MC-77 MCW-58 MCW-20 MCW-59 MCW-11 MCW-80 MC-75 MCW-52 MCW-19 MCW-56 MC-78 MCW-43 MCW-57 MCW-18 MCW-51 MCW-50 MCW-48 MC-79 MCW-38 MCW-79 MCW-16 MCW-49 MCW-17 MCW-47 MC-80 Hwy 600 MCW-37

Path: P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Bird_monitoring_Plan_Nov2014\MXD\SAR_monitoring_stations_key_mapseries_Port_6.mxd

LEGEND

- Proposed Principal Project Facilities
- Monitoring Control Stations
- Monitoring Stations Located on Bobolink Compensation Lands
- Monitoring Stations Located on Whip-poor-will Compensation Lands
- Bobolink Compensation Areas
- Whip-poor-will Compensation Areas

NOTES:
- Pleiades imagery August 2014
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

Datum: NAD83
Projection: UTM Zone 15N

0 1 2 3 Kilometres

N W E S

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RAINY RIVER PROJECT

DRAFT

Avian Monitoring Stations

PROJECT N^{o}: TC111504 | **FIGURE: 1-4**

SCALE: 1:23,000 | DATE: July 2015

415000 420000 425000 430000 435000

5415000 5410000 5405000

A B C D 1 2 3 4

Hwy 600 Hwy 71

Muskrat Lake

Pinewood River

Pinewood Lake

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife Monitoring Plan July2015\MXD Maps\SAR BarnSwallow Obs and Hab Summary 3.mxd

LEGEND

- Proposed Principal Project Facilities
- Local Study Area (LSA)
- Regional Road / Highway
- Existing Transmission Line
- Permanent Watercourse
- Intermittent (Intermittent Watercourse)
- Waterbody

Barn Swallow Observations and Habitat Information

- Barn Swallow Artificial Nest Site Location (labelled with ID)
- Barn Swallow Nest Location - Active (AMEC 2013)
- Barn Swallow Nest Location - Inactive (AMEC 2013)
- Barn Swallow Observation (AMEC 2012)
- Barn Swallow Observation (AMEC 2011)
- Barn Swallow Observation (KCB 2010)

NOTES:
- Road data extracted from Land Information Ontario, Ontario Road Network, MNR
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets
- Habitats derived from MNR FRI data, MNR Ecosite data and conversion into Provincial ELC classes

Datum: NAD83
Projection: UTM Zone 15N

0 2.5 5 10 15 Kilometres

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RAINY RIVER PROJECT

Barn Swallow Observations and Locations of Artificial Nest Sites

DRAFT

PROJECT N°: TC111504 | **FIGURE: 2**

SCALE: 1:55,000 | DATE: July 2015

415000 420000 425000 430000 435000 440000

5420000 5415000 5410000

Burditt Lake
Little Pine Lake
Boundary Lake
Off Lake
Muskrat Lake
Hwy 615
Hwy 600
Hwy 71
OPEN PIT
Pinewood River
Pinewood Lake
Bald Eagle Nest

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\SAR_BaldEagle_Nest_Observation_2.mxd

LEGEND

- Proposed Principal Project Facilities
- Local Study Area (LSA)
- Regional Road / Highway
- Existing 230 kV Transmission Line
- Bald Eagle Nest Location

NOTES:
- Road data extracted from Land Information Ontario, Ontario Road Network, MNR
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets

Datum: NAD83
Projection: UTM Zone 15N

0 2.5 5 10 15 20 Kilometres

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RAINY RIVER PROJECT

Bald Eagle Nest in Woodland 122 Outside of RRP Footprint

DRAFT

PROJECT N°: TC111504 | **FIGURE: 3**

SCALE: 1:72,000 | DATE: July 2015

414000 417000 420000 423000 426000 429000 432000 435000 438000 441000 444000 447000 450000

5424000 5421000 5418000 5415000 5412000 5409000 5406000

Strachan Rd
Fisher Rd
Hwy 600
Richardson Rd
Hwy 71
Manomin Rd
Hwy 617
Tait Rd
Caul Rd
Barwick Rd
Orr Lk Rd
Hwy 615
Fleming Rd
Hwy 613
Government Landing

1 2 3 4 5

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA BB CC DD EE FF GG HH II JJ

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\AerialSurveyFlightLines_3.mxd

LEGEND

- Proposed Principal Project Facilities
- Flight Line Transect (ID labelled on map)

NOTES:
- Background topographic map extracted from Toporama, Geogratis, NRCan 1:50k DRG

Datum: NAD83
Projection: UTM Zone 15N

0 2 4 8 12 16 20 Kilometres

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RAINY RIVER PROJECT

Aerial Survey Transect Lines for Follow-up Monitoring

DRAFT

PROJECT N°: TC111504	**FIGURE: 4**
SCALE: 1:100,000	DATE: July 2015

408000 411000 414000 417000 420000 423000 426000 429000 432000 435000 438000 441000 444000

5424000 5421000 5418000 5415000 5412000 5409000 5406000

Detector 24
Detector 23
Detector 20
Detector 21
Detector 25

Strachan Rd
Lange Rd
Fisher Rd
Richardson Rd
Hwy 71
Manomin Rd
Sutherland 2 Rd
Hwy 615
Caul Rd
Fleming Rd

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Locations_of_Bat_Detectors_1.mxd

LEGEND

- Proposed Principal Project Facilities
- Bat Detector Locations (labelled with ID)

NOTES:
- Background topographic map extracted from Toporama, Geogratis, NRCan 1:50k DRG

0 2 4 8 12 16 20 Kilometres

Datum: NAD83
Projection: UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

Locations of Bat Detectors for Follow-up Monitoring

PROJECT N°: TC111504	**FIGURE: 5**
SCALE: 1:100,000	DATE: July 2015

APPENDIX 1

A LIST OF RAINY RIVER PROJECT EA COMMITMENTS RELATED TO WILDLIFE AND WILDLIFE HABITAT

Appendix 1: A List of EA Commitments Related to Wildlife and Wildlife Habitat, including those Related to Monitoring and Wildlife Habitat Restoration at Closure

#	Commitment / Mitigation [1]	EIS Source [2]	Status
9.	Sound mitigation measures will be used, such as selection of quieter equipment. Implementation of sound abatement strategies to dampen sound infiltrating habitats and migratory bird leks surrounding high traffic areas of the mine.	7.4.1.3 7.12.3 7.14.3 7.15.2.3 7.15.3.3 7.16.3 7.18.4.1	Ongoing
82.	Monitoring of key terrestrial systems and SAR will occur during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements.	T-10	Ongoing
86.	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season; • Vegetation removal will be reduced to the extent necessary to support construction activities and longer-term transmission line reliability (from interference with conductors and fall of adjacent hazard trees). Minimizing vegetation removal includes retaining existing low vegetation ground cover; • Access to the right of way (ROW) will be provided from existing infrastructure (some of which may need to be upgraded, as reasonable for personnel, material and equipment access), but no new permanent access roads are proposed. Generally, where access is poor, the ROW will be accessed along the ROW itself. Construction vehicles will not be allowed to travel through surface waters; and • Mechanical means will be used for periodic vegetation height maintenance along the transmission line, instead of herbicides.	MNRF Transmission Line Alternatives Assessment	Survey complete Ongoing
87.	Scheduling of RRP development activities will consider environmental aspects. Clearing of forests having a density of at least 10 cavity trees per hectare with a diameter at breast height greater than 25 cm will be limited to outside of the bat roosting season (April 1 to November 15) unless cleared by a bat biologist that has surveyed the trees for bat activity. Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	4.16 4.18 7.11.3 7.12.3 7.15.3.3 7.16.3	Ongoing
95.	The primary mitigation strategies for limiting adverse effects to wildlife will include: • Restoration of disturbed habitats at closure, including the development of habitats capable of supporting a diversity of wildlife species, including ungulates, large predators, furbearers and bats;	7.9.3 7.10.3 7.11.3	Ongoing
97	Generally abiotic conditions will be created within the fenced tailings management area during operations to limit the interest of the pond to waterfowl.	7.12.3	Ongoing

#	Commitment / Mitigation [1]	EIS Source [2]	Status
98.	Scheduling of RRP development activities will consider environmental aspects, such as fish spawning and bird nesting seasons. Tree and woodland clearing will be restricted to periods outside of the breeding bird season (May 1 to August 15). Clearing or modification of known Trumpeter Swan breeding habitat will be restricted to outside the breeding season (March 15 to August 15).	4.16 4.18 7.11.3 7.12.3 7.15.3.3 7.16.3	Ongoing
99.	A monitoring plan will be developed for Common Nighthawk and Eastern Whip-poor-will, in partnership with the MNRF, Environment Canada and interested First Nation communities including the standardized information suggested well as a mortality trigger that will be decided upon during consultation with the MNRF and Environment Canada, and in consideration of conditions under the ESA Overall Benefit Permit developed by the MNRF.	T-45	Ongoing
100.	Breeding bird surveys are proposed to be carried out along portions of the preferred transmission line corridor in late Spring / early Summer, 2014. Prior to transmission line construction, additional data collection will be undertaken for that portion of the proposed transmission line routing (Alternative A) west of Highway 71, where there is a baseline data gap for breeding bird surveys. This additional data collection will be undertaken to support transmission line permitting, and would consist of point count surveys for breeding birds between late May and early July, spread across a 2 km corridor (1 km on either side the transmission line). Results will be made available to MNRF once the report is complete.	MNRF 6 CM, 7 CM; MNRF Transmission Line Alternatives Assessment	Complete
101.	The primary mitigation strategies for limiting adverse effects to birds and habitat: • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Wildlife sighting logs or information boards will be installed to notify workers of local observations. Workers will be made aware of seasonal changes in local animal behaviour or presence in proximity to the mine; • Minimizing the level of potentially disturbing activities near any known or subsequently discovered active raptor and raven nest sites until the nest is vacated; • Annual monitoring of the Bald Eagle nest in Woodland 122 to determine seasonal eagle activity at the nest site which will guide RRP activities occurring in proximity to the nest. Should eagles continue to use the nest site and raise offspring, work will be adjusted appropriately to reduce adverse effects to the breeding success of the local pair;	7.12.3 7.13.3	Ongoing

#	Commitment / Mitigation [1]	EIS Source [2]	Status
101.	• Maintenance of a safe distance between RRP activities and the nest as well as maintenance of landscape buffer areas (preferably forested or natural) between the activity and nest trees. To avoid disturbing nesting Bald Eagles, no buffer is necessary around nest sites outside of the breeding season once the juvenile eagles are known to have vacated the defined significant wildlife habitat; • Limiting less typical activities in proximity to the nest site during the nest building and breeding season. The local eagle pair appears tolerant of agricultural activities and road grading; • Environmental induction programs and ongoing environmental updates provided to workers will make them aware of Bald Eagle nesting activities prior to the commencement of new or irregular activities in proximity to an active eagle nest (within 500 m), and having them observe proper protocol in order to avoid disturbance during these activities; • Restriction of tree and woodland clearing to periods outside of the breeding bird season which extends between May 1 and August 15; • Protection of suitable breeding habitat as a result of the provision of compensatory habitat for species protected under the ESA; • Restoration of disturbed habitats at closure to habitats capable of supporting a diversity of wildlife species; • Implementation of sound abatement strategies; • Enforcement of speed limits along proposed mine access roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Restrictions to clearing or modification of known Trumpeter Swan breeding habitat to outside the breeding season (March 15 to August 15) to prevent the disturbance of nesting swans or impact the likelihood of cygnet survival; • Disposing of food wastes generated on site in an appropriate manner that limits the attraction of wildlife, including Common Ravens, Turkey Vultures and Bald Eagles; • Timely removal of carcasses of road-killed animals or any other carcasses found onsite to limit the attraction of wildlife, such as Common Ravens and Turkey Vultures; and • Treatment of tailings slurry containing cyanide and associated heavy metals from the ore leaching process in the process plant using the SO_2/Air process before being discharged to the tailings management area; and • Creation of generally abiotic conditions within the fenced tailings management area during operations to limit the interest of the pond to waterfowl.		

#	Commitment / Mitigation [1]	EIS Source [2]	Status
102.	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Tree clearing to take place outside of the breeding bird nesting season, defined as the period from May 1 to July 31; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season; • Direct impacts to raptor nesting areas will be avoided. There are currently no stick nests on or near the proposed ROW. Should any stick nests be identified during construction, the area will be avoided until a qualified avian biologist can be contacted for direction; • Conductor wire separation distances will be sufficiently far apart to preclude larger avian species, particularly raptors which frequently use hydro pole for perching or nesting, from electrocution by contacting two conductor wires simultaneously; • Construction crews will be advised not to interfere with or harass wildlife. No hunting or fishing by construction crews will be allowed. Disciplinary actions will be taken should either occur; and • Contractors will be required to handle food and food wastes in a responsible manner, and to educate workers to ensure no feeding of wildlife.	MNRF Transmission Line Alternatives Assessment	Survey complete Ongoing
103.	The site will be rendered suitable for other compatible land uses and functions after the mine has closed and the land has been reclaimed. RRR will encourage and, as practical, actively restore the RRP site to productive, naturalized vegetation communities on cessation of mining capable of supporting a diversity of wildlife species. RRP revegetation efforts at closure will include providing suitable habitat for SAR species, most notably whip-poor-will, and other species of interest, if practical.	4.1 4.3.2.1 4.19.1 4.19.2 7.8.3 7.9.3	Ongoing
104.	The RRP footprint has been altered through consultation with the MNRF in order to further avoid known Eastern Whip-poor-will territories where feasible, including maintenance of forest buffers between RRP components and whip-poor-will nesting and foraging habitat where practical. Provide compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat. Where feasible, manage site lighting fixtures to reduce excess light production near whip-poor-will foraging areas, so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered).	7.15.1.3 7.16.3	Ongoing
105.	RRR will implement a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas. Continue funding external research programs in collaboration with the MNRF in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the ESA permit.	7.15.1.3	Ongoing
106.	RRR will implement a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas - developed through consultation with the MNRF. Acquire and protect compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRP development.	7.15.2.2, 13.7.1, 13.7.3	Ongoing

#	Commitment / Mitigation [1]	EIS Source [2]	Status
107.	RRR will identify Barn Swallow nesting colonies prior to mine construction. Establish zones where Barn Swallow colonization is desired, tolerated or not wanted. Create artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed. Implement a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	7.15.3.3	Ongoing
108.	Where feasible, RRP lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment (for Eastern Whip-poor-will, Common Nighthawk and Short-eared Owl).	7.15.1.3, 7.16.3	Ongoing
109.	Monitoring of key terrestrial systems and SAR: during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements	T-10	Ongoing
110.	• Mitigation measures that will be used to reduce potential adverse effects to Eastern Whip-poor-will will include the following: • Provision of compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat; • Restricting the clearing of habitats to periods outside the breeding bird season which occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, management of site lighting fixtures to reduce excess light production near whip-poor-will foraging areas so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered); • Maintenance of forest buffers between RRP components and whip-poor-will nesting and foraging habitat where practical; • Management of dust through dust suppression activities (best management practices); • Enforcement of speed limits along mine-controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Environmental induction of RRP personnel, including SAR identification and sensitivities, and knowledge of ESA permit conditions; • Implementation of a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas; and • Continue funding external research programs in collaboration with the MNRF in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the ESA permit.	7.15.1.3	Ongoing

#	Commitment / Mitigation [1]	EIS Source [2]	Status
111.	The primary mitigation strategies for limiting adverse effects to Bobolink will include: • Restricting the development of open country habitats to periods outside the breeding bird season which occurs from May 1 to July 31; • Acquiring and protecting compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRP development; • Enforcement of speed limits along mine controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Environmental induction of RRP personnel, including SAR identification and sensitivities and knowledge of ESA permit conditions; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Restoration of disturbed habitats at mine closure or encouraging development of habitats capable of supporting Bobolink and other open country species; and • Implementation of a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas.	7.15.2.3	Ongoing
112.	• Mitigation measures that will be used to reduce potential adverse effects to Barn Swallows will include the following: • Identification of Barn Swallow nesting colonies prior to mine construction; • Restricting habitat displacement for mine infrastructure to periods outside the breeding bird season which occurs from May 1 to August 15; • Creation of artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed; • Restoration of disturbed habitats at closure or encouraging development of habitats capable of providing suitable Barn Swallow foraging habitat; • Sound abatement strategies will be implemented to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Establishment of zones where Barn Swallow colonization is desired, tolerated or not wanted. These measures may be necessary to prevent colonization in areas of high human or vehicular activity that would put swallows and swallow breeding success at risk or where order and cleanliness are desired. In this case, discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to swallows nesting in other locations where their presence is encouraged and does not cause problems to mine operations; • Enforcement of speed limits along mine controlled roads to reduce potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; and • Implementation of a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	7.15.3.3	Ongoing

#	Commitment / Mitigation [1]	EIS Source [2]	Status
113.	Mitigation measures that will be used to reduce potential adverse effects to all species of Special Concern and Provincially rare species will include the following: • Restriction of principal habitat displacement for mine infrastructure to periods outside the breeding bird season which MNRF has indicated occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, RRP lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment. • Establishment of zones where Black-billed Magpie colonization is desired, tolerated, or not wanted. These measures may be necessary to prevent colonization in areas of high human vehicular activity that could put magpie and magpie breeding success at risk. Discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to magpies nesting in other locations where their presence is encouraged and does not cause problems to mine operations. • Enforcement of speed limits along mine controlled roads to reduce the potential for adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Inclusion of wildlife awareness information into regular safety inductions performed by the mine. Workers will be made aware of seasonal changes in wildlife behaviour or presence in proximity to the mine; • Treatment of tailings slurry containing cyanide and associated heavy metals in the process plant using the SO_2/Air process before being discharged to the tailings management area; and • Restoration of disturbed habitats at closure including the development of habitats capable of supporting a diversity of wildlife species, including Species of Special Concern and rare species.	7.16.3	Ongoing
114 (and 87).	Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	4.16	Ongoing
117.	RRR has an open invitation for First Nations, the MNO and regional stakeholders to participate in all baseline and environmental monitoring programs, including Whip-poor-will, where appropriate and to share monitoring results. RRR will continue to advise of the opportunity at public forums in order to encourage anyone who's interested to participate (Letter to Chiefs from Kyle Stanfield, October 2013).	Table 3-4	Ongoing
181.	Environmental monitoring will be conducted in accordance with standard practice and regulatory requirements, including any site-specific environmental approvals.	7.21.3 13 (and others)	Ongoing
186.	Monitoring details will be developed through ongoing stakeholder consultation during the EA process, and through conditions placed on regulatory instruments such as permits, authorizations and approvals, issued by the Federal and Provincial regulatory agencies.	13.1	
187.	A Follow up Monitoring Program (FMP) is provided in Section 13 of the Final EA Report, which subject to modification through the EA review process, will be implemented by NG in the manner and schedule identified, to: • Verify the accuracy of the environmental assessment of a designated project; and • Determine the effectiveness of any mitigation measures.	13	

#	Commitment / Mitigation [1]	EIS Source [2]	Status
188.	Subject to acceptance in writing of the FMP by the Federal and Provincial governments, monitoring results will be provided to the parties involved in the FMP annually during the construction and operation phases of the RRP.	13	

Notes:

1 Commitments are stated as submitted to the Canadian Environmental Assessment Agency (Version 9), except where Proponent / project name required revision for clarity.

2 **Bold** text refers to Final EA Report / EIS references. Other references relate to follow up comments / response tables. Note that the commitment may also have been made in other locations not specifically referenced herein.

APPENDIX 2

MIGRATORY BIRD SPECIES DIVERSITY AND DENSITIES IN 2011, 2012, 2014 AND 2015

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big Grassy River
Caliper Lake Provincial Park
Bohn Bay
Southern River
Pipeline Bay
Pipeline Bay
Trans Canada Highway
HWY 600
HWY 615
TAIT RD
BARWICK RD
ANGUS RD
OFF LK RD
MOULTON RD

BBS-2-2
BBS-2-4
BBS-2-7
BBS-2-14
BBS-1-28
AMEC 12
BBS-1-24
BBS-2-17
BBS-2-16
BBS-2-11
BBS-2-19
AMEC 13
BBS-2-23
BBS-2-21
BBS-1-22
BBS-1-24
BBS-1-26
BBS-1-25
BBS-2-20
AMEC 31
BBS-1-20
BBS-1-15
BBS-1-5
BBS-1-3
BBS-1-8
AMEC 33
BBS-1-10
BBS-1-12
BBS-1-19

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Bird_Richness_2011_1.mxd

LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Richness (Labelled with Location ID)

- 6 to 10 Species
- 11 to 15 Species
- 16 to 20 Species
- 21 to 25 Species
- 26 to 30 Species

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

newgold™ Rainy River Project

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RAINY RIVER PROJECT

2011 Bird Species Richness

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 1 2 4 6 8 10 Kilometres

PROJECT N^{0}: TC111504 | **FIGURE: A2-a**

SCALE: 1:115,000 | DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big Rainy River
Caliper Lake Provincial Park
Gohn Bay
Southern River
HWY 600
HWY 515
TAIT RD
BARWICK RD
ANGUS RD
MOULTON RD
OFFLK RD

TL24 TL23 TL22 TL21 TL20 TL19 TL18 TL17 TL16 TL15 TL14 TL13 TL12 TL11 TL10 TL9 TL8 TL7 TL6

B55 B67 B48 B68 B47 B49 B46 B42 B65 B53 B43 B52 B41 B54 B40 B66 B39 B44 B29 B51 B38 B50 B28 B45 B30 B36 B26 B64 B62 B37 B25 B27 B63 B35 B22 B33 B31 B32 B23 B34 B24 B20 B18 B19

B72 B60 B61 B70 B71 B69 B59 B73 B58 B74 B57 B75 B77 B80 B81 B76 B78 B3 B79 B4 B2 B5 B1 B6

B56 B10 T1 B17 B9 T2 B16 B8 T3 B11 T4 B7 T5 B15 B13 B12 B14

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Bird_Richness_2012_1.mxd

LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Richness (Labelled with Location ID)

- 6 to 10 Species
- 10 to 15 Species
- 16 to 20 Species
- 21 to 25 Species

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

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RAINY RIVER PROJECT

2012 Bird Species Richness

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 1 2 4 6 8 10 Kilometres

PROJECT N^{0}: TC111504 | **FIGURE: A2-b**

SCALE: 1:115,000 | DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big Rainy River
Sturgeon River
Gohn Bay
Caliper Lake Provincial Park
Pelican Bay
Pelican Rapids
Pelican Lake
Trans Canada Highway

MCW-29 MCW-30 MCW-28 MCW-27 MCW-26 MCW-24 MCW-23 MCW-22 MCW-21 MCW-20 MCW-19 MCW-18 MCW-17 MCW-16 MCW-15 MCW-14 MCW-13 MCW-12 MCW-11 MCW-10 MCW-09 MCW-08 MCW-07 MCW-06 MCW-05 MCW-04 MCW-03 MCW-02 MCW-01

MC-01 MC-02 MC-03 MC-04 MC-05 MC-06 MC-07 MC-08 MC-09 MC-10 MC-11 MC-12 MC-16 MC-17 MC-20 MC-21 MC-22 MC-23 MC-24 MC-25 MC-26 MC-27 MC-28 MC-29 MC-30

TL-01 TL-02 TL-03 TL-04 TL-05 TL-06 TL-07 TL-08 TL-09 TL-10 TL-11 TL-12 TL-13 TL-14 TL-16 TL-17 TL-18 TL-19 TL-20 TL-21 TL-22 TL-23 TL-24 TL-25 TL-27 TL-28 TL-29

HWY 600
HWY 615

MC-31 MC-32 MC-33 MC-34 MC-35 MC-36 MC-37 MC-38 MC-39 MC-40

MI-01 MI-02 MI-03 MI-04 MI-05 MI-06 MI-07 MI-08 MI-09 MI-10 MI-11 MI-12 MI-13 MI-14 MI-15 MI-16 MI-17 MI-18 MI-19 MI-20 MI-21 MI-22 MI-23 MI-24 MI-25 MI-26 MI-27 MI-28 MI-29 MI-30

MC-41 MC-42 MC-43 MC-44 MC-45 MC-46 MC-47 MC-48 MC-49 MC-50

TAIT RD
BARWICK RD
ANGUS RD
OFFLY RD
MOULTON RD

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Bird_Richness_2014_1.mxd

LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Richness (Labelled with Location ID)

- 1 to 5 Species
- 6 to 10 Species
- 11 to 15 Species
- 16 to 20 Species
- 21 to 25 Species

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

Datum: NAD83
Projection: UTM Zone 15N

0 1 2 4 6 8 10 Kilometres

N W E S

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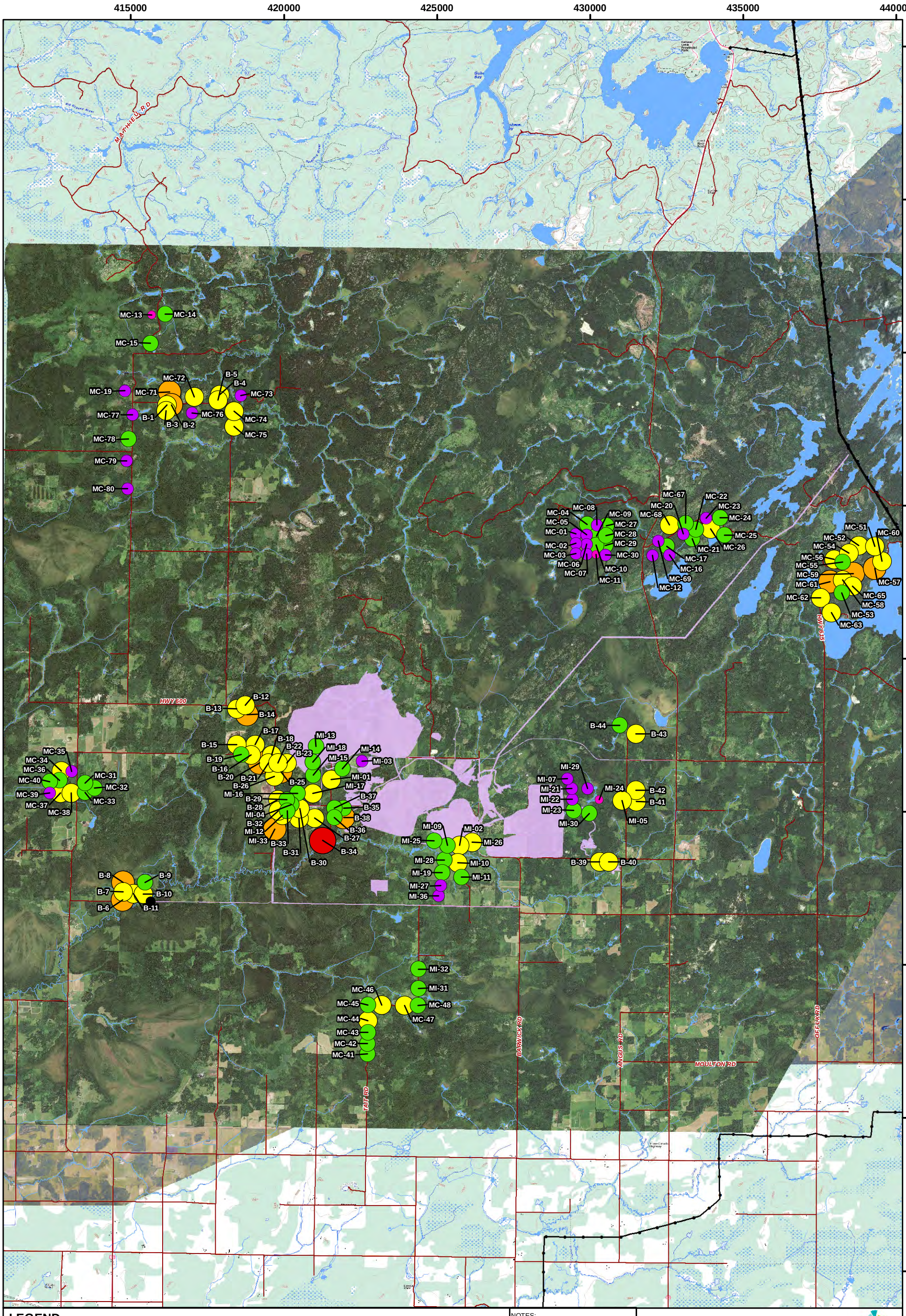
RAINY RIVER PROJECT

2014 Bird Species Richness

PROJECT N^{0}: TC111504 | **FIGURE: A2-c**

SCALE: 1:115,000 | DATE: January 2016



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LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Richness (Labelled with Location ID)

- 1 to 5 Species
- 6 to 10 Species
- 11 to 15 Species
- 16 to 20 Species
- 21 to 25 Species
- 26 to 30 Species

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

Datum: NAD83
Projection: UTM Zone 15N

0 1 2 4 6 8 10 Kilometres

N W E S

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RAINY RIVER PROJECT

2015 Bird Species Richness

PROJECT N^{0}: TC111504	**FIGURE: A2-d**
SCALE: 1:115,062	DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big Rainy River
Caliper Lake Provincial Park
Bohn Bay
Pipestone Bay
Pipestone River
Pipestone Creek
Pipestone Lake
Trans Canada Highway

HWY 600
HWY 615
TAIT RD
BARWICK RD
ANGUS RD
OFFLEY RD
MOULTON RD

BBS-2-2
BBS-2-4
BBS-2-7
BBS-2-14
BBS-1-28
AMEC 12
BBS-1-24
BBS-2-17
BBS-2-16
BBS-2-11
BBS-2-19
BBS-2-21
AMEC 13
BBS-2-23
BBS-1-22
BBS-1-24
BBS-1-26
BBS-1-25
BBS-2-20
AMEC 31
BBS-1-20
BBS-1-15
BBS-1-5
BBS-1-3
BBS-1-8
AMEC 33
BBS-1-10
BBS-1-12
BBS-1-19

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LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Density (Labelled with Location ID)

- 11 to 20 birds
- 21 to 30 birds
- 31 to 40 birds
- 41 o 50 birds

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

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RAINY RIVER PROJECT

2011 Bird Density

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 1 2 4 6 8 10 Kilometres

PROJECT N^{0}: TC111504 | **FIGURE: A2-e**

SCALE: 1:115,000 | DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big O Quarry Road
Caliper Lake Provincial Park
Gohn Bay
Southwest River
Pipeline Bay
Pipeline Bay
Pipeline Bay
HWY 600
HWY 615
TAIT RD
BARWICK RD
ANGUS RD
MOULTON RD
OFF LK RD

TL24 TL23 TL22 TL21 TL20 TL19 TL18 TL17 TL16 TL15 TL14 TL13 TL12 TL11 TL10 TL9 TL8 TL7 TL6

B55 B67 B48 B68 B47 B49 B46 B42 B65 B53 B43 B52 B41 B54 B40 B66 B39 B44 B51 B29 B38 B50 B28 B30 B45 B26 B64 B62 B36 B25 B37 B27 B63 B35 B22 B33 B23 B24 B31 B32 B34 B20 B18 B19

B72 B60 B61 B70 B71 B69 B59 B73 B58 B74 B57 B75 B77 B80 B81 B76 B78 B3 B79 B4 B2 B5 B1 B6

B56 B10 T1 B17 T2 B16 B9 B11 B8 T3 T4 B12 B7 T5 B15 B13 B14

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Bird_Density_2012_1.mxd

LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Density (Labelled with Location ID)

- 1 to 10 Birds
- 11 to 20 Birds
- 21 to 30 Birds
- 31 to 40 Birds
- 41 to 50 Birds

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

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RAINY RIVER PROJECT

2012 Bird Density

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 1 2 4 6 8 10 Kilometres

PROJECT N^{0}: TC111504 | **FIGURE: A2-f**

SCALE: 1:115,000 | DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATHIEU RD
Big Grassy River
Sturgeon River
Caliper Lake Provincial Park
Gohn Bay
Sturgeon Bay
Pipestone Bay
Trans Canada Highway
HWY 600
HWY 615
BARWICK RD
ANGUS RD
OFFLY RD
MOULTON RD
TAIT RD

MCW-29 MCW-30 MCW-28 MCW-27 MCW-26 MCW-24 MCW-23 MCW-22 MCW-21 MCW-20 MCW-19 MCW-18 MCW-17 MCW-16 MCW-03 MCW-04 MCW-07 MCW-02 MCW-08 MCW-01 MCW-10 MCW-09 MCW-06 MCW-14 MCW-11 MCW-15 MCW-05 MCW-13 MCW-12

MC-04 MC-08 MC-05 MC-27 MC-09 MC-01 MC-28 MC-10 MC-02 MC-29 MC-03 MC-30 MC-06 MC-07 MC-11

MC-23 MC-22 MC-24 MC-21 MC-20 MC-25 MC-17 MC-26 MC-16 MC-12

TL-19 TL-18 TL-17 TL-20 TL-14 TL-21 TL-25 TL-22 TL-10 TL-12 TL-24 TL-27 TL-08 TL-13 TL-16 TL-07 TL-11 TL-06 TL-28 TL-09 TL-23 TL-29 TL-03 TL-05 TL-01 TL-04 TL-02

MC-34 MC-36 MC-35 MC-40 MC-31 MC-39 MC-32 MC-33 MC-37 MC-38

MI-13 MI-18 MI-03 MI-15 MI-14 MI-16 MI-01 MI-17 MI-04 MI-12

MI-06 MI-08 MI-07 MI-21 MI-29 MI-22 MI-23 MI-30 MI-24 MI-05

MI-09 MI-02 MI-25 MI-26 MI-28 MI-10 MI-19 MI-20 MI-27 MI-11

MC-50 MC-49 MC-46 MC-45 MC-48 MC-44 MC-47 MC-43 MC-42 MC-41

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\Wildlife_Monitoring_Plan_July2015\MXD_Maps\Bird_Density_2014_1.mxd

LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Density (Labelled with Location ID)

- 1 to 10 Birds
- 11 to 20 Birds
- 21 to 30 Birds
- 31 to 40 Birds
- 41 to 50 Birds

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

Datum: NAD83
Projection: UTM Zone 15N

0 1 2 4 6 8 10 Kilometres

N W E S

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RAINY RIVER PROJECT

2014 Bird Density

PROJECT N^{0}: TC111504 | **FIGURE: A2-g**

SCALE: 1:115,000 | DATE: January 2016

415000 420000 425000 430000 435000 440000

5435000 5430000 5425000 5420000 5415000 5410000 5405000 5400000 5395000

MATTHIEU RD
Big Grassy River
Caliper Lake Provincial Park
Gohn Bay
Sturgeon River
Pipestone Bay
Pipestone River
HWY 600
BARWICK RD
ANGUS RD
MOULTON RD
OFF LK RD
TAIT RD
HWY 615

MC-01 MC-02 MC-03 MC-04 MC-05 MC-06 MC-07 MC-08 MC-09 MC-10 MC-11 MC-12 MC-13 MC-14 MC-15 MC-16 MC-17 MC-19 MC-20 MC-21 MC-22 MC-23 MC-24 MC-25 MC-26 MC-27 MC-28 MC-29 MC-30 MC-31 MC-32 MC-33 MC-34 MC-35 MC-36 MC-37 MC-38 MC-39 MC-40 MC-41 MC-42 MC-43 MC-44 MC-45 MC-46 MC-47 MC-48 MC-51 MC-52 MC-53 MC-54 MC-55 MC-56 MC-57 MC-58 MC-59 MC-60 MC-61 MC-62 MC-63 MC-65 MC-67 MC-68 MC-69 MC-71 MC-72 MC-73 MC-74 MC-75 MC-76 MC-77 MC-78 MC-79 MC-80

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20 B-21 B-22 B-23 B-25 B-26 B-27 B-28 B-29 B-30 B-31 B-32 B-33 B-34 B-35 B-36 B-37 B-38 B-39 B-40 B-41 B-42 B-43 B-44

MI-01 MI-02 MI-03 MI-04 MI-05 MI-07 MI-09 MI-10 MI-11 MI-12 MI-13 MI-14 MI-15 MI-16 MI-17 MI-18 MI-19 MI-21 MI-22 MI-23 MI-24 MI-25 MI-26 MI-27 MI-28 MI-29 MI-30 MI-31 MI-32 MI-33 MI-36

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LEGEND

- Transmission Line
- Road
- Watercourse
- Waterbody
- Approximate Principal RRP Facilities

Breeding Bird Survey Location - Density (Labelled with Location ID)

- 6 to 10 Birds
- 11 to 20 Birds
- 21 to 30 Birds
- 31 to 40 Birds
- 41 to 50 Birds
- 51 to 60 Birds
- 61 to 70 Birds
- 71 to 80 Birds

NOTES:
- Pleiades imagery September 2015
- Road and watercouse data extracted from Land Information Ontario, MNRF.
- Base map data from Geogratis NRCan Toporama DRG 1:50k sheets.

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RAINY RIVER PROJECT

2015 Bird Density

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 1 2 4 6 8 10 Kilometres

PROJECT N^{0}: TC111504 | **FIGURE: A2-h**

SCALE: 1:115,000 | DATE: January 2016

APPENDIX 3

LIKELIHOOD OF SAR OCCURRING WITHIN THE RAINY RIVER PROJECT NLSA

Appendix 3: Likelihood of SAR Occurring within the RRP NLSA

Species	*Species at Risk Act*	*Endangered Species Act*	Provincial NHIC S-Rank	Critical Habitat	Likelihood of Occurrence within the RRP NLSA
Plants					
Small-flowered Lipocarpha (*Lipocarpha micrantha)*	END (Schedule 1)	THR	S2	This species is confined to moist sandy beaches which have some protection from waves (COSEWIC 2002).	**Low** – Sandy beaches not occur in the NLSA.
Western Silvery Aster *(Symphyotrichum sericeum)*	THR (Schedule 1)	END	S1	This plant species grows in open bur oak savannahs on shallow soils over bedrock (MNR 2008).	**Low** – Prairie habitat does not occur in the NLSA.
Mammals					
Little Brown Myotis *(Myotis lucifugus)*	--	END	S4	Little Brown Myotis requires cavity trees of large diameter to use as maternity roots as well as foraging habitat such as wetlands and open woodlands. Bat hibernacula generally consist of caves, abandoned mine shafts, and underground foundations (MNR 2012c).	**Observed** – The study area provides an abundance of forest edge interface as well as low-lying swamplands which provide ample foraging habitat. Woodlands consisting of large-diameter Trembling Aspen likely provide suitable cavities for maternal roosts.
Northern Myotis *(Myotis septentrionalis)*	--	END	S3	Northern Myotis requires cavity trees of large diameter to use as maternity roots as well as foraging habitat such as wetlands and open woodlands. Bat hibernacula generally consist of caves, abandoned mine shafts, and underground foundations (MNR 2012c)	**Observed** – The study area provides an abundance of forest edge interface as well as low-lying swamplands which provide ample foraging habitat. Woodlands consisting of large-diameter Trembling Aspen likely provide suitable cavities for maternal roosts.
American Badger (*Taxidea taxus jacksonii)*	END	END	S2	Preferred areas include natural and undisturbed grasslands, shrubby areas and woodlots (Ontario American Badger Recovery Team 2010).	**Low – Moderate** – While this habitat does occur within the NLSA, the American Badger is a very rare species and two sightings were confirmed in the Rainy River – Fort Frances area between 2000 and 2008 (Ontario American Badger Recovery Team 2010).
Grey Fox (*Urocyon cinereoargenteus)*	THR	THR	S1	In Ontario, the Grey Fox prefers deciduous forests, especially swampy areas (Royal Ontario Museum 2008). Grey Fox occurrence in Ontario generally hugs the border with the United States.	**Moderate** – The NLSA provides suitable habitat. Three commercial traplines partially intersect the NLSA. MNR records from fur harvest between 1993 and 2008 show that Grey Fox had been captured in the general area.

Species	*Species at Risk Act*	*Endangered Species Act*	Provincial NHIC S-Rank	Critical Habitat	Likelihood of Occurrence within the RRP NLSA
Birds					
Eastern Whip-poor-will *(Antrostomus vociferous)*	THR (Schedule 1)	THR	S4B	This species prefers rock or sand barrens with scattered trees, savannahs, old burns in early succession, and open conifer plantations (Cadman et al. 2007). Accordingly, pine (barrens and plantations), oak (barrens and savannahs), and aspen and birch (early to mid-succession) are common tree species associations (COSEWIC 2009a).	**Observed** – Suitable habitat in the form of rocky outcrops and open forests is widespread within the NLSA.
Common Nighthawk (*Chordeiles minor*)	THR (Schedule 1)	Special Concern	S4B	Common Nighthawks utilize a wide variety of natural open country habitats including sand dunes, cutovers, burns, rocky outcrops, bogs, short-grass prairies, open forests, marshes, lakeshores, rock barrens, and forest clearings (COSEWIC 2007). This species has also adapted to anthropogenically modified habitats including mine tailings, quarries, urban parks, airports, gravel roads, and flat-topped buildings. Despite this species' tolerance of disturbed lands, it prefers natural habitats.	**Observed** – This species was observed both in proximity to the proposed mine footprint and along the proposed transmission line corridor. Cumulative studies between 2010 and 2011 indicated that nighthawks were most readily observed where cleared forest and rocky outcrops were present, particularly in proximity to the proposed transmission line. Cleared forest in this area undoubtedly provides both nesting habitat and open foraging habitat for this species.
Short-eared Owl (*Asio flammeus*)	Special Concern (Schedule 1)	Special Concern	S3S4	This species nests in areas of tall grass in grasslands, agricultural lands and wetlands (Cadman et al. 2007). This species uses similar habitat for foraging.	**Observed** – One individual was observed in 2010. Subsequent surveys between 2011 and 2014 did not provide additional observations.
Bobolink (*Dolichonyx oryzivorus)*	THR (Schedule status pending)	THR	S4B	The Bobolink nests primarily in forage crops (e.g., hayfields and pastures) and old field habitat. It can adapt to low-moderate livestock grazing, but not intensive grazing. The preferred habitat characteristics are often found in old (≥8 years) forage crops (COSEWIC 2010a). Nesting success is positively correlated to larger habitat size, although this species will utilize smaller areas of 10 to 30 ha.	**Observed** – The presence of agricultural lands is extensive within the NLSA, consisting primarily of hay fields and pasture lands (row cropping is rare in the area). Scattered populations of Bobolink are known to exist in the Rainy River District.
American White Pelican *(Pelecanus erythrorhynchos)*	NAR	THR	S2B	In Ontario, this species breeds on small, remote, low bedrock islands in fresh water lakes. Breeding colonies occur on islands within Lake of the Woods (Cadman et al. 2007).	**Observed** – The closest known pelican colony to the NLSA exists on Lake of the Woods (Cadman et al. 2007). Pelicans are known to forage at considerable distances (50 to 100 km) from breeding colonies and may use the NLSA as foraging habitat only.

Species	*Species at Risk Act*	*Endangered Species Act*	Provincial NHIC S-Rank	Critical Habitat	Likelihood of Occurrence within the RRP NLSA
Bald Eagle (*Haliaeetus leucocephalus)*	NAR	Special Concern	S4	Bald Eagles use shoreline habitat associated with lakes and large rivers (rarely small lakes and rivers) for nesting and foraging and often prefer nesting on islands (MNR 2000). Hunting areas consist of productive areas of open water or deep water marshes supporting large quantities of fish (MNR 2000).	**Observed** – Bald Eagles feed primarily on fish and thus usually require large open waterbodies to hunt. The Pinewood River, located within the NLSA, may support suitable fish populations.
Peregrine Falcon *(Falco peregrines)*	Special Concern (Schedule 1)	Special Concern	S2S3	Peregrine Falcons nest on ledges found on vertical cliff faces, but will also utilize manmade structures such as: tall buildings, bridges and the walls of open pit mines. In Ontario, suitable vertical faces are generally 50 to 200 m high and will typically overlook water bodies and forested areas.	**Observed** – One individual was observed in 2010, flying across the NLSA during migration. No cliff faces are present in the study area, and therefore, no nesting habitat is present.
Olive-sided Flycatcher *Contopus cooperi)*	THR (Schedule 1)	Special Concern	S4B	This species prefers natural forest openings created by forest fires or other natural disturbance. Snags of large trees remaining on disturbed landscapes are an important ecological element of flycatcher habitat as they provide elevated perches used for foraging and may provide habitat for insects.	**Observed** – The Olive-sided Flycatcher is a widespread species in Northern Ontario. The NLSA provides suitable breeding habitat in the form of forests with natural openings created by rocky outcroppings.
Canada Warbler (*Cardellina Canadensis)*	THR (Schedule 1)	Special Concern	S4B	Canada Warbler will nest in the interior of wet mixed woodlands or swamps (Cadman et al. 2007).	**Observed** – Moist mixed forests and slopes representing suitable Canada Warbler habitat are rare in the NLSA and likely inhibit this species from occurring in greater numbers.
Least Bittern (*Ixobrychus exilis)*	THR (Schedule 1)	THR	S4B	Least Bittern breed strictly in marshes with tall emergent vegetation (usually cattails) that have relatively stable water levels (less than 1 m, and usually 10 to 50 cm) and about 50% open water interspersed in small pockets throughout the vegetated areas (COSEWIC 2009b). Larger wetlands (>5 to 10 ha) are said to be particularly important.	**Low** – Records in the OBBA show that Least Bittern is not common within the Rainy River District and those records are from cattail marshes near Fort Frances (Cadman et al. 2007). Cattail marshes are sporadic within the NLSA.
Black Tern (*Chlidonias niger)*	NAR	Special Concern	S3B	Black Terns nest in loose colonies and prefer large marshes with 50:50 open water and emergent vegetation (Cadman et al. 2007).	**Low** – Black Tern colonies are known to occur at Lake of the Woods, west of the NLSA. No known colonies occur within the NLSA where suitable large, open marshes are rare.

Species	*Species at Risk Act*	*Endangered Species Act*	Provincial NHIC S-Rank	Critical Habitat	Likelihood of Occurrence within the RRP NLSA
Yellow Rail (*Coturnicops noveboracensis)*	Special Concern (Schedule 1)	Special Concern	S4B	This species breeds in damp, sedge-dominated habitat that maintains up to 15 cm of standing water throughout the breeding season (Cadman et al. 2007).	**Low – Moderate** – This species is known to occur in the Rainy River District; however, suitable breeding habitat is uncommon in the NLSA. The presence of this secretive species may be difficult to confirm.
Eastern Meadowlark (*Sturnella magna)*	THR (Schedule status pending)	THR	S4B	This species prefers native grasslands but will nest in pastures and agricultural hay fields. It also uses old fields and meadows, often over-grown with shrubs, and prefers dry habitat to wet and tall grass to short (COSEWIC 2011b).	**Low – Moderate** – The presence of agricultural lands is extensive within the NLSA, consisting primarily of hay fields and pasture lands (row cropping is rare in the area). Scattered populations of Eastern Meadowlark are known to exist in the Rainy River District. The NLSA occurs in a region where the ranges of Eastern and Western Meadowlark overlap.
Chimney Swift (*Chaetura pelagic)*	THR (Schedule 1)	THR	S4B, S4N	Chimney Swifts nest and roost predominantly in old chimneys, although some may utilize hollow trees, other tree cavities, and cracks in cliffs (Cadman et al. 2007). This species requires the presence of dated human settlement, cliffs, or large trees of large diameter or snags.	**Moderate** – The Chimney Swift is known to occur in the Rainy River District (Cadman et al. 2007). The NLSA contains a small rural settlement which may provide suitable habitat. Rocky outcroppings occur within the NLSA and may provide suitable cliff nesting habitat. Cavity trees of large diameter likely occur in forested areas of the NLSA, although swift nesting in such locations is uncommon.
Red-headed Woodpecker *(Melanerpes erythrocephalus)*	THR (Schedule 1)	Special Concern	S4B	Red-headed Woodpeckers are associated with the Carolinian forest where they inhabit open woodlands, oak savannah, riparian forest, and hedgerows. This species is particularly drawn to American Beech trees on which they forage for beach nuts and insects (Cadman et al. 2007).	**Observed** – It is estimated that 30 to 50 pairs occur in 10 OBBA survey squares in the Rainy River Clay Plain (Cadman et al. 2007). Although oak savannah is not present in the NLSA, open woodlands and riparian forest may provide suitable habitat.
Barn Swallow (*Hirundo rustica)*	THR (Schedule status pending)	THR	S4B	Barn Swallows nest largely in and on artificial structures, including barns and other outbuildings, garages, houses, bridges, and road culverts. Barn Swallows prefer various types of open habitat for foraging, including grassy fields, pastures, various kinds of agricultural crops, lake and river shorelines, cleared right-of ways, cottage areas and farmyards, islands, wetlands, and subarctic tundra (COSEWIC 2011a).	**Observed** – The NLSA contains a small rural settlement which may provide artificial structures with suitable breeding habitat. The presence of agricultural lands, suitable for foraging habitat, is extensive within the NLSA, consisting primarily of hay fields and pasture lands (row cropping is rare in the area).
Golden-winged Warbler *(Vermivora chrysoptera)*	THR (Schedule 1)	Special Concern	S4B	Golden-winged Warblers breed in successional / shrub, or old field habitats surrounded by forests. This species is associated with deciduous of mixed forests occurring over upland landscapes (Cadman et al. 2007).	**Observed** – This species is known to occur near Rainy River. The NLSA contains ample suitable breeding habitat in the form of successional forests, old fields, and upland deciduous or mixedwood forests.

Species	*Species at Risk Act*	*Endangered Species Act*	Provincial NHIC S-Rank	Critical Habitat	Likelihood of Occurrence within the RRP NLSA
Reptiles					
Snapping Turtle (*Chelydra serpentine)*	Special Concern (Schedule 1)	Special Concern	S4	Snapping Turtles inhabit a wide variety of aquatic habitats including ponds, sloughs, shallow bays or river edges, and slow streams. Snapping Turtles are tolerant of disturbance and will inhabit man-made ponds, ditches and canals. This species nests in sand and gravel banks along waterways and well as within a variety of man-made features (COSEWIC 2008).	**Observed** – Suitable Snapping Turtle habitat in the form of slow streams, ponds and ditches are present within the NLSA. Beaver ponds are widespread. Natural sand and gravel substrates are not common.
Invertebrates					
Monarch Butterfly (*Danaus plexippus)*	Special Concern	--	S2N, S4B	Monarch Butterfly habitat exists primarily wherever milkweed (Asclepius) and wildflowers such as goldenrods, asters, and Purple Loosestrife exist, including abandoned farmland, along roadsides, and other open spaces where these plants grow (COSEWIC 2010b).	**Moderate** – This wide-ranging, strong-flying species may occur anywhere milkweed or flowering meadow plants occur within 500 km of the Great Lakes.

Notes:

*** =** Observed in the NLSA during AMEC or KCB field investigations to date
SARA = *Species at Risk Act* and is the Federal Status. Rankings are provided by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
SARO =*Species at Risk in Ontario*, is the Provincial Status. Rankings are provided by the Committee on the Status of Species at Risk in Ontario (COSSARO)
NHIC = Natural Heritage Information Centre and is a database maintained by the MNR
ESA = *Endangered Species Act*

SARA

NAR	Not at Risk
SC	Special Concern
THR	Threatened
END	Endangered

SARO

NAR	Not at Risk
SC	Special Concern
THR	Threatened
END	Endangered

NHIC S-Rank

S1	Critically Imperilled
S2B	Imperilled - Breeding Migrants
S3?	Vulnerable - Rank uncertain
S4	Apparently Secure
S4B	Apparently Secure Breeding Migrants
S4N	Apparently Secure Non-breeding Migrants
S5	Secure
S5B	Secure Breeding Migrants
S5N	Secure Non-breeding Migrants
SNA	Status Rank not Applicable

APPENDIX 4

MONITORING SUMMARY TABLES

Table 4-a: Monitoring Framework for Migratory Birds

	General Migratory Bird Surveys	Point Count Surveys for Migratory Birds	Surveys Tracking Migratory Bird Habitat Removal	Migratory Bird Habitat Assessments	Incidental Data On Migratory Birds
Predicted Project-Related Impacts	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• Direct loss of habitat	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• N/A
Proposed Mitigation Measures	• Discussed in • Section 6.2	• Discussed in • Section 6.2	• Discussed in • Section 6.2	• Discussed in • Section 6.2	• N/A
Monitoring Objectives	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability • Determine if SAR compensatory habitat provides suitable habitat • Determine when migratory bird recolonization levels reach baseline numbers based on key thresholds such as; species richness (10.4 to 18.7 species per plot), overall abundance (12.4 to 31.2 birds per plot), top 5 species based on density (birds/ha) (Bobolink 0.41, Common Yellowthroat 0.37, Sedge Wren 0.37, Song Sparrow 0.31, American Goldfinch 0.28), and top 5 species based on abundance (birds/count) (Canada Goose 3.44, Ovenbird 1.29, White-throated Sparrow 1.27, Red-eyed Vireo 1.27, Common Yellowthroat 1.10).	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability • Determine if SAR compensatory habitat provides suitable habitat • Determine when migratory bird recolonization levels reach baseline numbers based on key thresholds such as; species richness (10.4 to 18.7 species per plot), overall abundance (12.4 to 31.2 birds per plot), top 5 species based on density (birds/ha) (Bobolink 0.41, Common Yellowthroat 0.37, Sedge Wren 0.37, Song Sparrow 0.31, American Goldfinch 0.28), and top 5 species based on abundance (birds/count) (Canada Goose 3.44, Ovenbird 1.29, White-throated Sparrow 1.27, Red-eyed Vireo 1.27, Common Yellowthroat 1.10).	• Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization	• Fulfil Provincial and Federal compliance monitoring requirements

	General Migratory Bird Surveys	Point Count Surveys for Migratory Birds	Surveys Tracking Migratory Bird Habitat Removal	Migratory Bird Habitat Assessments	Incidental Data On Migratory Birds
Variables Being Measured by the Monitoring Surveys	Bird species occurrence, abundance, distribution and richness over time	Bird species occurrence, abundance, distribution and richness over time	Vegetation species occurrence, abundance, distribution and richness over time	Vegetation species present, species density and richness, percent canopy closure and percent ground cover	Various variables / indicators. Species presence / absence
Monitoring Survey Methods	Will adhere to standard provincial protocols and will be conducted between late-May and early July. Monitoring to occur at designated long-term impact and control sites located in and around the periphery of the RRP footprint to support Before-After Control-Impact (BACI) study	Will adhere to standard provincial protocols and will be conducted between late-May and early July. Monitoring to occur at impact and control sites located in and around the periphery of the RRP footprint to support BACI study	Monitoring to occur at impact and control sites located in and around the periphery of the RRP footprint to support BACI study	Monitoring to occur at impact and control sites located in and around the periphery of the RRP footprint to support BACI study	Incidental data will be collected and recorded during all terrestrial and aquatic monitoring surveys
Location of Monitoring Surveys (Scale / Coverage)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint
Frequency of Monitoring Surveys	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	To be completed throughout the construction process	Conducted during the Point Count Surveys during the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	Ongoing
Duration of Monitoring Surveys	Duration of the project and post closure phase (during the breeding bird season)	Duration of the project and post closure phase (during the breeding bird season)	Throughout the construction phase	Duration of the project and post closure phase	Ongoing
Baseline Data Collected?	Yes	Yes	Yes	Yes	Yes

Table 4-b: Monitoring Framework for Species at Risk (SAR)

	SAR Point Count Surveys	Eastern Whip-poor-will and Common Nighthawk Surveys	Bobolink (and Other Grassland Species) Surveys	SAR Habitat Assessments in and around the Project Footprint	Eastern Whip-poor-will and Bobolink Compensatory Habitat Surveys
Predicted Project-Related Impacts	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality •	• N/A
Proposed Mitigation Measures	• Discussed in • Section 6.3	• Discussed in • Section 6.3	• Discussed in Section 6.3	• Discussed in • Section 6.3	• N/A
Monitoring Objectives	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability • Determine if SAR compensatory habitat provides suitable habitat	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability • Determine if SAR compensatory habitat provides suitable habitat	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability • Determine if SAR compensatory habitat provides suitable habitat	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure	• Fulfil Provincial ESA permit conditions • Determine if SAR compensatory habitat provides suitable habitat
Variables being Measured by the Monitoring Surveys	Species occurrence, abundance, distribution and richness over time	Species occurrence, abundance and distribution	Species occurrence, abundance and distribution	Vegetation, species density, species richness, percent canopy closure and percent ground cover	Management activity success / failure
Monitoring Survey Methods	Will adhere to standard provincial protocols and will be conducted between late-May and early July. Monitoring to occur at designated long-term impact and control sites located in and around the periphery of the RRP footprint to support	Monitoring occurrence, abundance and distribution in the vicinity of the Project's footprint, within appropriate control areas (long-term control sites for point count surveys) and in designated compensatory habitat areas	Monitoring occurrence, abundance and distribution in the vicinity of the Project's footprint, within appropriate control areas (long-term control sites for point count surveys) and in designated compensatory habitat areas	Detailed habitat assessments will take place at point count survey stations. Habitat areas to be cleared during construction will not be monitored until the rehabilitation activities commence post closure.	Monitoring management activities within 1,900 ha of compensatory habitat (both species combined) to determine effectiveness of techniques utilized

	SAR Point Count Surveys	Eastern Whip-poor-will and Common Nighthawk Surveys	Bobolink (and Other Grassland Species) Surveys	SAR Habitat Assessments in and around the Project Footprint	Eastern Whip-poor-will and Bobolink Compensatory Habitat Surveys
	Before-After Control-Impact study				
Location of Monitoring Surveys (Scale / Coverage)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint and in designated compensatory habitat areas (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint and in designated compensatory habitat areas (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)	RRP footprint and appropriate long-term control sites outside of the footprint and in designated compensatory habitat areas (Figure 1)
Frequency of Monitoring Surveys	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure, and as outlined in the ESA permit (Section 6 and Appendix G)	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure, and as outlined in the ESA permit (Section 6 and Appendix J)	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	To be determined in the Management Plans, as outlined in Section 5 of the ESA permit.
Duration of Monitoring Surveys	Duration of the project and post closure phase (during the breeding bird season)	Duration of the project and post closure phase (during the breeding bird season)	Duration of the project and post closure phase (during the breeding bird season)	Duration of the project and post closure phase (during the breeding bird season)	Ongoing for the life of the ESA permit
Baseline Data Collected?	Yes	Yes	Yes	Yes	Eastern Whip-poor-will: Desk-top data available Bobolink: Yes

Table 4-c: Monitoring Framework for Species at Risk (SAR)

	Eastern Whip-poor-will Site Rehabilitation Plan	Bobolink Site Rehabilitation Plan	Barn Swallows	Incidental SAR Data	Wildlife Log
Predicted Project-Related Impacts	• Direct loss of habitat	• Direct loss of habitat	• Direct loss of habitat	• N/A	• N/A
Proposed Mitigation Measures	• Revegetation (progressive reclamation and post closure)	• Revegetation (progressive reclamation and post closure)	• Placement of four artificial nesting structures	• N/A	• N/A
• Monitoring Objectives	• Verify accuracy of the EA and effectiveness of mitigation measures • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Fulfil Provincial ESA permit conditions	• Verify accuracy of the EA and effectiveness of mitigation measures • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Fulfil Provincial ESA permit conditions	• Monitor annual use of four artificial nest structures	• Fulfil Provincial and Federal compliance monitoring requirements	• Fulfil Provincial and Federal compliance monitoring requirements
Variables being Measured by the Monitoring Surveys	Whip-poor-will presence / absence as an indicator of the effectiveness of rehabilitated habitat	Bobolink presence / absence as an indicator of the effectiveness of rehabilitated habitat	Nest occupancy, nest density and fledgling success	Various variables / indicators	Large mammals, raptors and raptor nests, reptile and amphibian presence / absence
Monitoring Survey Methods	Surveys will take place in breeding bird period (May and June) in accordance with the *Whip-poor-will Roadside Survey Participants Guide* (BSC 2012) and protocols from the Center for Conservation Biology Nightjar Survey Network (nightjars.org). Surveys for Common Nighthawks will be conducted during all Whip-poor-will surveys. Phase 1 will determine presence / absence of species within/in vicinity of RRP footprint and acoustic audit. Phase 2 will determine areas of occupancy and distribution relative to habitat management actions. Phase 3 will monitor rehabilitated sites	• Surveys will be conducted as standardized point count surveys following provincial protocols and will be conducted between late-May and early July. Monitoring will occur in areas within and around the periphery of the Project's footprint and in Bobolink Overall Benefit (OB) Areas. • Phase 1 will assess responses of Bobolink to construction and operation activities. Phase 2 will determine areas of occupancy and number of individuals present. Phase 3 will monitor rehabilitated sites	Nest surveys will be conducted at four artificial nesting structures placed outside of the RRP footprint to determine the reproductive success and effectiveness of the structures	Incidental data will be collected and recorded during all terrestrial and aquatic monitoring surveys	General wildlife observations (outside of formal wildlife monitoring programs) to be recorded at the RRP site by all employees and contractors
Location of Monitoring Surveys (Scale / Coverage)	RRP footprint	RRP footprint	At four artificial nesting structures placed outside of the RRP footprint (Figure 2)	RRP footprint and appropriate long-term control sites outside of the footprint	RRP footprint
Frequency of Monitoring Surveys	As outlined in the ESA permit (Section 6 and Appendix G)	As outlined in the ESA permit (Section 6 and Appendix J)	Annually during the breeding bird period	Ongoing	Ongoing

	Eastern Whip-poor-will Site Rehabilitation Plan	Bobolink Site Rehabilitation Plan	Barn Swallows	Incidental SAR Data	Wildlife Log
Duration of Monitoring Surveys	Ongoing for the life of the ESA permit	Ongoing for the life of the ESA permit	Duration of the project and post closure phase (during the breeding bird season)	Ongoing	Ongoing
Baseline Data Collected?	Yes	Yes	Yes	Yes	Yes

Table 4-d: Monitoring Framework for Species at Risk (SAR)

	Turtle and Snake Monitoring	Bald Eagle Nest Monitoring	Tracking Up-listings of SAR	Eastern Whip-poor-will Habitat Research Program
Predicted Project-Related Impacts	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality • Mortality	• Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality •	• N/A	• N/A
Proposed Mitigation Measures	• Relocation if discovered within the footprint during construction and thought to be susceptible to harm	• N/A (nest is outside of the Project footprint)	• N/A	• N/A
Monitoring Objectives	• Fulfil Provincial and Federal compliance monitoring requirements • Monitor for individuals within the footprint that may require relocation	• Fulfil Provincial and Federal compliance monitoring requirements • Monitor annual nest occupancy	• Fulfil Provincial ESA permit conditions • Stayed up to date on Provincial and Federal SAR listings as species within the NLSA that are not currently listed may one become listed (up-listed) in the future	• Conduct Eastern Whip-poor-will research that provides an overall benefit to the species, as per Section 7.5 of the ESA permit
Variables Being Measured by the Monitoring Surveys	Presence / absence	Seasonal eagle activity, fledgling success	Status of species list as Schedule 1 in SARA and/or listed in the Provincial ESA	Whip-poor-will breeding habitat characteristics, presence of breeding / nesting Whip-poor-will
Monitoring Survey Methods	Wildlife awareness training to inform RRP personnel and employees. Opportunistic surveys during all aquatic and terrestrial monitoring activities. Individual capture and relocation when found within RRP project footprint. If species are localized, exclusion fencing will be implemented.	Nest in woodland 122 east of the Project footprint will be monitored annually (surveyed three times each year) during the nesting season. If new nests are encountered, they will also be monitored annually	Species status will be tracked. If an unlisted species becomes listed of a new SAR is recorded in the area, EC and the MNRF will be consulted. If additional measures will be required to avoid and mitigate impacts to newly listed species, actions will be taken by New Gold to prevent / avoid impacts to the newly listed species and its habitat.	New Gold in partnership with Trent University and MNRF will conduct a study to determine Whip-poor-will breeding habitat selection in the area of the RRP and use this information to enhance habitat utilization in the OB Areas as well as guide the restoration of disturbed Project lands at mine closure. The project will entail the following: 1) conducting surveys to assess macro and micro habitat features, 2) conduct a habitat reclamation study of the Tait Quarry, 3) assess management activities in OB Areas, 4) experimenting with a variety of methods to restore whip-poor-will habitat, 5) develop habitat management strategies for OB Areas. Study will cumulate with a manuscript published in a scientific journal.
Location of Monitoring Surveys (Scale / Coverage)	RRP footprint, areas of operation and areas of exclusion	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 3)	N/A	RRP footprint and appropriate long-term control sites outside of the footprint as well as Tait Quarry.

	Turtle and Snake Monitoring	Bald Eagle Nest Monitoring	Tracking Up-listings of SAR	Eastern Whip-poor-will Habitat Research Program
Frequency of Monitoring Surveys	Opportunistic surveys during the construction period. However, weekly surveys will be conducted if exclusion fencing is implemented at the site	Annually	Ongoing	Ongoing multi-year study as outlined in the 2014 Proposed Eastern Whip-poor-will Habitat Enhancement and Restoration Experimental Study (AMEC 2014)
Duration of Monitoring Surveys	Duration of construction activities	Duration of construction activities	Ongoing	Ongoing multi-year study as outlined in the 2014 Proposed Eastern Whip-poor-will Habitat Enhancement and Restoration Experimental Study (AMEC 2014)
Baseline Data Collected?	Yes	Yes	N/A	Yes

Table 4-e: Monitoring Framework for Mammals

	Aerial Surveys	Working with Aboriginal Hunters	Bat Acoustic Monitoring	Wildlife Log	Black Bear Activity	Monitoring the Effectiveness of Mitigation Measures on Mammal Habitat
Predicted Project-Related Impacts	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality	• N/A	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality •	• N/A	• Direct loss of habitat • Mortality •	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality • Mortality
Proposed Mitigation Measures	• Discussed in Section 6.3	• N/A	• Discussed in Section 6.3	• N/A	• Discussed in Section 6.3	• N/A
Monitoring Objectives	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability	• Fulfil Provincial and Federal compliance monitoring requirements	• Fulfil Provincial and Federal compliance monitoring requirements	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Confirm direct loss of habitat and monitor revegetation and recolonization post closure • Monitor for unanticipated reductions in habitat suitability
Variables Being Measured by the Monitoring Surveys	Presence / absence of ungulates and furbearers	Aboriginal hunting and tracking records	Bat presence / absence, density and distribution	Species presence / absence	Presence / absence	Vegetation species present, species density, species richness, percent canopy closure, percent ground cover
Monitoring Survey Methods	Periodic aerial surveys will be completed via helicopter to assess populations of White-tailed Deer, Moose, Wolves and other furbearers at locations representing suitable habitat directly adjacent to the RRP site	Aboriginal hunting and tracking records will be collected and examined to determine possible correlations between harvesting and the relative abundances of species. Records from within and around the Project area will	Nocturnal bat activity will be monitored 30 minutes after sunrise and 30 minutes before sunset in May and June using ultrasonic recording devices (bat detectors). Devices will be placed at locations where high levels	Personnel will be trained to utilize wildlife observation logs that will be available in commonly utilized areas located on site. Project personnel will be expected to report observations of SAR, large mammals, raptors,	Presence of nuisance bears (and other species such as foxes, ravens, magpies and vultures) will be monitored. Appropriate mitigation plans will be utilized if nuisance animals become an issue.	Winter aerial surveys will be used to monitor habitat use by large mammals around the periphery of the RRP Project footprint. Migratory bird habitat assessments conducted around the periphery of the project footprint will also aid in

	Aerial Surveys	Working with Aboriginal Hunters	Bat Acoustic Monitoring	Wildlife Log	Black Bear Activity	Monitoring the Effectiveness of Mitigation Measures on Mammal Habitat
	and across control sites located within the transects (Figure 4)	be monitored and examined.	of bat activity are likely to occur such as woodland and wetland edges. Species will be identified through analyzing audio recordings.	raptor nests, amphibians and reptiles. Wildlife logs will be reviewed and if there is indication that species occurrences are higher than those indicated in baseline data, further mitigation measures will be implemented to avoid causing impact to the species and/or habitat.		monitoring changes in mammal habitats.
Location of Monitoring Surveys (Scale / Coverage)	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 4)	RRP footprint and appropriate long-term control sites outside of the footprint	RRP footprint and appropriate long-term control sites outside of the footprint	RRP footprint	RRP footprint	RRP footprint and appropriate long-term control sites outside of the footprint
Frequency of Monitoring Surveys	Beginning in 2017 and at ten year intervals up until year 15 post closure. The aerial surveys will be conducted twice during each survey year, once in early winter (late January - early February) and once in late winter (late February to early March)	Ongoing	May and June	Ongoing	Ongoing	Ongoing
Duration of Monitoring Surveys	Duration of the project and post closure phase	Duration of the project and post closure phase	Duration of the project and post closure phase	Duration of construction and operation. Log books will be collected monthly.	Duration of construction and operations	Duration of the project and post closure phase
Baseline Data Collected?	Some	Yes	Yes	Yes	Yes	Yes

Table 4-f: Monitoring Framework for Amphibians

	Amphibians	Biodiversity
Predicted Project-Related Impacts	• Direct loss of habitat • Habitat abandonment due to chronic disturbance or a decrease in habitat quality • Decreased reproduction due to habitat loss or a decrease in habitat quality • Mortality	• Direct loss of habitat and thus a decrease in habitat diversity • Habitat abandonment and thus a decrease in species diversity
Proposed Mitigation Measures	• Discussed in Section 6 (as they apply to amphibians and their habitats)	• Discussed in Section 6 (as they apply to all animal and plant species and their habitats)
Monitoring Objectives	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Monitor for unanticipated road mortalities along Highway 600 and the Eastern Access Road	• Verify accuracy of the EA and effectiveness of mitigation measures • Fulfil Provincial and Federal compliance monitoring requirements • Monitor revegetation and recolonization post closure
Variables Being Measured by the Monitoring Surveys	Presence / absence of amphibians along Highway 600 and the East Access Road, where the MNRF has expressed concern with the potential for road mortalities due to the presence of new amphibian habitat (water-filled ditches) along these roadways.	Number of animal and plant species present
Monitoring Survey Methods	In addition to monitoring amphibian presence within the RRP footprint through wildlife observation logs (as discussed in Section 6), NG environmental technicians will conduct periodic annual surveys for amphibians along Highway 600 and the East Access Road during the amphibian migration and breeding seasons. These monitoring surveys will consist of driving along these two roadways and looking for amphibians on the road (dead or alive).	Data from all animal and plant monitoring surveys listed herein will be used to create annual species lists which will be compared to baseline numbers.
Location of Monitoring Surveys (Scale / Coverage)	Along Highway 600 and the East Access Road	RRP footprint and appropriate long-term control sites outside of the footprint (Figure 1)
Frequency of Monitoring Surveys	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure	During the first two years of construction (2015 and 2016), in the first year following the completion of construction (2018) and at three year intervals during operations, and in years 1, 4, 7, 10 and 15 post closure
Duration of Monitoring Surveys	Duration of the project and post closure phase	Duration of the project and post closure phase
Baseline Data Collected?	Some	Yes

newgold™ Rainy River Project

APPENDIX 5

BIODIVERSITY BASELINE REPORT

RAINY RIVER PROJECT

BIODIVERSITY BASELINE REPORT

PER PROVINCIAL ENVIRONMENTAL ASSESSMENT NOTICE OF APPROVAL
EAIMS File No. 13102

VERSION 1

Date	Rev. #	Revision(s)	Originator
August 21, 2015	0	None	ME, Amec Foster Wheeler
September 24, 2015	1	From Nigel Fisher	ME, Amec Foster Wheeler

September 2015
TC111504

newgold™ Rainy River Project

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1.0 PROJECT BACKGROUND

New Gold Inc. (New Gold) is currently constructing a new open pit gold mine, the Rainy River Project (RRP) with an aim of producing doré bars (gold with silver) for sale during the production phase. Under full operation, physical works related to the RRP will consist primarily of:

- Open pit;
- Underground mine;
- Overburden, mine rock and low grade ore stockpiles;
- Primary crusher and process plant;
- Tailings management area;
- 230 kilovolt transmission line;
- Relocation of a portion of gravel-surfaced Highway 600; and
- Associated buildings, facilities and infrastructure.

Extensive terrestrial and aquatic plant and wildlife species and habitat investigations (baseline studies) were conducted between 2009 and 2014 in support of the mine design and environmental assessment / approvals processes, as detailed in the various environmental baseline reports and Species at Risk (SAR) reports (KCB 2011a, 2011b, AMEC 2011a, 2011b, 2012a, 2012b, 2012c, 2012d, 2013a, 2013b, 2013c, 2013d, 2013e, 2013f, 2014a). These reports are described in the RRP Final Environmental Assessment (EA) Report (AMEC 2014b).

Follow-up monitoring is proposed to occur during the remainder of the construction phase, as well as during the operation, decommissioning and post-closure phases of the RRP, consistent with the Final EA Report (AMEC 2014b), the *Draft Follow-Up Monitoring Plan (FMP) for Terrestrial Systems and Habitat Restoration Plan* (Amec Foster Wheeler 2015); other environmental approvals issued for the RRP; and environmental effects monitoring as per the Metal Mining Effluent Regulations (MMER).

2.0 PURPOSE OF THIS BIODIVERSITY BASELINE SUMMARY REPORT

Through the environmental approvals process for construction and operation of the RRP, New Gold is required to prepare a number of plans for submission to the Ministry of the Environment and Climate Change (MOECC). This document has been prepared in order to present baseline biodiversity levels recorded in the RRP Natural Local Study Area (NLSA) and to satisfy the following requirements as per the Provincial EA Notice of Approval:

14. Protection of Biodiversity and the Terrestrial Systems and Habitat Monitoring Plan

14.1 *The Proponent shall assess and utilize best practices to protect the biodiversity of existing species within the area of the Undertaking. Building on the baseline studies, including aquatic resources, terrestrial and species at risk baselines, already completed during the Environmental Assessment process, the Proponent shall establish a pre-construction biodiversity baseline and report on biodiversity levels within the area of the Undertaking.*

The Proponent shall as part of the Compliance Reports required under Condition 6, or otherwise specified in writing by the Director, provide details to the Ministry on how the requirements set out in this condition are being met.

14.2 *In addition to fulfilling all commitments with regard to rehabilitating wildlife habitat and terrestrial systems, the Proponent shall consult with Ministry of Natural Resources and Forestry on the development of a monitoring plan for terrestrial systems and habitat. The Proponent shall prepare the monitoring plan before the start of construction and shall provide a draft plan to Ministry of Natural Resources and Forestry for review before the plan is finalized. The Proponent shall carry out the plan during construction, operation and closure of the Undertaking. The purpose of the monitoring plan is to verify the accuracy of the predictions the Proponent made during the EA about the Undertaking's impacts on wildlife and habitat and to monitor the effectiveness of rehabilitation efforts for wildlife habitat and terrestrial environments. The Proponent shall report on biodiversity baseline and results required in Condition 14.1 through the Terrestrial Systems and Habitat Monitoring Plan.*

This report is intended as a summary compilation to establish a pre-construction biodiversity baseline as per Condition 14.1 above, and readers should refer to the source baseline reports for additional details. Annual compliance reporting will provide details on how the requirements of Condition 14.1 are being met.

The requirements of Condition 14.2 have been addressed in the *Draft Follow-Up Monitoring Plan (FMP) for Terrestrial Systems and Habitat Restoration Plan* (Amec Foster Wheeler 2015; e.g., see Sections 3.1 and 3.2) that has been developed through consultation with the Ministry of Natural Resources and Forestry (MNRF) and Environment Canada (EC). It is envisioned that

the FMP may evolve over the life of the RRP and be revised as additional site specific data is collected and interpreted.

3.0 BIODIVERSITY - BACKGROUND INFORMATION

Biodiversity describes the variety of life (biological diversity) on Earth or the variability among living organisms, and is composed of genetic diversity, species diversity, community diversity and ecosystem diversity (CBD 2010, OBC 2011). According to the Ontario Biodiversity Council (OBC 2011), there are six main threats to Ontario's biodiversity:

- Habitat loss;
- Invasive alien species;
- Population growth;
- Pollution;
- Unsustainable use; and
- Climate change.

This document summarizes the species, community and ecosystem diversity recorded during the baseline studies conducted at RRP between 2009 and 2014, as per Condition 14.1 of the Provincial Environmental Assessment Notice of Approval.

3.1 Ontario Biodiversity Strategy

In 2005, the Ontario government formed the Ontario Biodiversity Council with the mandate to implement Ontario's newly developed Biodiversity Strategy (OBS 2005). In 2011, Ontario's Biodiversity Strategy was updated with a renewed commitment to protecting the Province's variety of species, communities and ecosystems (OBC 2011). The 2011 Strategy puts forward a guiding framework for conserving Ontario's biodiversity over the next decade by identifying conservation goals, challenges, and strategic directions with long-term objectives and key actions (OBC 2011). The 2011 Strategy also provides a series of core principles (e.g., ecological, societal and management principles) centered on adaptive management and the process of on-going performance monitoring, reporting and assessment.

3.2 Mining Association of Canada Towards Sustainable Mining Program

The Towards Sustainable Mining (TSM) initiative was launched by the Mining Association of Canada (MAC) in 2004 to improve key performance areas at Canadian mines, such as tailings management, energy use and greenhouse gas emissions management, Aboriginal and community outreach, crisis management planning, health and safety, and biodiversity (MAC 2013, 2015). The TSM *Biodiversity Conservation Management Assessment Program* provides standardized guiding principles and expectations for MAC members to use on a voluntary basis to assess their biodiversity conservation performance by tracking the following three performance indicators:

- Corporate biodiversity conservation commitment, accountability and communications;
- Facility-level biodiversity conservation planning and implementation; and
- Biodiversity conservation reporting.

The purpose of the first performance indicator (corporate commitment) is to confirm that corporate commitment and accountabilities are in place and communicated to relevant employees to support the management of biodiversity conservation issues. The second performance indicator (facility-level planning and implementation) is to confirm that effective plans and management systems are implemented at the facility-level in order to manage significant biodiversity aspects. The third performance indicator (reporting) is meant to confirm that biodiversity conservation reporting systems (e.g., policy and monitoring) are in place to inform decision-making and to communicate performance publicly.

Supporting guidelines in the TSM *Biodiversity Conservation Management Assessment Program* allow for consistency in monitoring and reporting biodiversity within and amongst companies, allow for consistency of self-assessments of biodiversity conservation performance, and enable external verification for transparency and accountability.

The TSM Biodiversity Conservation Management Assessment Program defines *significant biodiversity aspects* as significant project-related issues that have been identified by the project and regulators for specific management or regulatory requirements, to avoid or mitigate potential impacts on biodiversity or to address community or other stakeholder concerns. Examples of significant biodiversity aspects include valued ecosystem components, critical habitats for both plants and wildlife, protected areas such as National and Provincial Parks, species at risk, and ecosystem services (e.g., provision of clean water).

3.3 Commitment to Monitoring and Protecting Local Biodiversity

New Gold is committed to monitoring, assessing and protecting local biodiversity at the RRP using best practices, and guided by the frameworks laid out in the Ontario 2011 Biodiversity Strategy and MAC TSM, where appropriate and practical.

Environmental baseline studies completed for the RRP between 2009 and 2014 established a comprehensive understanding of the composition of local terrestrial and aquatic plant and wildlife species, communities and ecosystems present within the Project footprint and on surrounding lands. Annual baseline reports and SAR reports were produced (KCB 2011a, 2011b, AMEC 2011a, 2011b, 2012a, 2012b, 2012c, 2012d, 2013a, 2013b, 2013c, 2013d, 2013e, 2013f, 2014a). The assessment of potential environmental impacts was summarized in the RRP Final EA Report (AMEC 2014a) as well as the earlier drafts of the document, submitted to the Federal and Provincial Governments, and provided for Aboriginal and public review periods.

The RRP FMP (Amec Foster Wheeler 2015) includes various monitoring surveys focused on monitoring plant and wildlife species, and local biodiversity, during construction, operation, active closure and decommissioning (active closure), and post-closure phases of the RRP. New Gold are responsible for carrying out the FMP, but Federal and Provincial agencies and authorities will have a review and monitoring role. Local Aboriginal groups are considered by New Gold to be involved parties for the purposes of the FMP, and accordingly, local First Nations and Métis will be provided the annual results of the FMP.

It is expected that the FMP will be reviewed from time to time in consideration of comments received on the annual report, to determine whether or not changes are required. It is anticipated that the FMP may evolve over the life of the RRP as additional site specific data is collected and interpreted.

4.0 SPECIES DIVERSITY

4.1 Summary of Baseline Conditions

A list of plant and wildlife species recorded during the 2009 to 2014 baseline studies at the RRP is provided in Appendix 1. A total of 656 species of plants and wildlife were recorded, along with 59 families of benthic invertebrates.

Extensive SAR baseline surveys were conducted between 2009 and 2013 and a number of SAR reports were produced (KCB 2011b, AMEC 2011b, 2012b, 2013b). The assessment of potential environmental impacts on SAR was summarized in the RRP Final EA Report (AMEC 2014a). The specific locations and distributions of SAR have not been released to the public, as requested by the MNRF.

4.2 Plants

Vegetation surveys were conducted by Klohn Crippen Berger (KCB) in 2009 and 2010 and by AMEC in 2012. Vegetation surveys undertaken by KCB were conducted on 24 dates between June 2009 and October 2010 for a total of approximately 95 hours. Surveys were focused on visiting the full range of vegetation types and communities in the NLSA as determined by a review of aerial photographs and Forest Resource Inventory maps. Vegetation sampling occurred at over 300 field stations (Figure 5-13 in AMEC 2014a). Data collection included ecosites (Racey et al. 1996), forest vegetation type (V-type; Sims et al. 1997) and wetland vegetation type (W-type; Harris et al. 1996). Soil texture, depth and moisture regime were determined by auguring at selected stations and trees were aged using an increment borer. A plant species inventory was compiled for the NLSA.

The 2012 vegetation surveys were conducted on June 18 to 21 and July 3 to 7 (AMEC 2012a); 2014 vegetation surveys were conducted on June 19 to 24 (AMEC 2014a). Surveys were undertaken by two botanists and typically lasted 10 hours each day. Site investigations were targeted at several polygons within the NLSA (Figure 5-13 in AMEC 2014a). These vegetation survey polygons covered approximately 1,300 ha and overlapped with new locations for certain RRP components. Existing Forest Resource Inventory mapping was acquired from the MNRF prior to site investigations and was used to guide field transects during surveying. Each of the Forest Resource Inventory communities within each vegetation survey polygon was visited to confirm the community classification.

Provincially rare species are those identified as rare or historical in Ontario based on records kept by the Natural Heritage Information Centre. Provincially rare species include those who are assigned S-Rank codes of S1 (extremely rare), S2 (very rare), or S3 (rare to uncommon). A historical information review indicate that no rare vegetation communities are present in the NLSA but discovered that rare plants in the Fort Frances District are often associated with the following features: rock outcrops and/or rocky lake shorelines, conifer swamps, uncommon

forest types (elm stands, silver maple stands, yellow birch stands, basswood stands, ironwood stands, white ash stands and Hill's oak stands) or uncommon ecosites, climatically modified areas (banks of Rainy River), southern / prairie influences (shoreline of Lake of the Woods), mesic prairie – Long Sault Rapids, oak stands – groves and savannahs, and ash stands (Van den Broeck 2006). Searches for the habitat of rare plant species and rare plants were conducted concurrently with the vegetation surveys as described above.

A total of 377 plant species were observed in the NLSA between 2009 and 2012 (Appendix 1). The species are mostly boreal and Great Lake St. Lawrence in affiliation. Boreal species are particularly well represented in peatland habitats. The majority (88%) of these species are Provincially ranked as S4 or S5 (Secure) and globally ranked as G4 or G5 (Common to Very Common). Approximately 16% of the recorded species are exotic weeds typically associated with pastureland, roadsides and other disturbed habitats.

4.3 Birds

Various types of breeding bird surveys were conducted between 2009 and 2012 to determine the diversity, abundance and distribution of breeding bird species utilizing the RRP site area, as described in detail in the various baseline reports (KCB 2011a, AMEC 2011a, 2012a, 2013a, 2013c, 2013d, 2013e, 2014b), annual SAR assessments (KCB 2011b, AMEC 2011b, 2012b, 2013b) and in the RRP Final EA Report (AMEC 2014a). The surveys accounted for the species guilds, variety of habitat types and temporal behaviours of local breeding species.

A total of 167 bird species (Appendix 1) were observed during the RRP field investigations. Species diversity recorded during RRP investigations mirrored that of North American Breeding Birds Survey results occurring near the defined NLSA.

4.4 Mammals

Mammal species and habitat types within the NLSA were recorded by KCB and AMEC between 2009 and 2014 through encounter transects, incidental observations during all fieldwork, and during winter aerial surveys conducted in 2012 (AMEC 2012d) and 2013 (AMEC 2013f).

RRP baseline surveys recorded a total of 20 mammal species (Appendix 1) in the NLSA between 2009 and 2014, which were observed either directly or were indirectly detected through evidence of tracks, browsing or droppings. Mammals recorded included game mammals (ungulates, Black Bear and Snowshoe Hare), furbearers (wolves, foxes, mustelids, Beaver and Muskrat) and bats. A number of other small mammal species (e.g., shrews, voles, mice) are also likely to be present in the NLSA.

4.5 Amphibians

Amphibian breeding surveys were conducted annually between 2009 and 2012, utilizing the Marsh Monitoring Program Amphibian Survey protocol (BSC 2009). Eighteen stations were surveyed by KCB in 2009 and 2010, 20 stations were surveyed by AMEC in 2011 and 38 stations were surveyed by AMEC in 2012 (Figure 5-17 in AMEC 2014a). Two rounds of monitoring during each season ensured early and late-breeding frog species were detected. Calling species were recorded during a three minute period with a recording radius of unlimited distance. The calls of each amphibian species were assigned specific call level codes in accordance with the protocol (BSC 2009). Studies were conducted at night beginning 30 minutes after sunset (twilight) and were concluded before midnight.

Amphibian observations were also recorded opportunistically during all other fieldwork. Searches of Significant Wildlife Habitat (e.g., Seasonal Concentration Areas, Specialized Habitat for Wildlife, Habitats for Species of Conservation Concern and Amphibian Movement Corridors; as outlined in MNR 2000) were also conducted concurrently with all fieldwork. Vernal pools were also searched for frog and salamanders and their eggs. Typical amphibian habitat including logs, leaf litter and other forms of cover were also turned over and replaced, looking for salamanders.

A total of eight frog species were observed in the NLSA between 2009 and 2012 (Appendix 1). These species included early spring breeders (Spring Peeper, Wood Frog, Northern Leopard Frog and Boreal Chorus Frog), late spring breeders (American Toad and Tetraploid Gray Treefrog), and summer breeders (Mink Frog and Green Frog).

4.6 Reptiles

Reptile observations were recorded opportunistically during all fieldwork. Basking logs and soil banks were also examined for signs of basking turtles and nesting.

Three reptile species were observed in the NLSA between 2009 and 2012 including the Western Painted Turtle, Snapping Turtle and Eastern Gartersnake. Very few snake observations were recorded during field studies and no snake hibernacula features were found in the NLSA.

Observations of Western Painted Turtles near Muskrat Lake and Little Pine Lake indicate that these small lakes provide locally important habitat for this species. The observation of two painted turtles along a logging road north of the Little Pine Lake during June may indicate that turtles using this lake as overwintering habitat migrate north to suitable breeding habitat. One turtle observed north of Little Pine Lake was greater than 400 m from any wetland features.

Two adult Snapping Turtles (listed Provincially as Special Concern) were observed within the NLSA in 2010, one in the Pinewood River just north of Tait Road, near Black Hawk Road and

the second was found crossing Roan Road near the West Creek crossing. No evidence of turtle nesting was observed.

4.7 Insects

4.7.1 Benthic Invertebrates

Benthic studies carried out by KCB in 2009 and 2010 were limited to the Pinewood River and West Creek (KCB 2011a and Table 5-7 in AMEC 2014a). In 2011, AMEC sampled benthic invertebrate communities at seven locations on the Pinewood River, one location on Tait Creek, three locations on Loslo Creek, six locations on Marr Creek, five locations on West Creek, three locations on Clark Creek and one location on Blackhawk Creek (AMEC 2012c, and see Table 5-7 and Figure 5-10 in AMEC 2014a). In 2012, AMEC collected additional benthic samples from 14 locations on the Pinewood River, two locations on McCallum Creek, one location on Tait Creek, one location on Unnamed Tributary 2, five locations on Loslo Creek, one location on Unnamed Tributary 5, two locations on West Creek Tributary 1 and one location on Clark Creek (AMEC 2013c, and see Table 5-7 and Figure 5-10 in AMEC 2014a).

KCB collected benthic samples from the Pinewood River using both an Eckman dredge and a Petite Ponar sampler (KCB 2011a). Benthic samples from West Creek were collected by KCB using a cylindrical Hess sampler. KCB collected replicate samples and preserved all samples in accordance with standard industry methods. All AMEC samples were collected using a Petite Ponar grab sampler (AMEC 2013c, 2013d). Three replicate sub-samples were taken and pooled (homogenized) at each replicate station to improve sample representativeness, by reducing intra-sample variation inherent to benthic communities. All samples were preserved in 10% formalin.

Benthic invertebrates were identified to the family level, and therefore the number of benthic species present is unavailable. A total of 59 families were recorded within the NLSA.

4.7.2 Other Insects

Incidental observations of dragonflies and damselflies (odonates) were compiled during all years of fieldwork between 2009 and 2012. Observations included adults and exuviae (shed larval skins). Incidental observations of butterflies were also recorded by AMEC during fieldwork conducted in 2011 and 2012.

Searches for habitat for species of conservation concern (Monarch Butterfly, Midland Clubtail Green-faced Clubtail and Variegated Meadowhawk) were conducted concurrently with all field surveys. Monarch Butterfly habitat exists primarily wherever milkweed and wildflowers such as goldenrods, asters and Purple Loosestrife exist, including abandoned farmland, along roadsides and other open spaces where these plants grow (COSEWIC 2010).

A total of 21 species of dragonfly and damselfly were observed in the NLSA between 2009 and 2012 (Appendix 1). The list is dominated by species preferring wetlands, ponds and slow moving streams, whereas species requiring fast rocky streams and those associated with large lakes and rivers are lacking. Three Provincially rare dragonfly species were observed in the NLSA including Horned Clubtail (ranked S3), Arrowhead Spiketail (ranked S1) and Lilypad Clubtail (ranked S3). Two other dragonfly species were identified during the background information review as potentially occurring within or near to the NLSA, including Green-faced Clubtail (ranked S1) and Midland Clubtail (ranked S3).

A total of 26 butterfly species were observed in the NLSA by AMEC in 2011 and 2012 (Appendix 1). In June, butterflies are abundant across the NLSA, particularly Great Spangled and Meadow Fritillaries, Mourning Cloaks and Eyed Browns. During the summer of 2012, Red Admirals were particularly abundant which mirrored the banner year for this species across Canada. Neither Monarch Butterfly nor the host plant for Monarch larvae (Milkweed) were recorded in the NLSA.

4.8 Fish

Fisheries studies conducted by KCB in 2009 and 2010 included coverage of the Pinewood River in the general vicinity of the RRP site, four Pinewood River tributaries (Clark Creek, West Creek, Marr Creek and Loslo Creek), as well as McCallum Creek, Tait Creek and a number of smaller creek systems peripheral to the Pinewood River watershed (KCB 2011a and Table 5-7 and Figure 5-11 in AMEC 2014a). The majority of the fisheries work conducted by KCB involved the use of minnow traps with more limited use of electro-fishing (West Creek) and gill and seine netting (Pinewood River). Gill netting was used to target larger fish species (Northern Pike, White Sucker and Brown Bullhead). Fishing and fish habitat assessment efforts by KCB were undertaken in the summer of 2009 and in the late winter, spring, summer and fall of 2010.

Fish community sampling techniques employed by AMEC between 2011 and 2013 included the use of gillnetting, minnow traps, seine netting, boat and backpack electroshocking, dip netting and angling (AMEC 2012c, 2013c, 2013d, 2013e, and see Table 5-6 in AMEC 2014a). These techniques were deployed to provide a range of passive and active sampling methods for capturing small and large-bodied fish species in pond and fluvial habitats.

A total of 34 fish species were recorded during the baseline studies conducted between 2009 and 2013.

5.0 COMMUNITY AND ECOSYSTEM DIVERSITY

5.1 Summary of Baseline Conditions

The RRP site is located in a low density rural area within which some agricultural (focused on cattle and fodder cropping) and logging activities occur. Adjacent areas show mainly second growth poplar-dominated forests and wetlands. Lands in the immediate RRP site vicinity are typically gently rolling to flat, with forested wetlands occurring in low-lying areas and rounded bedrock outcrops and subcrops occurring in upland areas and some of the area has been cleared for agricultural development. Local drainage systems are characterized by numerous small creeks draining into the Pinewood River. Portions of the natural drainage systems have been altered near the RRP site through the development of agricultural drains, road development and ongoing beaver activities. Area creeks are also small and frequently intermittent in nature. There are no lakes within the immediate RRP site area except along the NLSA transmission line corridor.

The MNRF's *Ecological Land Classification for Southern Ontario* manual (Lee et al. 1998) provides the following definitions:

- Community: *an assemblage of organisms that exist and interact with one another on the same site*;
- Community Type: *a group of similar vegetation stands that share common characteristics of vegetation, structure and soils*; and
- Ecosystem: *a complex interacting system that includes all plants, animals, fungi and microorganisms and their environment within a particular area at whatever size segment of the world that is chosen for study*.

Eleven broad vegetation types were recorded within the RRP NLSA, and for the purposes of this report and future biodiversity monitoring at RRP, these 11 categories will be considered ecosystems made up of various vegetation communities (ecosites; see Figure 1). These 11 ecosystems included the following (also listed in Table 1 below with their associated vegetation communities):

- Hardwood Forest: covers 47.6% (12,699 ha) of the total NLSA area;
- Coniferous Swamp: 18.3% (4874.6 ha) of the NLSA;
- Coniferous Forest: 9.9% (2637.2 ha) of the NLSA;
- Meadow and Shallow Marsh: 4.6% (1239.8 ha) of the NLSA;
- Thicket Swamp: 3.2% (865.2 ha) of the NLSA;
- Fen: 3.6% (954.8 ha) of the NLSA;
- Bog: less than 0.01% (2.2 ha) of the NLSA;
- Rock and Mineral Barren: less than 1% (77 ha) of the NLSA;

- Agricultural Land: 7.7% (2,044 ha) of the NLSA;
- Cultural Meadow: 2.1% (570 ha) of the NLSA; and
- Open Water: 2.7% (714 ha) of the NLSA.

Table 1: Ecological Land Classification Vegetation Communities

Ecosystem Type	Northwest Ontario Ecosite Code	Ontario Boreal ELC Ecosite Code	Ontario Boreal ELC Ecosite Community Name	Area in NLSA (ha)
Hardwood Forest	ES19	B055	Dry to Fresh, Coarse: Aspen – Birch Hardwood	1,640.3
	ES28	B104	Fresh, Silty to Fine Loamy: Aspen – Birch Hardwood	176.8
	ES29	B088	Fresh, Clayey: Aspen – Birch Hardwood	10,523.8
	ES30	B089, B105	Black Ash Hardwood: Fresh, Silty Clayey Soil	139.3
	ES33	B119	Moist, Fine: Aspen – Birch Hardwood	219.1
Coniferous Swamp	ES35	B127	Organic Poor Conifer Swamp	2,260.5
	ES36	B128	Organic Intermediate Conifer Swamp	1,646.2
	ES37	B129	Organic Rich Conifer Swamp	705.7
	ES38	B130	Intolerant Hardwood Swamp	262.2
Coniferous Forest	ES11	B011	Very Shallow, Dry to Fresh: Red Pine – White Pine Conifer	397.0
	ES12	B012	Very Shallow, Dry to Fresh: Pine – Black Spruce Conifer	1,109.8
	ES13	B034	Dry, Sandy: Jack Pine – Black Spruce Dominated	61.2
	ES14	B035	Dry, Sandy: Pine – Black Spruce Conifer	31.1
	ES16	B040	Dry, Sandy: Red Pine – White Pine Dominated	56.1
	ES17	B051, B066, B115	Cedar (Hemlock) Conifer (Dry to Fresh, Coarse; Moist, Coarse; or Moist, Fine)	30.3
	ES18	B048, B054	Dry to Fresh, Coarse: Red Pine – White Pine Conifer and Dry to Fresh, Coarse: Red Pine – White Pine Mixed Wood	285.6
	ES20	B049	Dry to Fresh, Coarse: Jack Pine – Black Spruce Dominated	79.9
	ES21	B052	Dry to Fresh, Coarse: Spruce – Fir Conifer	202.9
	ES22	B065	Moist, Coarse: Black Spruce – Pine Conifer	3.9
	ES25	B098	Fresh, Silty to Fine Loamy: Black Spruce – Jack Pine Dominated	35.8
	ES26	B082, B083	Spruce-Pine / Feathermoss: Fresh, Fine Loamy-Clayey Soil	64.3
	ES27	B101	Fir-Spruce Mixedwood: Fresh, Silty-Fine Loamy Soil	75.5
	ES31	B114	Moist, Fine: Black Spruce – Pine Conifer	138.1
	ES32	B116	Fir-Spruce Mixedwood: Moist, Silty-Clayey Soil	65.7
Meadow and Shallow Marsh	ES46	B142 B144	Mineral or Organic Meadow Marsh	1,106.5
	ES46 or ES47	B142, B144, B149	Meadow or Shallow Marsh	8.5
	ES47	B149	Organic Shallow Marsh	124.8
Thicket Swamp	ES44	B134, B135	Mineral Thicket Swamp or Organic Thicket Swamp	865.2
Fen	ES40	B136	Sparse Treed Fen	462.6
	ES41	B139	Poor Fen	88.9
	ES42	B140	Open Moderately Rich Fen: Ericaceous Shrub / Sedge: Organic Soil	13.9
	ES45	B147	Shrub Shore Fen	389.4
Bog	ES39	B138	Open Bog: Ericaceous Shrub / Sedge / Sphagnum: Organic Soil	2.2
Rock and Mineral Barren	ES7	B164	Rock Barren	71.1
	ES9	B007	Active Mineral Barren	5.9
Agricultural Land	--	Agriculture	Agriculture	2,044.3
Cultural Meadow	--	CUM	Cultural Meadow	569.5

Ecosystem Type	Northwest Ontario Ecosite Code	Ontario Boreal ELC Ecosite Code	Ontario Boreal ELC Ecosite Community Name	Area in NLSA (ha)
Open Water	--	Open Water	Open Water	714.4
Total Area of NLSA				**26,678.3**

5.2 Hardwood Forest

Hardwood Forest represents the most extensive forest type (ecosystem) in the NLSA and covers 47.6% (12,699 ha) of the total NLSA area. This forest type is largely dominated by Trembling Aspen although smaller components of White Birch and Black Ash are present.

The Aspen – Birch Hardwood Forest type represents 96.9% of the hardwood forest within the NLSA. Aspen – Birch Hardwood Forest occurs across four soil types (Dry to Fresh Course, Fresh Silty to Fine Loamy, Fresh Clayey and Moist Fine) and is represented by four ELC codes (B055, B088, B104, and B119). Fresh Clayey Aspen - Birch Hardwood Forest is the most extensive ELC community (B088) within the NLSA. Aspen forests are herb and shrub rich and commonly include an understory of Mountain Maple, raspberry species, other deciduous shrubs, grasses and sedges. The ground layer is most commonly dominated by typical hardwood forest species such as Wild Sarsaparilla and White Snakeroot. Much of the hardwood forest in proximity to the RRP site is young and in various stages of regeneration. Younger, regenerating hardwood forest often included pockets of exposed bedrock, which limited the frequency and size of trees.

Black Ash and White Elm occur occasionally within some polygons although very rarely occur in such proportions as to be individually mapped as its own specific polygon. Black Ash Hardwood Forest (B089, B105 and B130) covers just 401.5 ha of the NLSA and represents 1.5% of the total area.

5.3 Coniferous Swamp

Coniferous Swamp (B127, B128, and B129) covered 18.3% (4874.6 ha) of the NLSA and is the second largest vegetation ecosystem type therein. The most common species in the canopy and subcanopy were Black Spruce, White Spruce, Tamarack and Eastern White Cedar. The understory is dominated by Labrador Tea, Low Bush Blue Berry, Velvet Leaf Blueberry, Leatherleaf, Bunchberry and Speckled Alder surrounding the edges. Sphagnum and Feathermoss cover most of the ground layer with occasional emergence of sedges such as Bladder Sedge, Fringed Sedge, Fox Sedge and Hop Sedge where moss covers less of the ground.

Most swamps within the NLSA occur in close proximity to each other (about 1 km apart) and are hydrologically connected to permanent or intermittent watercourses. Such features may make them significant for wildlife movement and distribution of plant species.

5.4 Coniferous Forest

Coniferous Forest (B011, B012, B034, B035, B040, B048, B049, B051, B052, B054, B065, B066, B082, B083, B098, B101, B114, B115, B116) represents 9.9% (2637.2 ha) of the vegetation cover in the NLSA. Coniferous forest cover is varied and consists of 15 ELC communities occurring across a variety of soil types. Rocky outcrops are occasionally encountered within coniferous communities throughout the northern portion of the NLSA. These communities are typically dominated by pine and/or spruce species. The herbaceous layer of these communities includes Large-leaved Aster, Pale Corydalis, blueberry species and Fringed Black Bindweed.

In some cases where Eastern White Cedar dominated upland forest communities are present (B051, B066 and B115) understory diversity is poor and the ground layer is dominated by needle litter. Conifer forests growing on shallow soils (B011 and B012) also tend to be deficient in herbaceous ground cover and are often associated with exposed bedrock.

5.5 Meadow and Shallow Marsh

Meadow and Shallow Marsh (B142, B144 and B149) comprised 4.6% (1239.8 ha) of the NLSA. Marshes occupied flood plains of permanent and intermittent watercourses throughout the NLSA such as the Pinewood River and its tributaries (Clark Creek, Loslo Creek, Marr Creek and West Creek). These marshes occur where seasonal flooding prevents colonization of Sphagnum and other peatland plants, and slows the rate of peat accumulation.

Marshes were typically graminoid, dominated by various sedge and grass species (narrow emergent species) with rare occasions of broad leaved emergent species (broad emergent species). The most dominant grass species include Canada Blue Joint, Common Cattail, Fowl Blue Grass and Fowl Manna Grass. Water Sedge, Lake Sedge, Bladder Sedge, Slender Sedge and Bebb's Sedge were also common. Broad emergent species such as Wild Calla, Broadleaf Arrowhead and Marsh Marigold were common in open water areas of marshes along with floating and submergent species such as Floating-leaf Pondweed, Coontail and Great Duckweed. Herbaceous species such as Northern Bugleweed and shrub species such as Speckled Alder and Narrow-leaved Meadow-sweet were common along marsh edges.

5.6 Thicket Swamp

Speckled Alder and Willow species were often found as thickets along the peripheries of open wetlands. Mineral and Organic Thicket Swamp (B134 and B135) types cover 3.2% (865.2 ha) of the NLSA.

5.7 Fen

Sparse Treed Fen (B136) and Poor Fen (B129) cover 3.6% (954.8 ha) of the NLSA. Vegetation consists of widely-spaced Tamarack and Black Spruce (2 to 10 m tall) over a Sphagnum carpet with sedges and ericaceous shrubs. Other dominant species include Bog Birch and Shrubby Cinquefoil along with a diversity of sedges and herbs.

5.8 Bog

Open Bog (B138) covers much less than 0.01% (2.2 ha) of the NLSA. Vegetation consists of extremely sparse and stunted Black Spruce and is dominated by ericaceous shrubs, sedges and sphagnum mosses. Common shrubs include leatherleaf, bog laurel, bog rosemary and Labrador-tea. Herbaceous plants include pitcher plant, round-leaved sundew, dense cottongrass and few-seeded sedge. The system is hydrologically isolated.

5.9 Rock and Mineral Barren

Barren habitat consisting of Rock Barren (B164) and Active Mineral Barren (B007) covers less than 1% (77 ha) of the NLSA and is found largely in the northern part of the NLSA amongst tracts of coniferous forest of very shallow soils. One area of Active Mineral Barren (B007) is present in the form of a gravel pit occurring along Roen Road.

5.10 Agricultural Land

Agricultural lands cover 7.7% (2,044 ha) of the NLSA. Agriculture is largely limited to hayfields and cattle pastures containing Timothy, Smooth Brome, Reed Canary Grass, Alfalfa, clovers, Blue-joint Grass and other graminoids. Agricultural lands largely occur along roads in well-drained clay areas of the NLSA. The majority of agricultural lands within the NLSA have been active in the last five years.

5.11 Cultural Meadow

Cultural Meadow covers 2.1% (569.5 ha) of the NLSA. Fallow agricultural fields are common, although generally of small size. These fields tended to be dominated be non-native grasses and herbs such as Timothy, Smooth Brome and clovers (including Red Clover).

5.12 Open Water

Open Water covers the remaining 2.7% (714 ha) of the NLSA.

5.13 Other Community Assessments

In addition to the ELC communities discussed above, MNRF designated bird community types (per the *Significant Wildlife Habitat Technical Guide*; MNR 2000) that were present within the NLSA were identified. These bird communities included the following:

- Area sensitive woodland birds;
- Waterfowl and wetland birds;
- Open country birds;
- Shrub / early succession birds;
- Aerial insectivores; and
- Raptors.

Community types for other groups of wildlife (mammals, amphibians, reptiles, insects and fish) were captured in the ELC community classification process. In addition, as part of the ELC community surveys and classifications, detailed information is collected regarding the sampling environs.

6.0 GENETIC MONITORING

6.1 Summary of Baseline Conditions

Sampling for genetic diversity was not conducted during the RRP baseline studies. New Gold is currently considering the feasibility and utility of conducting genetic diversity monitoring of insects at the RRP.

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<Original signed by>

Sheila Daniel, M.Sc., P.Geo.
Principal, Mining Environmental

415000 417500 420000 422500 425000 427500 430000 432500 435000

5410000 5407500 5405000 5402500

Hwy 600

Hwy 71

Pinewood R.

Pinewood L.

P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\M. Evans_Misc\Biodiversity_Monitoring_Plan_Sept2015\MXD_Maps\Vege_Cover_Types_A_4_1.mxd

INDEX MAP

MAP B

MAP C

MAP A

LEGEND

Ecological Land Classifications

(1) Agriculture
(2) Cultural Meadow (CUM)
(3) Open Bog (B138)
(4) Open Water

Rock and Mineral Barren

(5) Rock Barren (B164)
(6) Active Mineral Barren (B007)

Hardwood Forest

(7) Dry to Fresh, Coarse: Aspen – Birch Hardwood (B055)
(8) Fresh, Silty to Fine Loamy: Aspen – Birch Hardwood (B104)
(9) Fresh, Clayey: Aspen – Birch Hardwood (B088)
(10) Moist, Fine: Aspen – Birch Hardwood (B119)
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(14) Very Shallow, Dry to Fresh: Red Pine – White Pine Conifer (B011)
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Coniferous Swamp

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(30) Organic Intermediate Conifer Swamp (B128)
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Fen

(32) Sparse Treed Fen (B136)
(33) Poor Fen (B139)
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(35) Shrub Shore Fen (B147)

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(38) Organic Meadow Marsh (B144)

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(39) Organic Thicket Swamp (B135)
(40) Mineral Thicket Swamp (B134)

Approximate Principal RRP Facilities (index map)

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NOTES:
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- ELC data derived from ecosite classifications

Datum: NAD83
Projection: UTM Zone 15N

0 1.5 3 6 9 12 15 Kilometres

N W E S

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RAINY RIVER PROJECT

Vegetation Cover Types Map A

PROJECT N°: TC111504	**FIGURE: 1a**
SCALE: 1:57,000	DATE: September 2015

415000 417500 420000 422500 425000 427500 430000 432500

5420000 5417500 5415000 5412500

INDEX MAP

MAP B

MAP C

MAP A

Hwy 71

Hwy 600

McCallum Cr.

Muskrat L.

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0 1 2 4 6 8 10 Kilometres

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Datum: NAD83
Projection: UTM Zone 15N

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RAINY RIVER PROJECT

Vegetation Cover Types Map B

PROJECT N°: TC111504	FIGURE: 1b
SCALE: 1:44,000	DATE: September 2015

427500 5420000 430000 432500 435000 437500 440000

5425000 5422500 5420000

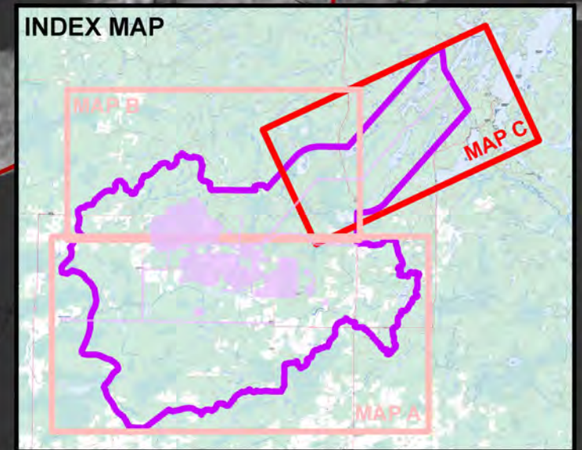
Hwy 71

Little Pine lake

Beadle Lake

Boundary Lake

INDEX MAP



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Datum: NAD83
Projection: UTM Zone 15N

0 1 2 4 6 8 10 Kilometres

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RAINY RIVER PROJECT

Vegetation Cover Types Map C

PROJECT N°: TC111504 | **FIGURE: 1c**

SCALE: 1:37,000 | DATE: September 2015

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APPENDIX 1

COMPILED SPECIES LISTS

Table A1-A: Compiled Plant Species List

Common Name	Latin Name	Coefficient of Conservatism[1]	Wetness Index[2]	Provincial S-RANK (NHIC)[3]	Federal SARA Status[4]	Provincial SARO Status[5]	Global G-RANK[6]	Ontario General Status	Canada General Status
Herbaceous Flowering Species									
Common Yarrow	*Achillea millefolium var. millefolium*	-	3	SNA	-	-	G5T5?	Exotic	Exotic
Sweet Flag	*Acorus americanus*		-5	S4	-	-	G5	Secure	Secure
Baneberry sp.	*Actaea sp.*	-	-	-	-	-	-	-	-
White Snakeroot	*Ageratina altissima var. altissima*	5	3	S5	-	-	G5T5	Secure	Secure
Agrimony	*Agrimonia gryposepala*	2	2	S5	-	-	G5	Secure	Secure
Woodland Agrimony	*Agrimonia striata*	-	-	S4?	-	-	G5	Secure	Secure
Common Water-plantain	*Alisma plantago-aquatica*	-	-	S4?	-	-	-	-	-
Small Round-leaved Orchis	*Amerorchis rotundiflora*		-5	S4S5	-	-	G5	Secure	Secure
Pearly Everlasting	*Anaphalis margaritacea*	3	5	S5	-	-	G5	Secure	Secure
Canada Anemone	*Anemone canadensis*	3	-3	S5	-	-	G5	Secure	Secure
Wood Anemone	*Anemone quinquefolia*	7	0	S5	-	-	G5	Secure	Secure
Thimbleweed	*Anemone virginiana*	4	5	S5	-	-	G5	Secure	Secure
Field Pussytoes	*Antennaria neglecta*	3	5	S5	-	-	G5	Secure	Secure
Spreading Dogbane	*Apocynum androsaemifolium* ssp. *androsaemifolium*	3	5	S5	-	-	G5	Secure	Secure
Columbine	*Aquilegia canadensis*	5	1	S5	-	-	G5	Secure	Secure
Tower Mustard	*Arabis glabra*	4	5	S5	-	-	G5	Secure	Secure
Bristly Sarsaparilla	*Aralia hispida*		5	S5	-	-	G5	Secure	Secure
Wild Sarsaparilla	*Aralia nudicaulis*	4	3	S5	-	-	G5	Secure	Secure
Common Burdock	*Arctium minus* ssp. *minus*	-	-	SNA	-	-	GNRTNR	-	-
Swamp-pink	*Arethusa bulbosa*	10	-5	S4	-	-	G4	Secure	Secure
Jack-in-the-pulpit	*Arisaema triphyllum* ssp. *triphyllum*	5	-2	S5	-	-	G5	Secure	Secure
Canada Wild-ginger	*Asarum canadense*	6	5	S5	-	-	G5	Secure	Secure
Marsh Marigold	*Caltha palustris*	5	-5	S5	-	-	G5	Secure	Secure
Marsh Bellflower	*Campanula aparinoides*	7	-5	S5	-	-	G5	Secure	Secure
Harebell	*Campanula rotundifolia*	7	1	S5	-	-	G5	Secure	Secure
Common Shephard's Purse	*Capsella bursa-pastoris*	-	1	SNA	-	-	GNR	Exotic	Exotic
Scarlet Indian-paintbrush	*Castilleja coccinea*		0	S5	-	-	G5	Secure	Secure
Common Mouse-ear Chickweed	*Cerastium fontanum*	-	3	SNA	-	-	GNR	Exotic	Exotic
Nodding Chickweed	*Cerastium nutans*	4	2	S4	-	-	G5	Secure	Secure
Pineapple-weed	*Chamomilla sauveolens*	-	-	SNA	-	-	G5	Exotic	Exotic
Pipsissewa	*Chimaphila umbellata* spp. *cisatlantica*		5	S5	-	-	G5	Secure	Secure
Bulbet-bearing Water Hemlock	*Cicuta bulbifera*	5	-5	S5	-	-	G5	Secure	Secure
Spotted Water Hemlock	*Cicuta maculate*	6	-5	S5	-	-	G5	Secure	Secure
Enchanter's Nightshade	*Circaea quadrisulcata*	-	-	S5	-	-	G5	Secure	Secure
Swamp Thistle	*Circium muticum*		-5	S5	-	-	G5	Secure	Secure
Canada Thistle	*Cirsium arvense*	-	3	SNA	-	-	GNR	Exotic	Exotic
Bull Thistle	*Cirsium vulgare*	-	4	SNA	-	-	GNR	Exotic	Exotic
Clintonia	*Clintonia borealis*	7	-1	S5	-	-	G5	Secure	Secure

Table A1-A: Compiled Plant Species List

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Toadflax	*Comandra umbellata*	6	3	S5	-	-	G5	Secure	Secure
Marsh Cinquefoil	*Comarum palustre*	7	-5	S5	-	-	G5	Secure	Secure
Marsh Cinquefoil	*Comarum palustris*	7	-5	S5	-	-	G5	Secure	Secure
Goldthread	*Coptos trifolia* ssp. *groenlandica*	7	-3	S5	-	-	G5	Secure	Secure
Spotted Coral Root	*Corallorhiza maculata*	7	4	S5	-	-	G5	Secure	Secure
Early Coral Root	*Corallorhiza trifida*	7	-2	S5	-	-	G5	Secure	Secure
Pale Corydalis	*Corydalis flavula*	7	5	S5	-	-	G4G5	Secure	Secure
Narrow-leaf Hawksbeard	*Crepis tectorum*	-	5	SNA	-	-	GNR	Exotic	Exotic
Pink Lady's-slipper	*Cypripedium acaule*	7	-3	S5	-	-	G5	Secure	Secure
Pink Lady's-slipper	*Cypripedium acaule*	7	-3	S5	-	-	G5	Secure	Secure
Yellow Large Lady's-slipper	*Cypripedium parviflorum var. pubescens*	5	-1	S5	-	-	G5T5	-	-
Showy Lady's-slipper	*Cypripedium reginae*	7	-4	S4	-	-	G4	Secure	Secure
Wild Carrot	*Daucus corata*	-	5	SNA	-	-	GNR	Exotic	Exotic
Flat-topped Aster	*Doellingeria umbellatus*	-	-	S5	-	-	G5T5	Secure	Secure
Round-leaved Sundew	*Drosera rotundifolia*	7	-5	S5	-	-	G5	Secure	Secure
Common Viper's-bugloss	*Echium vulgare*	-	5	SNA	-	-	GNR	Exotic	Exotic
Fireweed	*Epilobium angustifolia*	3	0	S5	-	-	G5	Secure	Secure
Philadelphia Fleabane	*Erigeron philadelphicus*	1	-3	S5	-	-	G5	Secure	Secure
Daisy Fleabane	*Erigeron strigosus*	0	1	S5	-	-	G5	Secure	Secure
Common Boneset	*Eupatorium perfoliatum*	2	-4	S5	-	-	G5	Secure	Secure
Spotted Joe-pye-weed	*Eupatroium maculatum* spp. *maculatum*	-	-	S5	-	-	G5TNR	-	-
Large-leaved Wood-aster	*Eurybia macrophyllus*	5	5	S5	-	-	G5	Secure	Secure
Woodland Strawberry	*Fragaria vesca* ssp. *americana*	4	4	S5	-	-	G5	Secure	Secure
Wild Strawberry	*Fragaria virginiana*	2	1	S5	-	-	G5	Secure	Secure
Bristle-stem Hempnettle	*Galeopsis tetrahit*	-	5	SNA	-	-	GNR	Exotic	Exotic
Rough Bedstraw	*Galium asprellum*	6	-5	S5	-	-	G5	Secure	Secure
Northern Bedstraw	*Galium boreale*	7	0	S5	-	-	G5	Secure	Secure
Bog Bedstraw	*Galium labradoricum*		-5	S5	-	-	G5	Secure	Secure
Marsh Bedstraw	*Galium palustre*	5	-5	S5	-	-	G5	Secure	Secure
Small Bedstraw	*Galium trifidum*	4	-5	S5	-	-	G5	Secure	Secure
Sweet-scented Bedstraw	*Galium triflorum*	4	2	S5	-	-	G5	Secure	Secure
Northern Comandra	*Geocaulon lividum*	0	-2	S5	-	-	G5	Secure	Secure
Bicknell Northern Crane's-bill	*Geranium bicknelli*	5	5	S4	-	-	G5	Secure	Secure
Herb-robert	*Geranium robertianum*	-	5	SNA	-	-	G5	Exotic	Exotic
Yellow Avens	*Geum aleppicum* var. *strictum*	2	-1	S5	-	-	G5	Secure	Secure
White Avens	*Geum canadense*	3	0	S5	-	-	G5	Secure	Secure
Dwarf Rattlesnake-plantain	*Goodyera repens*		3	S5	-	-	G5	Secure	Secure
Spurred Gentian	*Halenia deflexa*	7	0	S5	-	-	G5	Secure	Secure
Cow-parsnip	*Heracleum maximum*	3	-3	S5	-	-	G5	Secure	Secure

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Orange Hawkweed	*Hieracium aurantiacum*	-	-	SNA	-	-	GNR	Exotic	Exotic
Common Hop	*Humulus lupulis*	-	3	S4	-	-	G5	Secure	Secure
Spotted Jewel-weed	*Impatienscapensis*	4	-3	S5	-	-	G5	Secure	Secure
Blueflag	*Iris versicolor*	5	-5	S5	-	-	G5	Secure	Secure
Bog Laurel	*Kalmia polifolia*	10	-5	S5	-	-	G5	Secure	Secure
Canada Lettuce	*Lactuca canadensis*	3	2	S5	-	-	G5	Secure	Secure
Prickly Lettuce	*Lactuca serriola*	-	0	SNA	-	-	GNR	Exotic	Exotic
Wood Nettle	*Laportea canadensis*	6	-3	S5	-	-	G5	Secure	Secure
Pale Vetchling	*Lathyrus ochroleucuc*		5	S4	-	-	G4G5	Secure	Secure
Peavine Vetchling	*Lathyrus palustris*	6	-3	S5	-	-	G5	Secure	Secure
Smooth Veiny Peavine	*Lathyrus venosus*		0	S4	-	-	G5	Secure	Secure
Ox-eye Daisy	*Leucanthemum vulgare*	-	-	SNA	-	-	GNR	Exotic	Exotic
Heartleaf Twayblade	*Listera cordata*		-3	S5?	-	-	G5	Secure	Secure
Great Blue Lobelia	*Lobelia siphilitica*	6	-4	S5	-	-	G5	Secure	Secure
Birds-foot Trefoil	*Lotus corniculatus*	-	1	SNA	-	-	GNR	Exotic	Exotic
White Campion	*Lychnis alba*	-	-	-	-	-	-	-	-
Northern Bugleweed	*Lycopus uniflorus*	5	-5	S5	-	-	G5	Secure	Secure
Fringed Loosestrife	*Lysimachia ciliata*	4	-3	S5	-	-	G5	Secure	Secure
Tufted Loosestrife	*Lysimachia thyrsiflora*	7	-5	S5	-	-	G5	Secure	Secure
Wild-lily-of-the-valley	*Maianthemum canadense*	5	0	S5	-	-	G5	Secure	Secure
Three-leaf Solomon's Seal	*Maianthemum trifolium*	10	-5	S5	-	-	G5	Secure	Secure
Black Medic	*Medicago lupulina*	-	1	SNA	-	-	GNR	Exotic	Exotic
Alfalfa	*Medicago sativa ssp. sativa*	-	5	SE5	-	-	G?T?	Exotic	Exotic
American Cow-wheat	*Melampyrum lineare*	6	1	S4S5			G5	Secure	Secure
White Sweet- clover	*Melilotus alba*	-	3	SNA	-	-	G5	Exotic	Exotic
Field Mint	*Mentha arvensis*	3	-3	S5	-	-	G5	Secure	Secure
Bog Buckbean	*Menyanthes trifoliate*		-5	S5	-	-	G5	Secure	Secure
Northern Bluebells	*Mertensia paniculata*	-	-	S5	-	-	G5	Secure	Secure
Naked Bishop's-cap	*Mitella nuda*	6	-3	S5	-	-	G5	Secure	Secure
One-flower Wintergreen	*Moneses uniflora*	10	0	S5	-	-	G5	Secure	Secure
Indian Pipe	*Monotropa uniflora*	6	3	S5	-	-	G5	Secure	Secure
Catnip	*Nepeta cataria*	-	1	SNA	-	-	GNR	Exotic	Exotic
Common Evening Primrose	*Oenothera biennis*	0	3	S5	-	-	G5	Secure	Secure
One-sided Wintergreen	*Orthilia secunda*	5	-1	S5	-	-	G5	Secure	Secure
Hairy Sweet-cicely	*Osmorhiza claytonii*	5	4	S5	-	-	G5	Secure	Secure
Northern Sweet-coltsfoot	*Petasites frigidus*		-3	S5	-	-	G5	Secure	Secure
Arrow-leaved Sweet-coltsfoot	*Petasites sagittatus*	-	-	S5	-	-	G5	-	-
Common Plantain	*Plantago major*	-	-1	SNA	-	-	G5	Exotic	Exotic
Hooker's Orchid	*Platanthera hookeri*		-1	S3	-	-	G4	Secure	Secure
Northern Bog-orchid	*Platanthera hyperborea*	-	-	S4	-	-	-	-	-

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Small Northern Bog-orchid	*Platanthera obtusata*		-3	S5	-	-	G5	Secure	Secure
Gaywing Milkwort	*Polygala pauciflora*	6	3	S5	-	-	G5	Secure	Secure
Dock-leaf Smartweed	*Polygonum lapathifolium*	2	-4	S5	-	-	G5	Secure	Secure
Climbing False Buckwheat	*Polygonum scandens*	3	0	S4S5	-	-	G5	Secure	Secure
Rough Cinquefoil	*Potentilla norvegica*	0	0	S5	-	-	G5	Secure	Secure
Rough-fruited Cinquefoil	*Potentilla recta*	-	5	SNA	-	-	GNR	Exotic	Exotic
White Rattlesnake-root	*Prenanthes alba*	6	3	S5	-	-	G5	Secure	Secure
Self-heal	*Prunella vulgaris ssp. Lanceolata*	5	5	S5	-	-	G5T5	Secure	Secure
Pink Wintergreen	*Pyrola asarifolia*	7	-3	S5	-	-	G5	Secure	Secure
Tall Buttercup	*Rananculus acris*	-	-2	SNA	-	-	G5	Exotic	Exotic
Bristly Buttercup	*Ranunculus hispidus var. hispidus*		0	S3	-	-	G5T5	-	-
Bristly Buttercup	*Ranunculus pensylvanicus*	-	-	S5	-	-	-	-	-
Nodding Trillium	*Rilliuum cemuum*		0	S5	-	-	G5	Secure	Secure
Sheep Sorrel	*Rumex acetosella* spp. *acetosella*	-	-	SE	-	-	-	Exotic	Exotic
Curly Dock	*Rumex crispus*	-	-1	SNA	-	-	GNR	Exotic	Exotic
Bloodroot	*Sanguinaria canadensis*	5	4	S5	-	-	G5	Secure	Secure
Black Snakeroot	*Sanicula marilandica*	5	3	S5	-	-	G5	Secure	Secure
Pitcher Plant	*Sarracenia purpurea*	10	-5	S5	-	-	G5	Secure	Secure
Hooded Skullcap	*Scutellaria galericulata*	6	-5	S5	-	-	G5	Secure	Secure
Balsam Ragwort	*Senecio pauperculus*	7	-1	S5	-	-	G5	Secure	Secure
Strict Blue-eyed Grass	*Sisyrinchium montanum*	4	-1	S5	-	-	G5	Secure	Secure
Water-parsnip Hemlock	*Sium suave*	4	-5	S5	-	-	G5	Secure	Secure
Tall Goldenrod	*Solidago altissima* var. *altissima*	-	-	S4?	-	-	-	-	-
Marsh Goldenrod	*Solidago uliginosa*		-5	S5	-	-	G4G5	Secure	Secure
Marsh Hedge-nettle	*Stachys palustris*	-	-5	SNA	-	-	G5	Secure	Secure
Longleaf Stitchwort	*Stellaria longifolia*	2	-4	S5	-	-	G5	Secure	Secure
Chickweed Stitchwort	*Stellaria media ssp. pallida*	-	-	SNA	-	-	GNRTNR	Exotic	Exotic
Rose Twisted Stalk	*Streptopus roseus*	7	0	S5	-	-	G5	Secure	Secure
Lindley's Aster	*Symphyotrichum ciliolatum*	6	4	S5	-	-	G5	Secure	Secure
Heart-leaved Aster	*Symphyotrichum cordifolium*	5	5	S5	-	-	G5	Secure	Secure
Hairy Aster	*Symphyotrichum pilosum var. pilosum*	4	2	S5	-	-	G5T5	-	-
Swamp Aster	*Symphyotrichum puniceum*	6	-5	S5	-	-	G5	Secure	Secure
Common Tansy	*Tanacetum vulgare*	-	5	SNA	-	-	GNR	Exotic	Exotic
Common Dandelion	*Taraxacum officinale*	-	3	SNA	-	-	G5	Secure	Secure
Tall Meadow-rue	*Thalictrum pubescens*	5	-2	S5	-	-	G5	Secure	Secure
Field Penny-cress	*Thlaspi arvense*	-	5	SNA	-	-	GNR	Exotic	Exotic
Poison Ivy	*Toxicodenron radicans* ssp. *negundo*	5	-1	S5	-	-	G5T5	Secure	Secure
Marsh St. John's-wort	*Triadenum fraseri*	7	-5	S5	-	-	G5	Secure	Secure
Northern Starflower	*Trientalis borealis* ssp. *borealis*	6	-1	S5	-	-	G5	Secure	Secure
Alsike Clover	*Trifolium hybridum*	-	1	SNA	-	-	GNR	Exotic	Exotic

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Red Clover	*Trifolium pratense*	-	2	SNA	-	-	GNR	Exotic	Exotic
White Clover	*Trifolium repens*	-	2	SNA	-	-	GNR	Exotic	Exotic
Common Cattail	*Typha latifolia*	3	-5	S5	-	-	G5	Secure	Secure
Stinging Nettle	*Urtica dioica ssp. gracilis*	2	-1	S5	-	-	G5T5	Secure	Secure
Tall Nettle	*Urtica procera*	-	-	-	-	-	-	-	-
Sessile-leaved Bellwort	*Uvularia sessilifolia*	7	1	S4	-	-	G5	Secure	Secure
Common Mullein	*Verbascum thapsus*	-	-	SNA	-	-	GNR	Exotic	Exotic
Purslane Speedwell	*Veronica peregrine var. xalapensis*	-	-	S5	-	-	-	-	-
Marsh Speedwell	*Veronica scutellata*	7	-5	S5	-	-	G5	Secure	Secure
Cow Vetch	*Vicia cracca*	-	5	SNA	-	-	GNR	Exotic	Exotic
New England Violet	*Viola novea-angliae*	-	-	S3	-	-	G4	May be at risk	Sensitive
Kidney-leaf Violet	*Viola renifolia*	7	-3	S5	-	-	G5	Secure	Secure
Violet sp.	*Viola sp.*	-	-	-	-	-	-	-	
Barren Strawberry	*Waldsteinia fragarioides*	5	5	S5	-	-	G5	Secure	Secure
Grasses, Sedges and Rushes									
Rough Hair Grass	*Agrostis scabra*	0	-3	S5	-	-	G5	Secure	Secure
Short-awned Foxtail	*Alopecurus aequalis*	-	-	S4S5	-	-	-	-	-
Smooth Brome-grass	*Bromus inermis ssp. inermis*	-	5	SNA	-	-	G5TNR	Exotic	Exotic
Canada Blue-joint	*Calamagrostis canadensis*	4	-5	S5	-	-	G5	Secure	Secure
Crowned Sedge	*Carex adusta*	-	-	S4S5	-	-	G5	Secure	Secure
Fernald's Hay Sedge	*Carex aenea*		5	S5	-	-	G5	Secure	Secure
Water Sedge	*Carex aquatilis*	7	-5	S5	-	-	G5	Secure	Secure
Awned Sedge	*Carex atherodes*	6	-5	S4S5	-	-	G5	Secure	Secure
Bebb's Sedge	*Carex bebbii*	3	-5	S5	-	-	G5	Secure	Secure
Silvery Sedge	*Carex canescens*	7	-5	S5	-	-	G5	Secure	Secure
Chestnut-colored Sedge	*Carex castanea*	7	-4	S5	-	-	G5	Secure	Secure
Creeping Sedge	*Carex chordorrhiza*	10	-5	S5	-	-	G5	Secure	Secure
Field Sedge	*Carex conoidea*		2	S3	-	-	G5	Sensitive	Secure
Fringed Sedge	*Carex crinita*	6	-4	S5	-	-	G5	Secure	Secure
Two-stamen Sedge	*Carex diandra*	7	-5	S5	-	-	G5	Secure	Secure
Two-seeded Sedge	*Carex disperma*		-5	S5	-	-	G5	Secure	Secure
Graceful Sedge	*Carex gracillima*	4	3	S5	-	-	G5	Secure	Secure
Northern Bog Sedge	*Carex gynocrates*	10	-5	S5	-	-	G5	Secure	Secure
Bladder Sedge	*Carex intumescens*	6	-4	S5	-	-	G5	Secure	Secure
Lake-bank Sedge	*Carex lacustris*	5	-5	S5	-	-	G5	Secure	Secure
Slender Sedge	*Carex lasiocarpa*		-5	S5	-	-	G5	Secure	Secure
Bristle-stalked Sedge	*Carex leptalea*		-5	S5	-	-	G5	Secure	Secure
Finely-nerved Sedge	*Carex leptonervia*	5	0	S4	-	-	G5	Secure	Secure
Mud Sedge	*Carex limosa*	10	-5	S5	-	-	G5	Secure	Secure

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Hop Sedge	*Carex lupulina*	6	-5	S5	-	-	G5	Secure	Secure
Sallow Sedge	*Carex lurida*	6	-5	S5	-	-	G5	Secure	Secure
Boreal Bog Sedge	*Carex magellanica*	-	-	S5	-	-	G5	Secure	Secure
Few-flowered Sedge	*Carex pauciflora*	10	-5	S5	-	-	G5	Secure	Secure
Stellate Sedge	*Carex radiata*	4	5	S4	-	-	G4	Secure	Secure
Retrorse Sedge	*Carex retrorsa*	5	-5	S5	-	-	G5	Secure	Secure
Rosy Sedge	*Carex rosea*	-	-	S5	-	-	G5	Secure	Secure
Stalk-grain Sedge	*Carex stipata*	3	-5	S5	-	-	G5	Secure	Secure
Tussock Sedge	*Carex stricta*	4	-5	S5	-	-	G5	Secure	Secure
Slender Sedge	*Carex tenera*	4	-1	S4S5	-	-	G5	Secure	Secure
Sparse-flowered Sedge	*Carex tenuiflora*	10	-5	S5	-	-	G5	Secure	Secure
Blunt Broom Sedge	*Carex tribuloides*	5	-4	S4S5	-	-	G5	Secure	Secure
Three-fruited Sedge	*Carex trisperma*	-	-	S5	-	-	G5	Secure	Secure
Beaked Sedge	*Carex utriculata*	7	-5	S5	-	-	G5	Secure	Secure
Sheathed Sedge	*Carex vaginata*	10	-5	S5	-	-	G5	Secure	Secure
Fox Sedge	*Carex vulpinoidea*	3	-5	S5	-	-	G5	Secure	Secure
Slender Woodreed	*Cinna latifolia*	7	-4	S5	-	-	G5	Secure	Secure
Orchard Grass	*Dactylis glomerata*	-	3	SNA	-	-	GNR	Exotic	Exotic
Poverty Oat Grass	*Danthonia spicata*	5	5	S5	-	-	G5	Secure	Secure
Three-way Sedge	*Dulichium arundinaceum*	7	-5	S5	-	-	G5	Secure	Secure
Blunt Spike-rush	*Eleocharis obtusa*	5	-5	S5	-	-	G5	Secure	Secure
Marsh Spike-rush	*Elocharis smallii*	6	-5	S5	-	-	G5?	Secure	Secure
Quack Grass	*Elymus repens*	-	3	SNA	-	-	GNR	Exotic	Exotic
Slender Wheat Grass	*Elymus trachycaulus*	-	-	S4?	-	-	G5T5	Secure	Secure
Slender Cottongrass	*Eriophorum gracile*	10	-5	S5	-	-	G5	Secure	Secure
Tussock Cotton-grass	*Eriophorum vaginatum*	10	-5	S5	-	-	G5	Secure	Secure
Green Keeled Cottongrass	*Eriophorum viridicarinatum*		-5	S5	-	-	G5	Secure	Secure
Hard Fescue	*Festuca trachyphylla*	-	-	SNA	-	-	GNR	Exotic	Exotic
Small Floating Manna-grass	*Glyceria borealis*		-5	S5	-	-	G5	Secure	Secure
American Mannagrass	*Glyceria grandis*	5	-5	S4S5	-	-	G5	Secure	Secure
Fowl Manna-grass	*Glyceria striata* var. *stricta*	-	-	S4S5	-	-	G5T5	-	-
Toad Rush	*Juncus bufonius*	1	-4	S5	-	-	G5	Secure	Secure
Canada Rush	*Juncus canadensis*	6	-5	S5	-	-	G5	Secure	Secure
Soft Rush	*Juncus effuses* spp. *solutus*	4	-5	S5	-	-	G5	Secure	Secure
Knotted Rush	*Juncus nodosus*	5	-5	S5	-	-	G5	Secure	Secure
Slender, Path Rush	*Juncus tenuis*	0	0	S5	-	-	G5	Secure	Secure
Hairy Wood Rush	*Luzula acuminata*	6	1	S5	-	-	G5	Secure	Secure
Impoverished Panic Grass	*Panicum depauperatum*	-	-	S4	-	-	-	-	-
Reed-canary Grass	*Phalaris arundinacea*	0	-4	S5	-	-	G5	Secure	Secure
Timothy	*Phleum pratense*	-	3	SNA	-	-	GNR	Exotic	Exotic

Table A1-A: Compiled Plant Species List

Common Name	Latin Name	Coefficient of Conservatism[1]	Wetness Index[2]	Provincial S-RANK (NHIC)[3]	Federal SARA Status[4]	Provincial SARO Status[5]	Global G-RANK[6]	Ontario General Status	Canada General Status
Common Reed	*Phragmites australis*	-	-	SNA	-	-	GNR	Exotic	Exotic
Canada Bluegrass	*Poa compressa*	0	2	SNA	-	-	GNR	Secure	Secure
Fowl Bluegrass	*Poa palustris*	5	-4	S5	-	-	G5	Secure	Secure
Kentucky Bluegrass	*Poa pratensis spp. pratensis*	0	2	S5	-	-	G5T5	Secure	Secure
Purple Oat	*Schizachne purpurascens*	6	2	S5	-	-	G5	Secure	Secure
Black Bulrush	*Scirpus atrovirens*	3	-5	S5	-	-	G5?	Secure	Secure
Wool-grass	*Scirpus cyperinus*	4	-5	S5	-	-	G5	Secure	Secure
Small-fruited Bulrush	*Scirpus microcarpus*	4	-5	S5	-	-	G5	Secure	Secure
Bulrush sp.	*Scirpus sp.*	-	-	-	-	-	-	-	-
Softstem Bulrush	*Scirpus validus*	-	-	S5	-	-	G5	Secure	Secure
Common Bog Arrow-grass	*Triglochin maritimum*		-5	S5	-	-	G5	Secure	Secure
Common Cattail	*Typha latifolia*	3	-5	S5	-	-	G5	Secure	Secure
Aquatic Plants									
Lake Cress	*Armoracia lacustris*	-	-	S3?	-	-	-	-	-
Water Shield	*Brasenia schreberi*	7	-5	S5	-	-	G5	Secure	Secure
Wild Calla	*Calla palustris*		-5	S5	-	-	G5	Secure	Secure
Vernal Water Starwort	*Callitriche palustris*	6	-5	S5	-	-	G5	Secure	Secure
Hornwort Coontail	*Ceratophyllum demersum*	4	-5	S5	-	-	G5	Secure	Secure
Common Mare's Tail	*Hippuris vulgaris*	10	-5	S5	-	-	G5	Secure	Secure
Lesser Duckweed	*Lemna minor*	2	-5	S5	-	-	G5	Secure	Secure
Star Duckweed	*Lemna trisulca*	4	-5	S5	-	-	G5	Secure	Secure
Common Water Milfoil	*Myriophyllum sibiricum*	6	-5	S5	-	-	G5	Secure	Secure
Yellow Cowlily	*Nuphar lutea ssp. variegata*	-	-	S5	-	-	G5T5	Secure	Secure
Small White Water-lily	*Nymphaea leibergii*	-	-	-	-	-	-	-	-
Fragrant Water Lily	*Nymphaea odorata*	-	-	S5?	-	-	G5T5	Secure	Secure
Water Smartweed	*Polygonum amphibium*	5	-5	S5	-	-	G5	Secure	Secure
Alpine Pondweed	*Potamogeton alpines*	10	-5	S5	-	-	G5	Secure	Secure
Large-leaf Pondweed	*Potamogeton amplifolius*	5	-5	S5	-	-	G5	Secure	Secure
Leafy Pondweed	*Potamogeton foliosus*	4	-5	S5	-	-	G5	Secure	Secure
Floating-leaf Pondweed	*Potamogeton natans*	5	-5	S5	-	-	G5	Secure	Secure
Slender Pondweed	*Potamogeton pusillus*	5	-5	S4S5	-	-	G5	Secure	Secure
Red-head Pondweed	*Potamogeton richardsonii*	5	-5	S5	-	-	G5	Secure	Secure
Flat-stemmed Pondweed	*Potamogeton zosteriformis*	5	-5	S5	-	-	G5	Secure	Secure
Small Yellow Water Crowfoot	*Ranunculus gmelinii*	-	-	S5	-	-	G5	Secure	Secure
Curly White Water Crowfoot	*Ranunculus longirostris*	-	-	-	-	-	-	-	-
Broadleaf Arrowhead	*Sagittaria latifolia*	4	-5	S5	-	-	G5	Secure	Secure
Floating Bur-reed	*Sparganium angustifolium*	-	-	S4?	-	-	-	-	-
Green-fruit Bur-reed	*Sparganium emersum*	5	-5	S5	-	-	G5	Secure	Secure
Large Bur-reed	*Sparganium eurycarpum*	3	-5	S5	-	-	G5	Secure	Secure
Great Duckweed	*Spirodela polyrihiza*	-	-	S5	-	-	G5	-	-

Table A1-A: Compiled Plant Species List

Common Name	Latin Name	Coefficient of Conservatism[1]	Wetness Index[2]	Provincial S-RANK (NHIC)[3]	Federal SARA Status[4]	Provincial SARO Status[5]	Global G-RANK[6]	Ontario General Status	Canada General Status
Flat-leaved Bladderwort	*Utricularia intermedia*		-5	S5	-	-	G5	Secure	Secure
Lesser Bladderwort	*Utricularia minor*		-5	S5	-	-	G5	Secure	Secure
Greater Bladderwort	*Utricularia vulgaris*	4	-5	S5	-	-	G5	Secure	Secure
Tape Grass	*Vallisneria americana*	6	-5	S5	--	--	G5	Secure	Secure
Ferns and Allies									
Maidenhair Spleenwort	*Asplenium trichomanes* spp. *trichomanes*		5	S5	-	-	G5	Secure	Secure
Lady Fern	*Athyrium filix-femina*	-	-	S5	-	-	G5T5	Secure	Secure
Rattlesnake Fern	*Botrychium virginianum*	5	3	S5	-	-	G5	Secure	Secure
Bulblet Fern	*Cystopteris bulbifera*	5	-2	S5	-	-	G5	Secure	Secure
Spinulose Wood Fern	*Dryopteris carthusiana*	5	-2	S5	-	-	G5	Secure	Secure
Crested Wood Fern	*Dryopteris criststa*	-	-	-	-	-	-	-	-
Field Horsetail	*Equisetum arvense*	0	0	S5	-	-	G5	Secure	Secure
Water Horsetail	*Equisetum fluviatile*	7	-5	S5	-	-	G5	Secure	Secure
Woodland Horsetail	*Equisetum sylvaticum*	7	-3	S5	-	-	G5	Secure	Secure
Horsetail sp.	*Equisetum* sp.	-	-	-	-	-	-	-	-
Oak Fern	*Gymnocarpium dryopteris*	7	0	S5	-	-	G5	Secure	Secure
Stiff Clubmoss	*Lycopodium annotinum*	7	0	S5	-	-	G5	Secure	Secure
Running Pine	*Lycopodium clavatum*	6	0	S5	-	-	G5	Secure	Secure
Tree Clubmoss	*Lycopodium obscurum*	6	3	S4	-	-	G5	Secure	Secure
Ostrich Fern	*Matteuccia struthiopteris* var. *pensylvanica*	5	-3	S5	-	-	G5	Secure	Secure
Sensitive Fern	*Onoclea sensibilis*	4	-3	S5	-	-	G5	Secure	Secure
Interrupted Fern	*Osmunda claytoniana*	7	-1	S5	-	-	G5	Secure	Secure
Rock Polypody	*Polypodium virginianum*	6	5	S5	-	-	G5	Secure	Secure
Bracken Fern	*Pteridium aquilinum*	2	3	S5	-	-	G5	Secure	Secure
Marsh Fern	*Thelypteris palusris*	5	-4	S5	-	-	G5	Secure	Secure
Rusty Woodsia	*Woodsia ilvensis*		5	S5	-	-	G5	Secure	Secure
Vines									
Field Bindweed	*Convolvulus arvensis*	-	5	SNA	-	-	GNR	Exotic	Exotic
Honeysuckle Fly	*Lonicera canadensis*	6	3	S5	-	-	G5	Secure	Secure
Mountain Honeysuckle	*Lonicera dioica*	5	3	S5	-	-	G5	Secure	Secure
Hairy Honeysuckle	*Lonicera hirsuta*	7	0	S5	-	-	G4G5	Secure	Secure
Virginia Creeper	*Parthenocissus quinquefolia*	6	1	S4?	-	-	G5	Secure	Secure
Fringed Black Bindweed	*Polygonum cilinode*	2	5	S5	-	-	G5	Secure	Secure
Coniferous Trees and Shrubs									
Balsam Fir	*Abies balsamea*	5	-3	S5	-	-	G5	Secure	Secure
Common Juniper	*Juniperus communis*	4	3	S5	-	-	G5	Secure	Secure
Larch	*Larix laricina*	7	-3	S5	-	-	G5	Secure	Secure
White Spruce	*Picea glauca*	6	3	S5	-	-	G5	Secure	Secure
Black Spruce	*Picea mariana*		-3	S5	-	-	G5	Secure	Secure

Table A1-A: Compiled Plant Species List

Common Name	Latin Name	Coefficient of Conservatism[1]	Wetness Index[2]	Provincial S-RANK (NHIC)[3]	Federal SARA Status[4]	Provincial SARO Status[5]	Global G-RANK[6]	Ontario General Status	Canada General Status
Jack Pine	*Pinus banksiana*		3	S5	-	-	G5	Secure	Secure
Red Pine	*Pinus resinosa*		3	S5	-	-	G5	Secure	Secure
Eastern White Pine	*Pinus strobus*	4	3	S5	-	-	G5	Secure	Secure
Eastern White Cedar	*Thuja occidentalis*	4	-3	S5	-	-	G5	Secure	Secure
Eastern Hemlock	*Tsuga canadensis*	7	3	S5	-	-	G4G5	Secure	Secure
Deciduous Shrubs									
Mountain Maple	*Acer spicatum*	6	3	S5	-	-	G5	Secure	Secure
Speckled Alder	*Alnus incana ssp. rugosa*	6	-5	S5	-	-	G5	Secure	Secure
Serviceberry sp.	*Amelanchier sp.*	-	-	-	-	-	-	-	-
Bog Rosemary	*Andromeda polifolia var. glaucophylla*	-	-	S5	-	-	G5T5	-	-
Dwarf Birch	*Betula pumila*		-5	S5	-	-	G5	Secure	Secure
Leatherleaf	*Chamaedaphne calyculata*		-5	S5	-	-	G5	Secure	Secure
Bunchberry	*Cornus canadensis*	7	0	S5	-	-	G5	Secure	Secure
Grey Dogwood	*Cornus foemina ssp.racemosa*	2	-2	S5	-	-	G5	Secure	Secure
Round-leaved Dogwood	*Cornus rugosa*	6	5	S5	-	-	G5	Secure	Secure
Red-osier Dogwood	*Cornus sericea*	5	-4	S5	-	-	G5	Secure	Secure
Beaked Hazel	*Corylus cornuta*	5	5	S5	-	-	G5	Secure	Secure
Hawthorn sp.	*Crategus sp.*	-	-	-	-	-	-	-	-
Northern Bush-honeysuckle	*Diervilla lonicera*	5	5	S5	-	-	G5	Secure	Secure
Creeping Snowberry	*Gaultheria hispidula*		-3	S5	-	-	G5	Secure	Secure
Labrador Tea	*Ledum groenlandicum*		-5	S5	-	-	G5	Secure	Secure
Twinflower	*Linnaea borealis*	7	0	S5	-	-	G5	Secure	Secure
Fly Honeysuckle	*Lonicera involucrate*	-	-	S5	-	-	G5	Secure	Secure
Swamp Fly-honeysuckle	*Lonicera oblongifolia*		-5	S4S5	-	-	G4	Secure	Secure
Swamp Fly-honeysuckle	*Lonicera villosa*	10	-3	S5	-	-	G5	Secure	Secure
Sweet Gale	*Myrica gale*	6	-5	S5	-	-	G5	Secure	Secure
Choke Cherry	*Prunus virginiana ssp. Virginiana*	2	1	S5	-	-	G5	Secure	Secure
Alder-leaved Buckthorn	*Rhamnus alnifolia*	7	-5	S5	-	-	G5	Secure	Secure
Buckthorn sp.	*Rhamnus sp.*	-	-	-	-	-	-	-	-
Smooth Sumac	*Rhus glabra*	1	5	S5	-	-	G5	Secure	Secure
Prickly Gooseberry	*Ribes cynosbati*	4	5	S5	-	-	G5	Secure	Secure
Smooth Gooseberry	*Ribes hirtellum*	6	-3	S5	-	-	G5	Secure	Secure
Northern Wild Black Currant	*Ribes hudsonianum*		-5	S5	-	-	G5	Secure	Secure
Bristly Black Currant	*Ribes lacustre*	7	-3	S5	-	-	G5	Secure	Secure
Bristly Wild Gooseberry	*Ribes oxyacanthoides*	-	-	S5	-	-	G5	Secure	Secure
Swamp Red Currant	*Ribes triste*	6	-5	S5	-	-	G5	Secure	Secure
Prickly Wild Prickly Wild Rose	*Rosa acicularis*	7	3	S5	-	-	G5	Secure	Secure
Allegheny Blackberry	*Rubus allegheniensis*	2	2	S5	-	-	G5	Secure	Secure
Cloudberry	*Rubus chamaemorus*	-	-	S5	-	-	G5	Secure	Secure
Wild Red Raspberry	*Rubus idaeus*	-	-	S5	-	-	G5	Secure	Secure

Table A1-A: Compiled Plant Species List

Common Name	Latin Name	Coefficient of Conservatism[1]	Wetness Index[2]	Provincial S-RANK (NHIC)[3]	Federal SARA Status[4]	Provincial SARO Status[5]	Global G-RANK[6]	Ontario General Status	Canada General Status
Dwarf Raspberry (Catherinettes Berry)	*Rubus pubescens*	4	-4	S5	-	-	G5	Secure	Secure
Bebb's Willow	*Salix bebbiana*	4	-4	S5	-	-	G5	Secure	Secure
Hoary Willow	*Salix candida*	10	-5	S5	-	-	G5	Secure	Secure
Pussy Willow	*Salix discolor*	3	-3	S5	-	-	G5	Secure	Secure
Crack Willow	*Salix fragilis*	-	-1	SNA	-	-	GNR	Exotic	Exotic
Shining Willow	*Salix lucida*	5	-4	S5	-	-	G5	Secure	Secure
Meadow Willow	*Salix petiolaris*	3	-4	S5	-	-	G5	Secure	Secure
Balsam Willow	*Salix pyrifolia*	10	-4	S5	-	-	G5	Secure	Secure
Willow sp.	*Salix sp.*	-	-	-	-	-	-	-	-
Northern Mountain-ash	*Sorbus decora*		3	S5	-	-	G4G5	Secure	Secure
Narrow-leaved Meadow-sweet	*Spiraea alba*	3	-4	S5	-	-	G5	Secure	Secure
Late Low-bush Blueberry	*Vaccinium angustifolium*	6	3	S5	-	-	G5	Secure	Secure
Huckleberry Dwarf	*Vaccinium caespitosum*	-	-	S4?	-	-	G5	Secure	Secure
Large Cranberry	*Vaccinium macrocarpon*	10	-5	S4S5	-	-	G4	Secure	Secure
Velvetleaf Blueberry	*Vaccinium myrtilloides*	7	-2	S5	-	-	G5	Secure	Secure
Small Cranberry	*Vaccinium oxyoccos*	10	-5	S5	-	-	G5	Secure	Secure
Mountain Cranberry	*Vaccinium vitis-idaea*	-	-	S5	-	-	G5	Secure	Secure
High-bush Cranberry	*Viburnum opulus var. americanum*	5	-3	S5	-	-	G5T5	Secure	Secure
Downy Arrow-wood	*Viburnum rafinesquianum*	7	5	S5	-	-	G5	Secure	Secure
High-bush Cranberry	*Viburnum opulus var. americanum*	5	-3	S5	-	-	G5	Secure	Secure
Deciduous Trees									
Red Maple	*Acer rubrum*	4	0	S5	-	-	G5	Secure	Secure
White Birch	*Betula papyrifera*	2	2	S5	-	-	G5	Secure	Secure
Black Ash	*Fraxinus nigra*	7	-4	S5	-	-	G5	Secure	Secure
Balsam Poplar	*Populus balsamea*	4	-3	S5	-	-	G5	Secure	Secure
Large-tooth Aspen	*Populus grandifolia*	5	3	S5	-	-	G5	Secure	Secure
Trembling Aspen	*Populus tremuloides*	2	0	S5	-	-	G5	Secure	Secure
White Elm	*Ulmus americana*	3	-2	S5	-	-	G5?	Secure	Secure

Notes:

1 **Coefficient of Conservatism**: Values for range from 0 for extremely weedy species, to 10 for those species which exhibit a marked fidelity to specialized habitats. Plants found in a wide variety of plant communities, including disturbed sites, are ranked 0 to 3. Taxa that typically are associated with a specific plant community, but tolerate moderate disturbance, are assigned ranks of 4 to 6. Rankings of 7 to 8 apply to those taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance. Those plants with high degrees of fidelity to a narrow range of synecological parameters are assigned a value of 9 to 10.

Table A1-A: Compiled Plant Species List

2 **Wetness Index**: The "+" sign denotes that the species generally has a greater estimated probability of occurring in uplands. The "-" sign denotes that the species generally has a lesser estimated probability of occurring in wetlands. A value of -5 is assigned to obligate wetland species and a value of 5 to obligate upland species.

[3] = Provincial S-rank (NHIC)		[4] = Federal SARA Status		[5] = Provincial SARO Status		[6] = Global G-rank (NHIC)	
S1	Critically Imperilled	NAR	Not at Risk	NAR	Not at Risk	G1	Extremely rare
S2B	Imperilled - Breeding Migrants	SC	Special Concern	SC	Special Concern	G2	Very rare
S3?	Vulnerable - Rank Uncertain	THR	Threatened	THR	Threatened	G3	Rare to Uncommon
S4	Apparently Secure	END	Endangered	END	Endangered	G4	Common
S4B	Apparently Secure Breeding Migrants					G5	Very common
S4N	Apparently Secure Non-breeding Migrants					T#	Rank applies to a subspecies or variety
S5	Secure					G?	Unranked or tentatively assigned rank
S5B	Secure Breeding Migrants					GNR	Unranked
S5N	Secure Non-breeding Migrants					GNA	Not Applicable
SNA	Status Rank Not Applicable						
DD	Data Deficient						

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Mammals					
Beaver	*Castor canadensis*	--	--	S5	FWCA
Black Bear	*Ursus americanus*	NAR	NAR	S5	FWCA
Coyote	*Canis latrans*	--	--	S5	FWCA
Eastern Chipmunk	*Tamias striatus*	--	--	S5	FWCA
Hoary Bat	*Lasiurus cinereus*	--	--	S4	FWCA
Little Brown Myotis	*Myotis lucifugus*	--	END	S4	FWCA
Mink	*Mustela vison*	--	--	S5	FWCA
Moose	*Alces alces*	--	--	S5	FWCA
Muskrat	*Odantra zibethicus*	--	--	S5	FWCA
Northern Myotis	*Myotis septentrionalis*	--	END	S3	FWCA
Red Bat	*Lasiurus borealis*	--	--	S4	FWCA
Red Fox	*Vulpes vulpes*	--	--	S5	FWCA
Red Squirrel	*Tamiasciurus hudsonicus*	--	--	S5	FWCA
River Otter	*Lutra canadensis*	--	--	S5	FWCA
Silver-haired Bat	*Lasionycteris noctivagans*	--	--	S4	FWCA
Snowshoe Hare	*Lepus americanus*	--	--	S5	FWCA
Striped Skunk	*Mephitis mephitis*	--	--	S5	FWCA
Timber Wolf	*Canis lupus*	NAR	NAR	S4	FWCA
White-tailed Deer	*Odocoileus virginianus*	--	--	S5	FWCA
Woodchuck	*Marmota monax*	--	--	S5	--
Birds					
Alder Flycatcher	*Empidonax alnorum*	--	--	S5B	MBCA
American Bittern	*Botaurus lentiginosus*	--	--	S4B	MBCA
American Crow	*Corvus brachyrhynchos*	--	--	S5B	--
American Golden Plover	*Pluvialis dominica*	--	--	S2B, S4N	MBCA
American Goldfinch	*Carduelis tristis*	--	--	S5B	MBCA
American Kestrel	*Falco sparverius*	--	--	S5	FWCA
American Pipit	*Anthus rubescens*	--	--	S4	MBCA
American Redstart	*Setophaga ruticilla*	--	--	S5B	MBCA
American Robin	*Turdus migratorius*	--	--	S5B	MBCA
American Three-toed Woodpecker	*Picoides dorsalis*	--	--	S4	MBCA
American Tree Sparrow	*Spizella arborea*	--	--	S4B	MBCA
American White Pelican	*Pelecanus erythrorhynchos*	NAR	THR	S2B	FWCA
American Woodcock	*Scolopax minor*	--	--	S5N	MBCA
Bald Eagle	*Haliaeetus leucocephalus*	NAR	SC	S4	FWCA
Baltimore Oriole	*Icterus galbula*	--	--	S4B	MBCA
Bank Swallow	*Riparia riparia*	--	--	S4B	MBCA
Barn Swallow	*Hirundo rustica*	THR	THR	S4B	MBCA
Barred Owl	*Strix varia*	--	--	S4S5	FWCA
Bay-breasted Warbler	*Setophaga castanea*	--	--	S5B	MBCA
Belted Kingfisher	*Ceryle alcyon*	--	--	S4B	FWCA
Black-and-white Warbler	*Mniotilta varia*	--	--	S5B	MBCA
Black-backed Woodpecker	*Picoides arcticus*	--	--	S4B	MBCA
Black-billed Cuckoo	*Coccyzus erythropthalmus*	--	--	S5B	MBCA
Black-billed Magpie	*Pica pica*	--	--	S3?	MBCA
Blackburnian Warbler	*Setophaga fusca*	--	--	S5B	MBCA
Black-capped Chickadee	*Poecile atricapillus*	--	--	S5	MBCA
Black-throated Blue Warbler	*Setophaga caerulescens*	--	--	S5B	MBCA
Black-throated Green Warbler	*Setophaga virens*	--	--	S5B	MBCA
Blue Jay	*Cyanocitta cristata*	--	--	S5B	FWCA
Blue-headed Vireo	*Vireo solitarius*	--	--	S5B	MBCA
Blue-winged Teal	*Anas discors*	--	--	S4	MBCA

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	MBCA
Boreal Chickadee	*Poecile hudsonica*	--	--	S5	MBCA
Brewer's Blackbird	*Euphagus cyanocephalus*	--	--	S4B	FWCA
Broad-winged Hawk	*Buteo platypterus*	--	--	S5	FWCA
Brown Creeper	*Certhia americana*	--	--	S5B	MBCA
Brown Thrasher	*Toxostoma rufum*	--	--	S4B	MBCA
Brown-headed Cowbird	*Molothrus ater*	--	--	S4B	--
Canada Goose	*Branta canadensis*	--	--	S5B	MBCA
Canada Warbler	*Cardellina canadensis*	THR	SC	S4B	MBCA
Cape May Warbler	*Setophaga tigrina*	--	--	S5B	MBCA
Cedar Waxwing	*Bombycilla cedrorum*	--	--	S5B	MBCA
Chestnut-sided Warbler	*Setophaga pensylvanica*	--	--	S5B	MBCA
Chipping Sparrow	*Spizella passerina*	--	--	S5B	MBCA
Clay-coloured Sparrow	*Spizella pallida*	--	--	S4B	MBCA
Cliff Swallow	*Petrochelidon pyrrhonota*	--	--	S4B	MBCA
Common Goldeneye	*Bucephala clangula*	--	--	S5	MBCA
Common Grackle	*Quiscalus quiscula*	--	--	S5B	--
Common Loon	*Gavia immer*	NAR	NAR	S5B, S5N	MBCA
Common Merganser	*Mergus merganser*	--	--	S5B, S5N	MBCA
Common Nighthawk	*Chordeiles minor*	THR	SC	S4B	MBCA
Common Raven	*Corvus corax*	--	--	S5B	FWCA
Common Yellowthroat	*Geothlypis trichas*	--	--	S5B	MBCA
Connecticut Warbler	*Oporornis agilis*	--	--	S4B	MBCA
Dark-eyed Junco	*Junco hyemalis*	--	--	S5B	MBCA
Double-crested Cormorant	*Phalacrocorax auritus*	NAR	NAR	S5B	MBCA
Downy Woodpecker	*Picoides pubescens*	--	--	S5B	MBCA
Eastern Bluebird	*Sialia sialis*	NAR	NAR	S5B	MBCA
Eastern Kingbird	*Tyrannus tyrannus*	--	--	S4B	MBCA
Eastern Phoebe	*Sayornis phoebe*	--	--	S5B	MBCA
Eastern Whip-poor-will	*Antrostomus vociferous*	THR	THR	S4B	MBCA
Eastern Wood-Pewee	*Contopus virens*	--	--	S4B	MBCA
European Starling	*Sturnus vulgaris*	--	--	SNA	--
Evening Grosbeak	*Coccothraustes vespertinus*	--	--	S4B	MBCA
Forster's Tern	*Sterna forsteri*	DD	DD	S2B	MBCA
Golden-crowned Kinglet	*Regulus satrapa*	--	--	S5B	MBCA
Golden-winged Warbler	*Vermivora chrysoptera*	THR	SC	S4B	MBCA
Gray Catbird	*Dumetella carolinensis*	--	--	S4B	MBCA
Gray Jay	*Perisoreus canadensis*	--	--	S5B	FWCA
Great Blue Heron	*Ardea herodias*	--	--	S5	MBCA
Great Crested Flycatcher	*Myiarchus crinitus*	--	--	S4B	MBCA
Great Horned Owl	*Bubo virginianus*	--	--	S5	FWCA
Great Gray Owl	*Strix nebulosa*	--	--	S5	FWCA
Greater Yellowlegs	*Tringa melanoleuca*	--	--	S4B, S4N	MBCA
Green Heron	*Butorides virescens*	--	--	S4	MBCA
Green-winged Teal	*Anas crecca*	--	--	S4	MBCA
Hairy Woodpecker	*Picoides villosus*	--	--	S5B	MBCA
Hermit Thrush	*Catharus guttatus*	--	--	S5B	MBCA
Herring Gull	*Larus argentatus*	--	--	S5B, S5N	MBCA
Hooded Merganser	*Lophodytes cucullatus*	--	--	S5B, S5N	MBCA
House Sparrow	*Passer domesticus*	--	--	SNA	MBCA
House Wren	*Troglodytes aedon*	--	--	S5B	MBCA
Horned Lark	*Eremophila alpestris*	--	--	S5	MBCA
Indigo Bunting	*Passerina cyanea*	--	--	S4B	MBCA

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Killdeer	*Charadrius vociferus*	--	--	S5B	MBCA
Lapland Longspur	*Calcarius lapponicus*	--	--	S3B	MBCA
Least Flycatcher	*Empidonax minimus*	--	--	S4B	MBCA
LeConte's Sparrow	*Ammodramus leconteii*	--	--	S4B	MBCA
Lincoln's Sparrow	*Melospiza lincolnii*	--	--	S5B	MBCA
Long-eared Owl	*Asio otus*	--	--	S4	FWCA
Magnolia Warbler	*Setophaga magnolia*	--	--	S5B	MBCA
Mallard	*Anas platyrhynchos*	--	--	S5	MBCA
Marsh Wren	*Cistothorus palustris*	--	--	S4B	MBCA
Merlin	*Falco columbarius*	NAR	NAR	S4	FWCA
Mourning Dove	*Zenaida macroura*	--	--	S5B	MBCA
Mourning Warbler	*Geothlypis philadelphia*	--	--	S4B	MBCA
Nashville Warbler	*Oreothlypis ruficapilla*	--	--	S5B	MBCA
Northern Flicker	*Colaptes auratus*	--	--	S4B	MBCA
Northern Goshawk	*Accipiter gentilis*	NAR	NAR	S4B	FWCA
Northern Harrier	*Circus cyaneus*	NAR	NAR	S4	FWCA
Northern Hawk Owl	*Surnia ulula*	NAR	NAR	S4	FWCA
Northern Parula	*Setophaga americana*	--	--	S4B	MBCA
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	--	--	S4B	MBCA
Northern Saw-whet Owl	*Aegolius acadicus*	--	--	S4	FWCA
Northern Shrike	*Lanius excubitor*	--	--	SNA	MBCA
Northern Three-toed Woodpecker	*Picoides dorsalis*	--	--	S4	MBCA
Northern Waterthrush	*Parkesia noveboracensis*	--	--	S5B	MBCA
Olive-sided Flycatcher	*Contopus cooperi*	THR	SC	S4B	MBCA
Osprey	*Pandion haliaetus*	--	--	S5B	FWCA
Ovenbird	*Seiurus aurocapilla*	--	--	S4B	MBCA
Palm Warbler	*Setophaga palmarum*	--	--	S5B	MBCA
Peregrine Falcon	*Falco peregrinus*	SC	THR	S2S3	FWCA
Philadelphia Vireo	*Vireo philadelphicus*	--	--	S5B	MBCA
Pied-billed Grebe	*Podilymbus podiceps*	--	--	S4B, S4N	MBCA
Pileated Woodpecker	*Dryocopus pileatus*	--	--	S5	MBCA
Pine Siskin	*Spinus pinus*	--	--	S5B	MBCA
Pine Warbler	*Setophaga pinus*	--	--	S5B	MBCA
Purple Finch	*Haemorhous purpureus*	--	--	S5B	MBCA
Red-breasted Nuthatch	*Sitta canadensis*	--	--	S5	MBCA
Red Crossbill	*Loxia curvirostra*	--	--	S4B	MBCA
Red-eyed Vireo	*Vireo olivaceus*	--	--	S5B	MBCA
Redhead	*Aythya americana*	--	--	S2B, S4N	MBCA
Red-headed Woodpecker	*Melanerpes erythrocephalus*	THR	SC	S4B	MBCA
Red-shouldered Hawk	*Buteo lineatus*	SC	NAR	S4B	FWCA
Red-tailed Hawk	*Buteo jamaicensis*	NAR	NAR	S5	FWCA
Red-winged Blackbird	*Agelaius phoeniceus*	--	--	S4	--
Ring-billed Gull	*Larus delawarensis*	--	--	S5B	MBCA
Ring-necked Duck	*Aythya collaris*	--	--	S5	MBCA
Rock Pigeon	*Columba livia*	--	--	SNA	MBCA
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	--	--	S4B	MBCA
Ruby-crowned Kinglet	*Regulus calendula*	--	--	S4B	MBCA
Ruby-throated Hummingbird	*Archilochus colubris*	--	--	S5B	MBCA
Ruffed Grouse	*Bonasa umbellus*	--	--	S5B	FWCA
Rusty Blackbird	*Euphagus carolinus*	SC	--	S4B	FWCA
Sandhill Crane	*Grus canadensis*	NAR	NAR	S5B	MBCA
Savannah Sparrow	*Passerculus sandwichensis*	--	--	S4B	MBCA
Scarlet Tanager	*Piranga olivacea*	--	--	S4B	MBCA

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Sedge Wren	*Cistothorus platensis*	NAR	NAR	S4B	MBCA
Sharp-shinned Hawk	*Accipiter striatus*	NAR	NAR	S5	FWCA
Sharp-tailed Grouse	*Tympanuchus phasianellus*	--	--	S4	FWCA
Short-eared Owl	*Asio flammeus*	SC	SC	S2N, S4B	FWCA
Snow Bunting	*Plectrophenax nivalis*	--	--	SNA	MBCA
Song Sparrow	*Melospiza melodia*	--	--	S5B	MBCA
Sora	*Porzana carolina*	--	--	S4B	MBCA
Spotted Sandpiper	*Actitis macularia*	--	--	S5	MBCA
Swainson's Thrush	*Catharus ustulatus*	--	--	S4B	MBCA
Spruce Grouse	*Falcipennis canadensis*	--	--	S5	FWCA
Swamp Sparrow	*Melospiza georgiana*	--	--	S5B	MBCA
Tennessee Warbler	*Oreothlypis peregrina*	--	--	S5B	MBCA
Tree Swallow	*Tachycineta bicolor*	--	--	S4B	MBCA
Trumpeter Swan	*Cygnus buccinator*	NAR	NAR	S4	MBCA
Turkey Vulture	*Cathartes aura*	--	--	S5B	FWCA
Veery	*Catharus fuscescens*	--	--	S4B	MBCA
Virginia Rail	*Rallus limicola*	--	--	S5B	MBCA
Warbling Vireo	*Vireo gilvus*	--	--	S5B	MBCA
Whimbrel	*Numenius phaeopus*	--	--	S3B, S4N	MBCA
White-throated Sparrow	*Zonotrichia albicollis*	--	--	S5B	MBCA
White-winged Crossbill	*Loxia leucoptera*	--	--	S5B	MBCA
Wilson's Snipe	*Gallinago delicata*	--	--	S5B	MBCA
Wilson's Warbler	*Cardellina pusilla*	--	--	S4B	MBCA
Winter Wren	*Troglodytes troglodytes*	--	--	S5B	MBCA
Wood Duck	*Aix sponsa*	--	--	S5B	MBCA
Wood Thrush	*Hylocichla mustelina*	--	--	S4B	MBCA
Yellow Warbler	*Setophaga petechia*	--	--	S5B	MBCA
Yellow-bellied Flycatcher	*Empidonax flaviventris*	--	--	S5B	MBCA
Yellow-bellied Sapsucker	*Sphyrapicus varius*	--	--	S5B	MBCA
Yellow-rumped Warbler	*Setophaga coronata*	--	--	S5B	MBCA
Yellow-throated Vireo	*Vireo flavifrons*	--	--	S4B	MBCA
Reptiles					
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	--	--	S5	--
Snapping Turtle	*Chelydra serpentina*	SC	SC	S5	FWCA
Western Painted Turtle	*Chrysemys picta bellii*	--	--	S5	--
Amphibians					
American Toad	*Bufo americanus*	--	--	S5	--
Boreal Chorus Frog	*Pseudacris maculata*	--	--	S5	--
Mink Frog	*Rana septentrionalis*	--	--	S5	--
Northern Green Fro	*Rana clamitans*	--	--	S5	--
Northern Leopard Frog	*Rana pipiens*	NAR	NAR	S5	--
Spring Peeper	*Pseudacris crucifer*	--	--	S5	--
Tetraploid Gray Treefrog	*Hyla versicolor*	--	--	S5	FWCA
Wood Frog	*Rana sylvatica*	--	--	S5	--
Butterflies					
American Painted Lady	*Vanessa virginiensis*	--	--	S5	--
Atlantis Fritillary	*Speyeria atlantis*	--	--	S5	--
Canadian Tiger Swallowtail	*Papilio canadensis*	--	--	S5	FWCA
Clouded Sulphur	*Colias philodice*	--	--	S5	--
Common Wood-Nymph	*Cercyonis pegala*	--	--	S5	--
European Skipper	*Thymelicus lineola*	--	--	SE	--
Great Spangled Fritillary	*Speyeria cybele*	--	--	S5	--
Grey Comma	*Polygonia progne*	--	--	S5	--

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Harris' Checkerspot	*Chlosyne harrisii*	--	--	S4	--
Harvester	*Feniseca tarquinius*	--	--	S4	--
Hoary Comma	*Polygonia gracilis*	--	--	S4	--
Little Wood-Satyr	*Megisto cymela*	--	--	S5	--
Meadow Fritillary	*Boloria bellona*	--	--	S5	--
Milbert's Tortoiseshell	*Nymphalis milberti*	--	--	S5	--
Monarch	*Danaus plexippus*	SC	--	S2N, S4B	FWCA
Mourning Cloak	*Nymphalis antiopa*	--	--	S5	--
Mustard White	*Pieris oleracea*	--	--	S4	--
Northern Cloudy Wing	*Thorybes pylades*	--	--	S5	--
Northern Crescent	*Phycoides pascoensis*	--	--	S5	--
Northern Pearly Eye	*Enodia anthedon*	--	--	S4	--
Orange Sulphur	*Colias eurytheme*	--	--	S5	--
Painted Lady	*Vanessa cardui*	--	--	S5	--
Red Admiral	*Vanessa atalanta*	--	--	S5	--
Silver-bordered Fritillary	*Boloria selene*	--	--	S5	--
Tawny Crescent	*Phyciodes batesii*	--	--	S4	--
Variegated Fritillary	*Euptoieta claudia*	--	--	SNA	--
White Admiral	*Limenitis arthemis*	--	--	S5	--
Odonata					
American Emerald	*Cordulia shurtleffi*	--	--	S5	--
Arrowhead Spiketail	*Cordulegaster obliqua*	--	--	S1	--
Aurora Damsel	*Chromagrion conditum*	--	--	S5	--
Baskettail Sp.	*Epitheca sp.*	--	--	S5	--
Belted Whiteface	*Leucorrhinia proxima*	--	--	S5	--
Canada Darner	*Aeshna canadensis*	--	--	S5	--
Chalk-fronted Corporal	*Ladona julia*	--	--	S5	--
Common Whitetail	*Plathemis lydia*	--	--	S5	--
Dot-tailed Whiteface	*Leucorrhinia intacta*	--	--	S5	--
Duskywing Sp.	*Erynnis sp.*	--	--	S5	--
Four-spotted Skimmer	*Libellula quadrimaculata*	--	--	S5	--
Frosted Whiteface	*Leucorrhinia frigida*	--	--	S5	--
Horned Clubtail	*Arigomphus cornutus*	--	--	S3	--
Hudsonian Whiteface	*Leucorrhinia hudsonica*	--	--	S5	--
Kennedy's Emerald	*Somatochlora kennedyii*	--	--	S4	--
Lilypad Clubtail	*Arigomphus furcifer*	--	--	S3	--
Racket-tailed Emerald	*Dorocordulia libera*	--	--	S5	--
River Jewelwing	*Calopteryx aequabilis*	--	--	S5	--
Saffron-bordered Meadowhawk	*Sympetrum costiferum*	--	--	S4	--
Twelve-spotted Skimmer	*Libellula pulchella*	--	--	S5	--
Twin-spotted Spiketail	*Cordulegaster maculate*	--	--	S4	--
Fish					
Black Crappie	*Pomoxis nigromaculatus*	--	--	S4	--
Blackchin Shiner	*Notropis heterodon*	NAR	--	S4	--
Blacknose Dace	*Rhinichthys atratulus*	--	--	S5	--
Blackside Darter	*Percina maculata*	--	--	S4	--
Brassy Minnow	*Hybognathus hankinsoni*	--	--	S5	--
Brook Stickleback	*Culaea inconstans*	--	--	S5	--
Brown Bullhead	*Ameiurus nebulosus*	--	--	S5	--
Central Mudminnow	*Umbra limi*	--	--	S5	--
Common Shiner	*Luxilus cornutus*	--	--	S5	--
Creek Chub	*Semotilus atromaculatus*	--	--	S5	--
Emerald Shiner	*Notropis atherinoides*	--	--	S5	--

Table A1-B: Compiled Wildlife Species List

Common Name	Latin Name	Federal SARA[1] Status	Provincial SARO[2] Status	Provincial S-Rank[3] (NHIC)	Protective Legislation[4,5,6]
Fathead Minnow	*Pimephales promelas*	--	--	S5	--
Finescale Dace	*Phoxinus neogaeus*	--	--	S5	--
Golden Shiner	*Notemigonus crysoleucas*	--	--	S5	--
Iowa Darter	*Etheostoma exile*	--	--	S5	--
Johnny Darter	*Etheostoma nigrum*	--	--	S5	--
Lake Chub	*Couesius plumbeus*	--	--	S5	--
Mimic Shiner	*Notropis volucellus*	--	--	S5	--
Northern Pearl Dace	*Margariscus margarita*	--	--	S5	--
Northern Pike	*Esox lucius*	--	--	S5	--
Northern Redbelly Dace	*Phoxinus eos*	--	--	S5	--
Pumpkinseed	*Lepomis gibbosus*	--	--	S5	--
Rock Bass	*Ambloplites rupestris*	--	--	S5	--
Sauger	*Sander canadensis*	--	--	S4	--
Shorthead Redhorse	*Moxostoma macrolepidotum*	--	--	S5	--
Smallmouth Bass	*Micropterus dolomieu*	--	--	S5	--
Spottail Shiner	*Notropis hudsonius*	--	--	S5	--
Trout-perch	*Percopsis omiscomaycus*	--	--	S5	--
Walleye	*Sander vitreus*	--	--	S5	--
White Sucker	*Catostomus commersonii*	--	--	S5	--
Yellow Perch	*Perca flavescens*	--	--	S5	--

Notes:
1 SARA = *Species at Risk Act*
2 SARO = Species at Risk in Ontario
3 S-Rank = Provincial rankings as determined by the MNRF (see table below for codes)
4 FWCA = *Fish and Wildlife Conservation Act, 17*
5 MBCA = *Migratory Bird Convention Act, 14*
6 ESA = Ontario's *Endangered Species Act, 2007*

Federal SARA Status		Provincial SARO Status		Provincial S-Rank (NHIC)	
NAR	Not at Risk	NAR	Not at Risk	S1	Critically Imperilled
SC	Special Concern	SC	Special Concern	S2B	Imperilled - Breeding Migrants
THR	Threatened	THR	Threatened	S3?	Vulnerable - Rank Uncertain
END	Endangered	END	Endangered	S4	Apparently Secure
				S4B	Apparently Secure Breeding Migrants
				S4N	Apparently Secure Non-breeding Migrants
				S5	Secure
				S5B	Secure Breeding Migrants
				S5N	Secure Non-breeding Migrants
				SNA	Status Rank Not Applicable
				DD	Data Deficient

newgold™ Rainy River Project

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Federal Condition 5: Health of Aboriginal Peoples

Condition 5.1

The Proponent shall, during the construction, operations, and decommissioning phases of the Designated Project, control exceedances of the Canadian Ambient Air Quality Standards and meet air quality requirements established by Ontario at the nearest human receptor by:

Status: Ongoing

Supporting Analysis:

See supporting analysis outlined in Conditions 5.1.1 to 5.1.6.

Figure 1: North Air Quality Monitoring Station, July 2016

Condition 5.1.1

Implementing fugitive dust best management practices;

Status: Ongoing

Supporting Analysis:

On the Rainy River Project dust is generated from vehicle traffic on gravel road surfaces, crushing and screening rock from onsite quarries for construction materials and drilling and blasting in the open pit.

In order to control dust RRP has been implementing the following methods;

- Following provincially approved Fugitive Dust Management Plans for the construction and operational phases of the project,
- Applying water and calcium chloride on road surfaces and parking lots as required,
- Use of water spraying devices in rock crushing and screening operations,
- Air quality monitoring, and
- Routine visual monitoring.

Moving into 2017 more construction material stockpiles will be generated onsite and New Gold RRP will require further monitoring and implementing soil and erosion control methodologies for controlling dust produced from these.

Condition 5.1.2

Maintaining site roadways to control silt loading;

Status: Ongoing

Supporting Analysis:

Gravel roadways and haul roads run throughout the project site and can create issues with silt loading and runoff primarily during spring melt and high rainfall events in the summer. To reduce the amount of silt loading New Gold has implemented a number of monitoring and mitigation measures to reduce the potential of such. These include;

- Regular road maintenance; application of road surfacing materials (crushed aggregate), calcium application and grading
- Installation of temporary erosion control products around culverts and drainage ditches such as straw bales, rock check dams, coir logs, silt fence and planting vegetation.
- During construction activities attempts are made to limit the impact on along road corridors on existing vegetation. Where economically feasible topsoil is reapplied in ditch lines to promote vigorous and substantial vegetation growth.
- In 2016 the project retained the consulting assistance of a Sediment Erosion Control Specialist who is responsible for monitoring construction designs and activities to ensure that adequate temporary and permanent sediment erosion control methods are implemented.
- Regular monitoring and testing of total suspended solids in creek channels is conducted throughout the Project footprint. These checks allow New Gold RRP to ensure that limited to no sediment is entering creek channels from construction activities and road use. In 2016 the project reported ten sediment related spills to the environment to the Ministry of Environment and Climate Change Spills Action Center. From the ten spills only one was associated with silt loading along a roadway which entered the Clark Creek Channel during spring melt.

Figure 2: South Air Quality Monitoring Station, July 2016

Condition 5.1.3

Using water sprays at the crusher and at active stockpiles;

Status: Ongoing

Supporting Analysis:

Water sprays have been installed at some of the active construction quarries on the project site. The Primary Crusher for rock extracted from the Open Pit will become operational in mid-2017 and is designed to have a water spray dust suppression system in place. As rock extraction advances in the open pit the project will need to monitor and review the expansion of stockpiles and make appropriate decisions on dust control where problems occur.

Condition 5.1.4

Using dust control equipment;

Status: Ongoing

Supporting Analysis:

During 2016 dust control equipment was primarily used on roads, equipment laydown areas and in on-site quarries. Equipment used included; water trucks and water bars. Additional mitigation was implemented by applying calcium to roads when necessary and enforcing reduced speeds on project

roadways. As the project advances in 2017 the need for further dust suppression will occur in the open pit on mine haul roads and in areas where rock drilling is occurring.

Condition 5.1.5

Using low-sulphur diesel equipment and using pollution control equipment on mobile heavy equipment and meeting the Canadian Environmental Protection Act for the emissions from this equipment and vehicles; and

Status: Ongoing

Supporting Analysis:

New Gold RRP Operations utilizes low-sulphur diesel and has pollution control equipment installed on mobile heavy equipment that meets the Canadian Environmental Protection Act for the emissions from equipment and vehicles. All New Gold RRP Operations heavy equipment mobile vehicles are equipped with environmental requirements as per the manufacturers' standards and applicable Ontario legislation.

Condition 5.1.6

Revegetating disturbed areas in a manner that minimizes all exposed dust sources.

Status: Ongoing

Supporting Analysis:

During the spring and summer of 2016 earthworks construction advanced significantly on the project. Final completion of some of these projects allowed for rehabilitation efforts in the form of topsoil and seed application to occur.

Figure 3: PM2.5 Sampler at North Air Quality Station, July 2016

Condition 5.2

The Proponent shall monitor air quality to evaluate the effectiveness of mitigation measures under condition 5.1. Monitoring starts with construction and ceases at the commencement of the decommissioning phase.

Status: Ongoing

Supporting Analysis:

An air quality monitoring program was established during Q2 2015. Two air quality sampling stations were established in May 2015: one to the east of the site on Gallinger Road, shown in Figure 1, and

one to the south of the site near the beginning of the Highway 600 reroute on Tait Road, shown in Figure 2.

These stations are equipped with hi-vol samplers (brush motor and mass flow controlled), PQ200 samplers, dustfall samplers, and passive sampling for SO_2 and NO_2.

The hi-vol samplers measure Total Suspended Particulate (TSP) and metal concentrations averaged over a 24-hour period. The metals and metalloids analyzed include arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V), and zinc (Zn).

The PQ200 samplers measure Particulate Matter 2.5 (PM2.5) concentrations averaged over a 24-hour period. The dustfall samplers measure total dustfall deposition over a 30-day period. Passive sampling measures SO_2 and NO_2 concentrations over a 30-day period. SD 5.2a contains details on the results of 2016.

Ministry of Environment and Climate Change (MOECC) performed an audit on July 28, 2016 on both stations. It was noted that the Gallinger Road Station had one tree located within the 20m allowance on the northwest side. This could potentially cause a problem for the dustfall sampler in several years. The tree was removed in August. Details of this audit can be found in SD 5.2b.

Figure 4: TSP Sampler at North Air Quality Station, July 2016

There were three air quality exceedances in 2016. One exceedance was of TSP at the Tait Road site on April 30, 2016. The Notice of Exceedance can be found in SD 5.2c. This exceedance was attributed to road traffic travelling on the newly graveled Highway 600 realignment.

The second and third exceedances were of $PM_{2.5}$ and both occurred on May 6, 2016 at both the Gallinger Road station (Notice of Exceedance in SD 5.2d) and the Tait Road station (Notice of Exceedance in SD 5.2e).

Aboriginal groups were not notified of these exceedance. In late 2016, RRP initiated a notification system to advise Aboriginal groups of exceedances and going forward Aboriginal groups will be notified.

Condition 5.2.1

The Proponent shall alert the Aboriginal groups in cases of exceedances of the Canadian Ambient Air Quality Standards and air quality requirements established by Ontario at the nearest human receptor.

Status: Ongoing

Supporting Analysis:

New Gold RRP submitted the Ambient Air Quality Monitoring Plan to the Province of Ontario in February 2016 (air quality monitoring stations were installed on site prior to this date). The Province accepted the plan in November 2016. There have been no exceedances in November and December.

In reviewing previous data (January through October), three exceedances were noted. On April 30th, the likely cause of the exceedance was dust from traffic on Highway 600. Two other exceedances (both on May 6th) were identified as being caused by forest fires in the region. Aboriginal groups were not notified of any of the exceedances; Aboriginal groups will be notified of all future exceedances.

Condition 5.3

The Proponent shall monitor wells located within the open pit dewatering zone of influence, used by Aboriginal groups for drinking water, for water quality and quantity. Monitoring starts with construction and ceases after the first 10 years of the decommissioning phase.

Status: Ongoing

Supporting Analysis:

Through the consultation phase and up to 2016, New Gold RRP has not been informed of the locations of any wells utilized by Aboriginal groups within the proximal of the open pit dewatering zone of influence.

Condition 5.3.1

The Proponent shall alert Aboriginal groups who use wells located within the open pit dewatering zone of influence for drinking water in cases of exceedance of water quality standards established by Ontario. The Proponent shall alert these Aboriginal groups as soon as possible once any exceedance is detected.

Status: Ongoing

Supporting Analysis:

To date New Gold has not been informed of any wells used by Aboriginal groups within the Open Pit zone of influence therefore there is no need to alert Aboriginal groups.

Condition 5.4

The Proponent shall monitor key contaminants, including mercury, arsenic, cadmium and lead, for their concentrations in Northern Pike (Esox lucius) and Walleye (Sander vitreus) in the Pinewood River. Monitoring starts with construction and ceases 10 years after the start of the decommissioning phase.

Status: Ongoing

Supporting Analysis:

During the Fall of 2016 New Gold RRP hired Minnow Environmental Inc. to conduct the fish tissue assessment throughout the Pinewood River downstream of the Rainy River Project extending to approximately 450m upstream of the confluence of the Rainy River. The focus of the study was to collect tissue samples from northern pike and walleye. Three tissue samples were collected from each fish; muscle and liver samples were collected to meet regulatory requirements. Each tissue sample was sent to a certified lab to characterize concentrations of contaminants of potential concern which include; arsenic, boron, cadmium, cobalt, copper, chromium, iron, lead, manganese, mercury, molybdenum, nickel, selenium and zinc.

Results obtained from the study indicated; fish communities are consistent with results from previous sampling efforts, muscle, liver and ovary tissue samples contained metals with established tolerable daily intake values and average mercury values were below the human consumption benchmark however in individual samples it was concluded that mercury in northern pike occurs at concentrations above consumption benchmarks in larger fish (greater than 55cm in length).

These values are consistent with previous baseline values. Mercury concentrations in fish muscle tissue is found to often occur naturally in northern environments. The data indicated that the Project

did not have any influence on the concentrations of metals in muscle and liver tissues of the above fish species.

No new information was obtained or new impacts predicted during 2016 related to the RRP, that could affect the health of Aboriginal people. Further detail and data can be found in the SD 5.4a 2016 Fish Tissue Report attached in this document. Further studies will be conducted in 2017.

Condition 5.4.1

The Proponent shall alert the Aboriginal groups in cases of exceedance of provincial, federal or international health-based criteria. The Proponent shall alert these Aboriginal groups as soon as possible once any exceedance is detected.

Status: Ongoing

Supporting Analysis:

The air quality exceedances discussed in Condition 5.2, are considered exceedances of provincial, federal or international health-based criteria. The Aboriginal groups were not notified at the time of the event but will be notified of all future exceedances with the implementation of a notification process in late 2016.

Condition 5.5

The proponent shall consult with the Aboriginal groups on the implementation of conditions 5.2, 5.3 and 5.4.

Status: Ongoing

Supporting Analysis:

New Gold RRP initiated community meetings and established Environmental Monitoring Boards in 2016. The purpose of the meetings and the boards is to ensure community members are engaged in environmental aspects of the project.

New Gold RRP also has regular communication meetings with several Aboriginal groups.

Figures

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Figure 2: South Air Quality Monitoring Station, July 2016 3
Figure 3: PM2.5 Sampler at North Air Quality Station, July 2016 4
Figure 4: TSP Sampler at North Air Quality Station, July 2016 4

Supporting Documentation

SD 5.2a: RRP AQ Monitoring 2016
SD 5.2b: 2016.07.28 MOECC Air Quality Station Audit
SD 5.2c: NOE Tait TSP, 30 April 2016
SD 5.2d: NOE Gallinger PM2.5, 6 May 2016
SD 5.2e: NOE Tait PM2.5, 6 May 2016
SD 5.4a: RRP Fish Tissue Report 2016

AIR QUALITY MONITORING PROGRAM
FIRST QUARTER 2016 REPORT
RAINY RIVER PROJECT

Submitted to:

New Gold Inc.
1111 Victoria Avenue East
Thunder Bay, Ontario
P7C 1B7

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

October 2016

Amec Foster Wheeler Project No.: TC111504.2016.4

October 31, 2016

Amec Foster Wheeler Project No.: TC111504.2016.4

New Gold Inc.
1111 Victoria Avenue East
Thunder Bay, Ontario, P7C 1B7

Attention: Darrell Martindale
Director, Environment & Sustainability

Dear Mr. Martindale:

Re: Rainy River Project, First Quarter 2016 Air Monitoring Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the first quarter 2016 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

There were no measured exceedances of Ministry of the Environment and Climate Change air quality standards, guidelines, or Ambient Air Quality Criteria; nor were there any exceedances of the Canadian Ambient Air Quality Standards for Particulate Matter $(PM)_{2.5}$ or other established criteria, as depicted in Figures CL-1 and CL-2.

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

<Original signed by>

Caleb Vandenberg, P.Eng.
Air Quality Engineer

<Original signed by>

Tony van der Vooren P.Eng, Ph.D, QEP
Senior Air Quality Consultant

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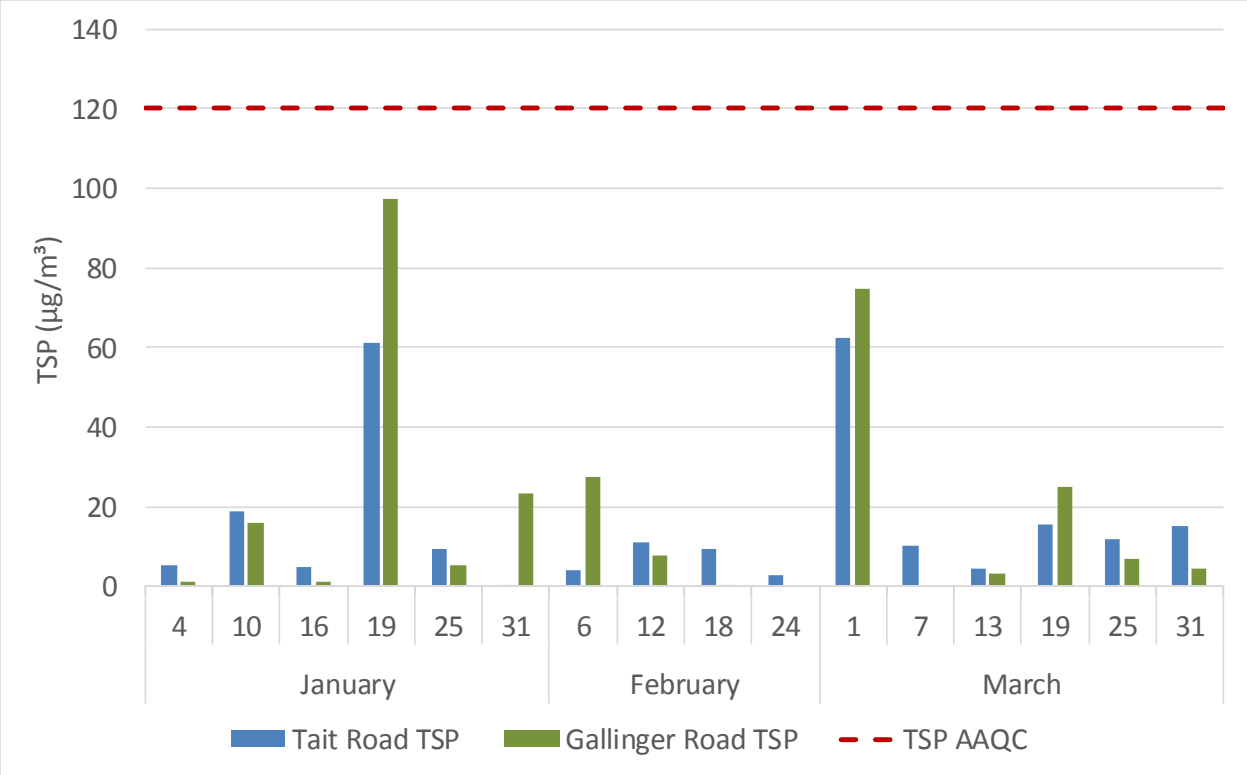

Figure CL-1: TSP Concentrations (2016 - Q1)

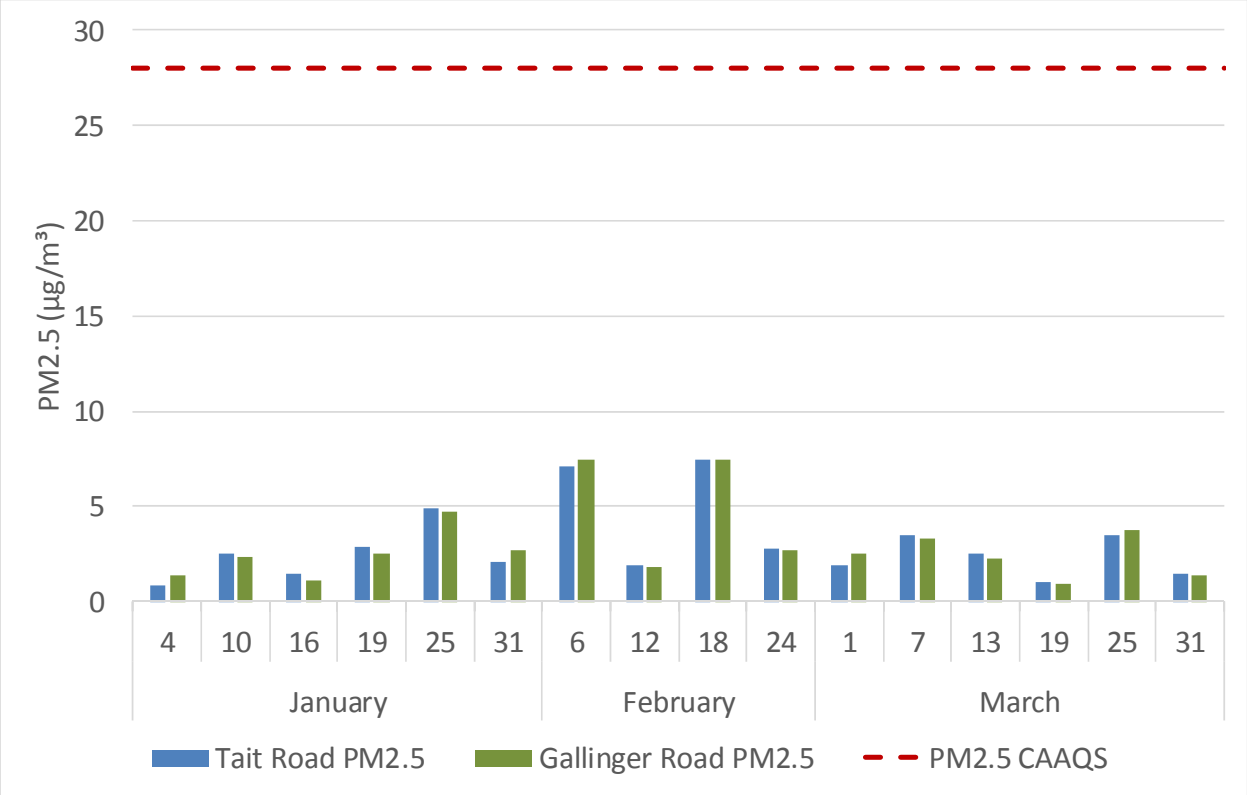

Figure CL-2: $PM_{2.5}$ Concentrations (2016 - Q1)

Revision	Date	Revised By	Description
A	31-March-2016	Caleb Vandenberg	Draft Report
0	1-November-2016	Caleb Vandenberg	Draft Report to NG

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Appendix B-3 SO_2 and NO_2 Passive Sampling Results

ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
ACFM	Cubic Feet Per Minute at Actual Conditions
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
US EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the first quarter (Q1) 2016 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Their locations are shown in the satellite images in Appendix A (Figures 1, 2 and 3).

New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler provided technical guidance to New Gold field staff, communicated with the laboratory staff as required and prepared the data summary report.

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (USEPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in its Operations Manual (MOECC, 2008). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time upon which these parameters are set under Ontario Ambient Air Quality Criteria (AAQC 2012). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included, but were not limited to, the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn).

The lowest detectable limit is 0.1 milligrams (mg) of total particulate, resulting in a method detection limit of 0.06 micrograms per cubic metre (µg/m^3; based on a typical 24-hour sample volume of 1630 m^3).

The metal concentrations were determined with the standard ICP/AES method. The method detection limits are as shown in the data sheets in Appendix B-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the USEPA and the MOECC as described in its Operations Manual (MOECC 2008). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS). Sampling was performed with PQ200 samplers.

The lowest detectable limit is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.3 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and MOECC method DF-E3043A (September 8, 1995). Standard dustfall samplers were used to measure total dustfall deposition. The dustfall jars were lined with a 4 Mil plastic bag as required in the MOECC Operations Manual (MOECC 2008). The method detection limit for total dustfall is 0.3 g/m^2/30 days.

2.4 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data will only be used for screening purposes and potentially for comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objectives (2016) of 30 µg/m^3.

2.5 Field Operations

2.5.1 Hi-Vol Samplers

The two sites were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues, perform flow calibration checks, and conduct preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data. On 22 December 2015 and 22 March 2016, Amec Foster Wheeler staff recalibrated both hi-vol samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to National Institute of Standards and Technology (NIST) traceability in in October 2015. The overall uncertainty of the calibrator was determined to be 0.60% (ambient temperature, barometric pressure and flow), with an average error of -0.01% in the flow at standard conditions (Q_s) relative to the US EPA standard.

2.5.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data.

On 22 December 2015, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in in June 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of 0.06% in the flow at standard conditions (Q_s) relative to the US EPA standard.

On 22 March 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in in June 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of 0.12% in the flow at standard conditions (Q_s) relative to the US EPA standard.

2.5.3 Dustfall Samplers

The dustfall samplers were changed every month, as required.

2.5.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required.

3.0 RESULTS

The results for the Q1 2016 sampling program are presented in Appendix B-1 for the hi-vol data, Appendix B-2 for the dustfall data and Appendix B-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping was a commonly accepted practice, a value of half the detection limit was substituted for concentrations reported by the laboratory as less than the detection limit.

For comparison purposes, the MOECC AAQC and CAAQS values are presented, where available.

A summary of the statistical analyses for Q1 for the TSP and $PM_{2.5}$ concentrations are presented in Tables 1 and 2 respectively. During the quarter, the 1 in 6 day hi-vol sampling schedule comprised a possible total of sixteen (16) sampling days between 1 January and 31 March 2016.

A summary of the statistical analyses for Q1 2016 for the total dustfall data is presented below in Table 3. A summary of the statistical analysis for the first quarter of 2016 for the passive SO_2 and NO_2 results is presented in Table 4.

3.1 Total Suspended Particulates and Metals

The Tait Road station collected sixteen (16) valid samples in Q1 2016, resulting in 100% valid data. The Gallinger Road collected fourteen (14) valid samples in Q1 2016, resulting in 88% valid data. The Gallinger Road HiVol samples on 24 February and 7 March 2016 were both invalidated due to the average sample collection rate exceeding the MOECC criterion.

For the quarter, the arithmetic mean TSP concentrations were comparable, with the Tait Road station averaging 15.5 µg/m^3 and the Gallinger Road station averaging 21.0 µg/m^3. For values below the detection limit, by convention they are substituted with half of the detection limit. The maximum 24-hour concentration for TSP was 62.4 µg/m^3 at the Tait Road station (1 March 2016), and 97.6 µg/m^3 at the Gallinger Road station (19 January 2016); there were no exceedances of the TSP AAQC measured in the quarter.

In the quarter, the 24-hour metal concentrations were all below the applicable O.Reg.419/05 Schedule 3 standards and AAQCs. For three metals (As, Se, and V), statistics were not reported as more than 50% of the results were below the method detection limit.

Table 1: Summary Statistics for Q1 2016 for TSP Data

Statistic	Q1	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	8.67	57
Arithmetic mean (µg/m^3)	15.5	21.0
January Maximum (µg/m^3)	61.2	97.6
February Maximum (µg/m^3)	11.2	27.6
March Maximum (µg/m^3)	62.4	74.7
Maximum 24 hour (µg/m^3)	62.4 (1 Mar.)	97.6 (19 Jan.)
90th percentile	40.0	60.6
95th percentile	61.5	82.7
24-hour AAQC	120	120
No. of valid samples	16	14
% valid data	100	88
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (elements)	0	0

3.2 $PM_{2.5}$

At the both the Tait Road and Gallinger Road stations, sixteen (16) valid samples were collected in Q1 2016, resulting in 100% valid data.

The arithmetic mean $PM_{2.5}$ concentrations for Q1 2016 were comparable with the Tait Road station averaging 2.98 µg/m^3 and the Gallinger Road station averaging 2.52 µg/m^3. For values below the detection limit, by convention they are substituted with a concentration representing half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 7.48 µg/m^3 at the Tait Road station (18 February 2016), and 7.41 µg/m^3 at the Gallinger Road station (6 and 18 February). Both values are lower than the $PM_{2.5}$ AAQC of 30 µg/m^3 and the CAAQS of 28 µg/m^3.

The Q1 $PM_{2.5}$ data is summarized in Table 2.

Table 2: Summary Statistics for Q1 2016 for $PM_{2.5}$ Data

Statistic	Q1	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	2.49	2.52
Arithmetic mean (µg/m^3)	2.98	3.01
January Maximum (µg/m^3)	4.91	4.70
February Maximum (µg/m^3)	7.48	7.41
March Maximum (µg/m^3)	3.49	3.78
Maximum 24 hour (µg/m^3)	7.48 (18 Feb.)	7.41 (6,18 Feb.)
90th percentile	5.99	6.06
95th percentile	7.17	7.41
24-hour CAAQS	28	28
No. of valid samples	16	16
% valid data	100	100
No. samples > CAAQS	0	0

3.3 Total Dustfall

One valid sample was collected at each station each month for dustfall during Q1 2016; each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter. There were no exceedances of the AAQC for dustfall. A summary of the results are presented in Table 3.

The monthly results are shown in Appendix B-2.

Table 3: Summary Statistics for Q1 2016 Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m^2/30d)	0.49	0.55
Maximum (g/m^2/30d)	0.75	0.75
30-day AAQC	7	7
No. > AAQC	0	0
No. valid samples	3	3
% Valid data	100	100

N/A: No applicable criteria

3.4 Passive SO_2 and NO_2

In Q1 of 2016, three (3) valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 and NO_2 data obtained from passive sampling for the 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for comparison with dispersion modelling results. For NO_2 the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3), which is equal to the Ontario 24-hour average AAQC converted to a 30-day averaging period using the methodology outlined in the *Procedure for Preparing and Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objectives (2013) of 30 µg/m^3.

A summary of the passive results is presented in Table 4.

Table 4: Summary Statistics for Q1 2016 for Passive SO_2 and NO_2 Data

	Tait Road (SW)		Gallinger Road (NE)	
Statistic	**SO_2**	**NO_2**	**SO_2**	**NO_2**
Mean	0.4 µg/m^3	1.1 µg/m^3	0.4 µg/m^3	0.7 µg/m^3
Maximum	0.5 µg/m^3	1.3 µg/m^3	0.8 µg/m^3	1.7 µg/m^3
AAQC 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

N/A: No applicable criteria

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

The following samples were collected in Q1 2016:

- Sixteen (16) and fourteen (14) valid TSP samples were collected at the Tait Road and Gallinger Road Stations respectively (100% and 88% valid data respectively), with metal analyses performed on each of the TSP filters;
- Sixteen (16) valid $PM_{2.5}$ samples were collected at each of the two monitoring stations (100% valid data);
- Three (3) valid dustfall samples were collected at each of the two stations; and
- Three (3) valid passive samples for each of SO_2 and NO_2 at each of the two stations.

There were no measured exceedances of MOECC air quality standards, guidelines, or AAQCs, nor were there any exceedances of the Federal CAAQS for $PM_{2.5}$ or other established criteria.

5.0 REFERENCES

Alberta Government. 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

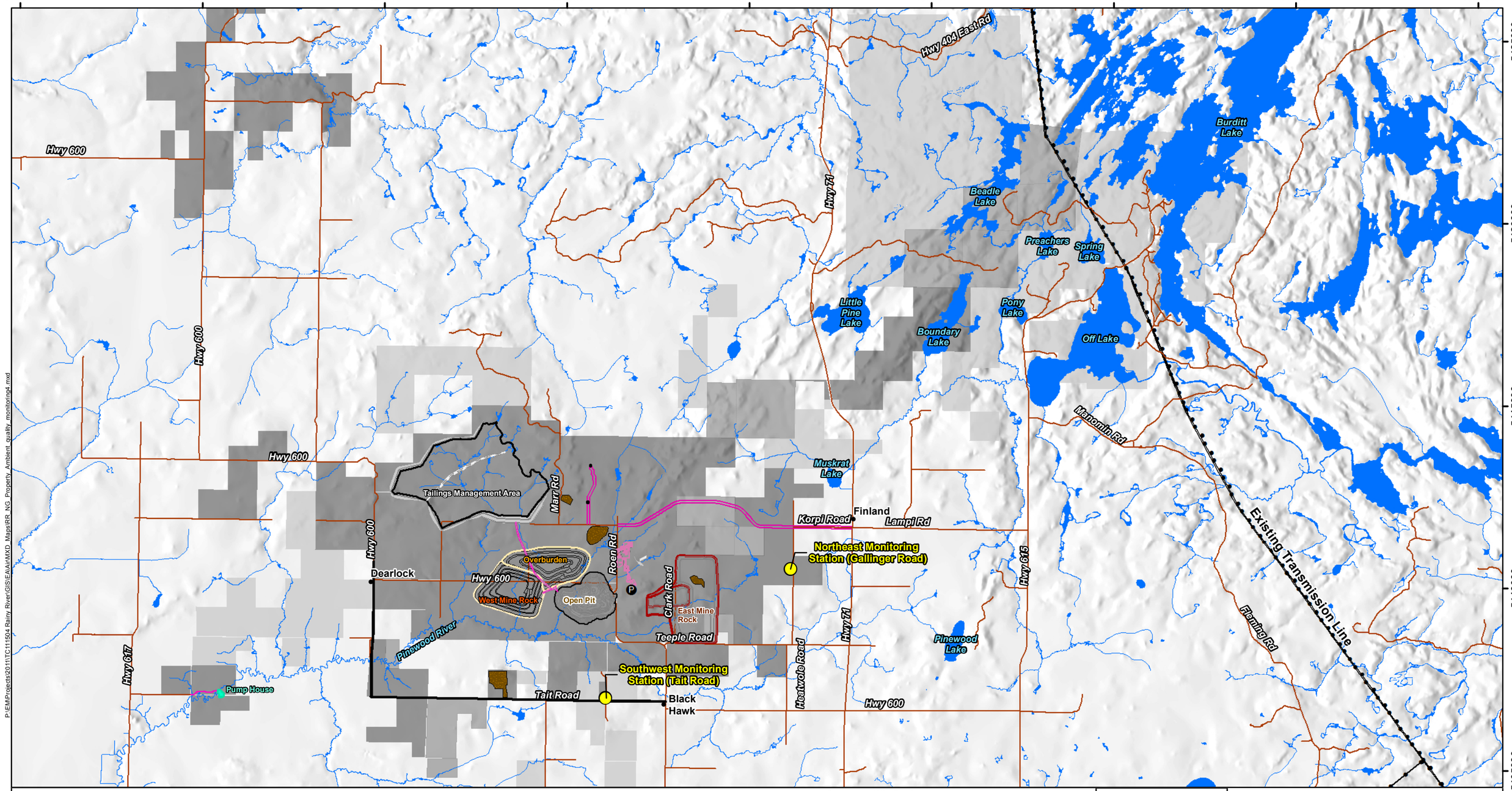
Environment and Climate Change Canada. 2013. Canadian Environmental Protection Act, 1999 *Sections 54 and 55.*

Ministry of the Environment. 2008. Operations Manual for Air Quality Monitoring in Ontario.

Ministry of the Environment. 2009. Procedure for Preparing and Emission Summary and Dispersion Modelling Report.

APPENDIX A

SATELLITE IMAGES OF THE AIR SAMPLING STATION LOCATIONS



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Unpatented Claim (Applied to bring to lease) Acquisition in Progress
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

0 2 4 8 12 16 20 Kilometres

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, June 9, 2015

Datum: NAD83
Projection: UTM Zone 15N

newgold™ Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504 | **FIGURE: 1**

SCALE: 1:100,000 | DATE: August 2015

425950 426000 426050 426100 426150 426200

5407000

5406950

5406900

69 m

TAIT ROAD

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\Air\MXD_Maps\RR_NG_Ambient_quality_monitoring_stationTait.mxd

LEGEND

- Southwest Monitoring Station (Tait Road)
- Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection:
NAD 1983 UTM Zone 15N

N W E S

newgold™ Rainy River Project

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RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504 | **FIGURE: 2**

SCALE: 1:700 | DATE: August 2015

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\MXD_Maps\RR_NG_Ambient quality_monitoring_station_Gallinger.mxd

LEGEND

- Northeast Monitoring Station (Gallinger Road)
- Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection: NAD 1983 UTM Zone 15N

N W E S

newgold™ Rainy River Project — amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 3**
SCALE: 1:700	DATE: August 2015

APPENDIX B

Appendix B-1: TSP Sampling Results

Appendix B-2: Total Dustfall Sampling Results

Appendix B-3: SO_2 AND NO_2 Passive Sampling Results

APPENDIX B-1

TSP SAMPLING RESULTS

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Southwest Tait Road Monitoring Results for TSP and Metals (First Quarter 2016)
(results expressed in µg/m^3)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
January 4, 2016	5.47	0.873	*0.00041*	0.0000641	0.0028	0.000106	0.054	0.110	0.000471	0.00289	0.00049	*0.00041*	*0.00053*	0.0094
January 10, 2016	18.7	2.54	*0.00042*	0.000133	0.0036	0.000354	0.12	0.444	0.000677	0.0104	0.0011	*0.00042*	*0.00054*	0.0091
January 16, 2016	4.99	1.46	*0.00043*	0.000252	0.0034	0.000155	0.082	0.176	0.000509	0.00457	0.00085	*0.00043*	*0.00055*	0.0074
January 19, 2016	61.2	2.83	*0.00044*	0.0000436	0.0052	0.000427	0.080	0.756	0.000831	0.0187	0.0016	*0.00044*	*0.00056*	0.010
January 25, 2016	9.60	4.91	*0.00041*	0.0000943	0.0024	0.0000725	0.091	0.107	0.000525	0.00281	0.00040	*0.00041*	*0.00053*	0.0065
January 31, 2016	0.360	2.04	*0.00042*	0.0000359	0.0056	0.0000537	0.085	0.055	0.000583	0.00153	0.00060	*0.00042*	*0.00054*	0.0046
February 6, 2016	4.15	7.07	*0.00044*	0.000127	0.0053	0.000064	0.046	0.088	0.000961	0.00373	0.00069	*0.00044*	*0.00057*	0.0075
February 12, 2016	11.2	1.91	*0.00046*	0.0000509	0.0056	0.000202	0.068	0.312	0.00102	0.0065	0.0012	*0.00046*	*0.00059*	0.0054
February 18, 2016	9.27	7.48	*0.00044*	0.000112	0.0054	0.000110	0.043	0.113	0.00123	0.00400	0.00096	*0.00044*	*0.00057*	0.014
February 24, 2016	2.65	2.79	*0.00044*	0.0000338	0.0060	0.000110	0.095	0.0624	0.000343	0.00220	0.00079	*0.00044*	*0.00057*	0.0060
March 1, 2016	62.4	1.91	*0.00042*	0.0000649	0.012	0.000891	0.081	1.50	0.00167	0.0365	0.0031	*0.00042*	0.0021	0.011
March 7, 2016	10.3	3.49	*0.00040*	0.0000692	0.0061	0.000139	0.043	0.179	0.00128	0.00549	0.00083	*0.00040*	*0.00051*	0.0088
March 13, 2016	4.55	2.50	*0.00040*	0.0000778	0.0050	0.0000657	0.045	0.093	0.00129	0.00250	0.00062	*0.00040*	*0.00052*	0.0093
March 19, 2016	15.7	1.04	*0.00044*	0.000252	0.0060	0.000170	0.064	0.230	0.000326	0.00581	0.00095	*0.00044*	*0.00056*	0.0037
March 25, 2016	11.8	3.45	*0.00045*	0.0002159	0.0073	0.000136	0.045	0.189	0.001474	0.00685	0.00132	*0.00045*	*0.00058*	0.012
March 31, 2016	15.1	1.46	*0.00045*	0.0000523	0.0029	0.000182	0.040	0.275	0.000396	0.00769	0.00067	*0.00045*	*0.00058*	0.0058

Geometric mean	8.67	2.49	N/R	0.0000852	0.0049	0.000148	0.064	0.187	0.000744	0.00528	0.00089	N/R	N/R	0.0077
Arithmetic mean	15.5	2.98	N/R	0.0001049	0.0053	0.000202	0.068	0.293	0.000849	0.00764	0.0010	N/R	N/R	0.0082
Max. concentration	62.4	7.48	N/R	0.000252	0.012	0.000891	0.12	1.50	0.00167	0.0365	0.0031	N/R	N/R	0.014
Min. concentration	0.360	0.873	N/R	0.0000338	0.0024	0.0000537	0.040	0.055	0.000326	0.00153	0.00040	N/R	N/R	0.0037
90th percentile	40.0	5.99	N/R	0.000234	0.007	0.000390	0.093	0.600	0.00138	0.0146	0.0015	N/R	N/R	0.012
95th percentile	61.5	7.17	N/R	0.000252	0.008	0.000543	0.102	0.941	0.00152	0.0232	0.0020	N/R	N/R	0.012
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC (24 h)	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC (24 h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	16	16	16	16	16	16	16	16	16	16	16	16	16	16
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	1	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	0.5	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

Rainy River Project
Air Quality Monitoring Program
Q1 2016 Report

amec foster wheeler

Northeast Gallinger Road Monitoring Results for TSP and Metals (First Quarter 2016)
(results expressed in µg/m³)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
January 4, 2016	1.10	1.33	*0.00043*	0.0000549	0.0026	0.000142	0.11	0.0392	0.000378	0.00121	0.00042	*0.00043*	*0.00055*	0.0087
January 10, 2016	16.0	2.33	*0.00042*	0.0000627	0.0027	0.0000880	0.25	0.121	0.000504	0.00307	0.00058	*0.00042*	*0.00054*	0.0060
January 16, 2016	1.14	1.12	*0.00042*	0.0000821	0.0029	0.0000588	0.14	0.0407	0.000383	0.00107	0.00063	*0.00042*	*0.00054*	0.0076
January 19, 2016	97.6	2.50	*0.00042*	0.0000747	0.0059	0.000813	0.29	1.415	0.00114	0.0285	0.0023	*0.00042*	0.0014	0.01084
January 25, 2016	5.34	4.70	*0.00041*	0.0000769	0.0026	0.0000489	0.19	0.0569	0.000634	0.00134	0.00042	*0.00041*	*0.00053*	0.00804
January 31, 2016	23.5	2.66	*0.00041*	0.0000517	0.0061	0.000144	0.13	0.262	0.000701	0.00683	0.00092	*0.00041*	*0.00053*	0.00854
February 6, 2016	27.6	7.41	*0.00041*	0.000122	0.0053	0.000171	0.37	0.278	0.000752	0.00911	0.00093	*0.00041*	*0.00053*	0.0073
February 12, 2016	7.83	1.79	*0.00043*	0.000322	0.0071	0.0000978	0.74	0.0674	0.00118	0.00185	0.0014	*0.00043*	*0.00055*	0.0053
February 18, 2016	*0.0296*	7.41	*0.00041*	0.0000591	0.0051	0.0000668	0.0026	0.0633	0.0000786	0.00143	0.00074	*0.00041*	*0.00053*	0.0031
February 24, 2016	—	2.66	—	—	—	—	—	—	—	—	—	—	—	—
March 1, 2016	74.7	2.54	*0.00043*	0.0000642	0.0091	0.000409	0.51	0.673	0.00105	0.017171	0.0017	*0.00043*	*0.00056*	0.0075
March 7, 2016	—	3.29	—	—	—	—	—	—	—	—	—	—	—	—
March 13, 2016	3.07	2.25	*0.00040*	0.0000768	0.0060	0.0000666	0.28	0.107	0.000984	0.00285	0.00077	*0.00040*	*0.00051*	0.0077
March 19, 2016	25.1	0.957	*0.00040*	0.0000945	0.0075	0.000499	0.87	0.673	0.000387	0.0136	0.0014	*0.00040*	*0.00051*	0.0049
March 25, 2016	7.09	3.78	*0.00043*	0.000150	0.0055	0.0000819	0.22	0.102	0.00105	0.00344	0.00081	*0.00043*	*0.00055*	0.0081
March 31, 2016	4.37	1.37	*0.00043*	0.0000549	0.0028	0.0000893	0.39	0.076	0.000388	0.00181	0.00063	*0.00043*	*0.00055*	0.0049

Geometric mean	6.57	2.52	N/R	0.0000831	0.0047	0.000132	0.20	0.145	0.000574	0.00374	0.00086	N/R	N/R	0.0067
Arithmetic mean	21.0	3.01	N/R	0.0000962	0.0051	0.000198	0.32	0.284	0.000687	0.00666	0.00098	N/R	N/R	0.0070
Max. concentration	97.6	7.41	N/R	0.000322	0.0091	0.000813	0.87	1.42	0.00118	0.0285	0.0023	N/R	N/R	0.011
Min. concentration	0.030	0.957	N/R	0.0000517	0.0026	0.0000489	0.0026	0.0392	0.0000786	0.00107	0.00042	N/R	N/R	0.0031
90th percentile	60.6	6.06	N/R	0.000141	0.0074	0.000472	0.67	0.673	0.00111	0.0161	0.0016	N/R	N/R	0.0087
95th percentile	82.7	7.41	N/R	0.000210	0.0080	0.000609	0.79	0.933	0.00115	0.0211	0.0019	N/R	N/R	0.0095
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	14	16	14	14	14	14	14	14	14	14	14	14	14	14
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	1	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	0.5	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	88	100	88	88	88	88	88	88	88	88	88	88	88	88

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to more than 50% of values being less than the detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

APPENDIX B-2

TOTAL DUSTFALL SAMPLING RESULTS

Tait Road Monitoring Results for Dustfall (First Quarter 2016) (results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
January	38	0.2	0.15	0.33
February	24	0.20	0.20	0.39
March	28	0.51	0.15	0.75

Arithmetic mean	0.49
Max. concentration	0.75
Min. concentration	0.33
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Gallinger Road Monitoring Results for Dustfall (First Quarter 2016) (results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
January	38	0.33	0.2	0.5
February	24	0.20	0.20	0.42
March	28	0.57	0.15	0.75

Arithmetic mean	0.55
Max. concentration	0.75
Min. concentration	0.42
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Notes:
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
**Ontario Ambient Air Quality Criteria, 30-day standard

APPENDIX B-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (First Quarter 2016)
(results expressed in µg/m^3)

	Tait Road		Gallinger Road	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
January	0.5	1.1	0.8	1.7
February	0.5	1.3	0.3	0.4
March	0.3	0.8	0.3	0.1
Arithmetic mean	0.4	1.1	0.4	0.7
Max. concentration	0.5	1.3	0.8	1.7
Min. concentration	0.3	0.8	0.3	0.1
AAQC* 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	0	0	0	1
Detection limit	0.26	0.19	0.26	0.19
Half detection limit	0.13	0.09	0.13	0.09

Notes:
All statistics were calculated using 1/2DL for values reported as <DL
All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
*Ontario Ambient Air Quality Criteria

AIR QUALITY MONITORING PROGRAM
SECOND QUARTER 2016 REPORT
RAINY RIVER PROJECT

Submitted to:

New Gold Inc.
1111 Victoria Avenue East
Thunder Bay, Ontario
P7C 1B7

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

October 2016

Amec Foster Wheeler Project No.: TC111504.2016.4

October 31, 2016

Amec Foster Wheeler Project No.: TC111504.2016.4

New Gold Inc.
1111 Victoria Avenue East
Thunder Bay, Ontario
P7C 1B7

Attention: Darrell Martindale
Director, Environment & Sustainability

Dear Mr. Martindale:

Re: Rainy River Project, Second Quarter 2016 Air Monitoring Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the second quarter 2016 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

The key findings of the 2016 Q2 monitoring are as follow:

- On 6 May the Particulate Matter $(PM)_{2.5}$ measured at both stations was higher than the Canadian Ambient Air Quality Standards of 28 µg/m^3 with winds mainly from westerly directions. A Site Notice was issued on this day regarding smoke in the area from fires in Manitoba and the Kenora area.

- On 30 April, the measured Total Suspended Particulate (TSP) concentration exceeded the Ambient Air Quality Criteria of 120 µg/m^3 at the Tait Road Station; the winds on this day were mainly from the northeast such that the station was downwind of McMillan Road and the pre-bypass Highway 600.

Amec Foster Wheeler Environment & Infrastructure
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The measured TSP and $PM_{2.5}$ concentrations for the second quarter 2016 are depicted in Figures CL-1 and CL-2.

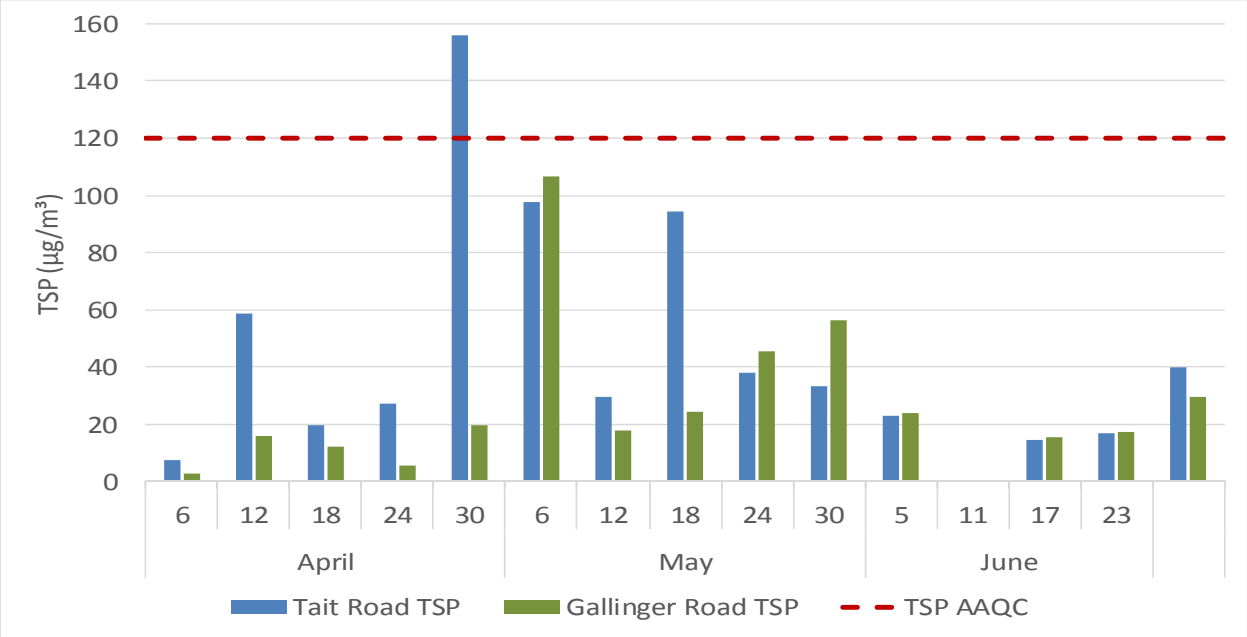

Figure CL-1: TSP Concentrations (2016 – Q2)

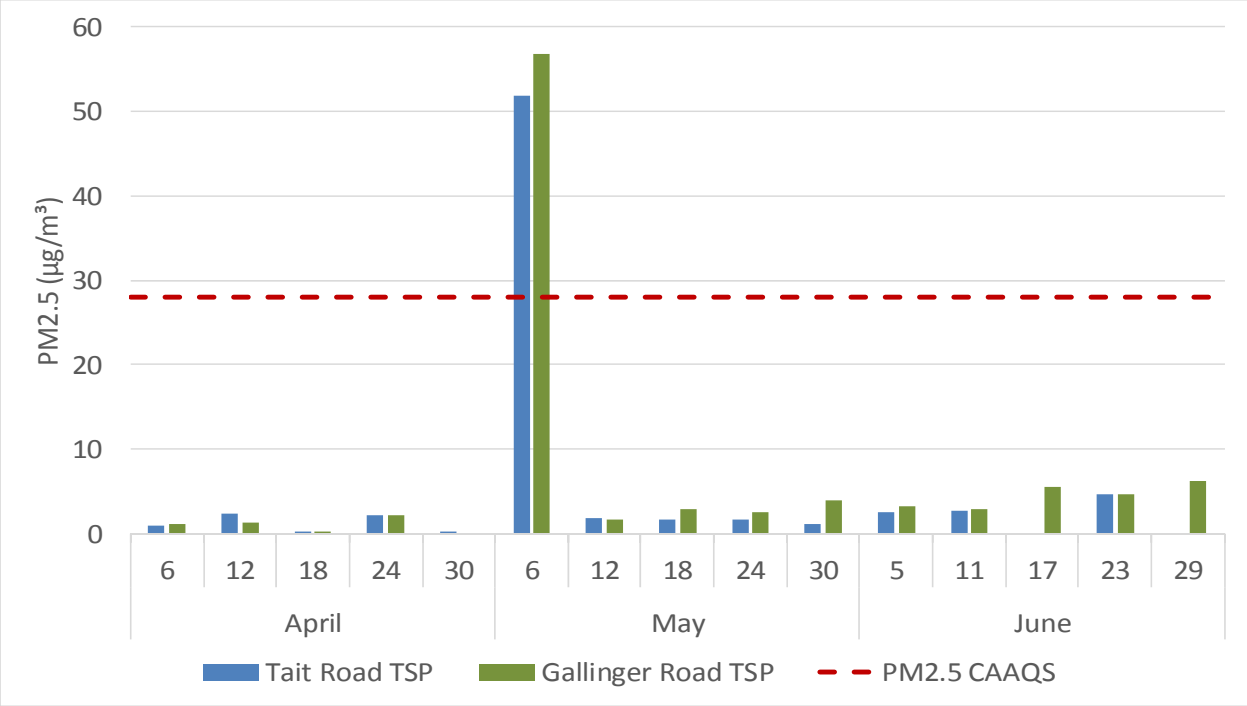

Figure CL-2: $PM_{2.5}$ Concentrations (2016 – Q2)

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

<Original signed by>

Caleb Vandenberg, P.Eng.
Air Quality Engineer

<Original signed by>

Tony van der Vooren P.Eng, Ph.D, QEP
Senior Air Quality Consultant

Revision	Date	Revised By	Description
A	29-September-2016	Caleb Vandenberg	Draft Report
0	1-November -2016	Caleb Vandenberg	Draft Report to NG

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ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
ACFM	Cubic Feet Per Minute at Actual Conditions
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the second quarter (Q2) 2016 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Their locations are shown in the satellite images in Appendix A (Figures 1, 2 and 3).

New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler provided technical guidance to New Gold field staff, communicated with the laboratory staff as required and prepared the data summary report.

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (USEPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in its Operations Manual (MOECC 2008). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time upon which these parameters are set under Ontario Ambient Air Quality Criteria (AAQC 2012). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included, but were not limited to, the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn).

The lowest detectable limit is 0.1 milligrams (mg) of total particulate, resulting in a method detection limit of 0.06 micrograms per cubic metre (µg/m^3; based on a typical 24-hour sample volume of 1630 m^3).

The metal concentrations were determined with the standard ICP/AES method. The method detection limits are as shown in the data sheets in Appendix B-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in its Operations Manual (MOECC 2008). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS). Sampling was performed with PQ200 samplers.

The lowest detectable limit is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.3 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and MOECC method DF-E3043A (8 September 1995). Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days.

2.4 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data will only be used for screening purposes and potentially for comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objectives (2013) of 30 µg/m^3.

2.5 Field Operations

2.5.1 Hi-Vol Samplers

The two sites were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data. On 22 March 2016 and 3 June 2016, Amec Foster Wheeler staff calibrated the hi-vol samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to National Institute of Standards and Technology (NIST) traceability in October 2015. The overall uncertainty of the calibrator was determined to be 0.60% (ambient temperature, barometric pressure and flow), with an average error of -0.01% in the flow at standard conditions (Q_s) relative to the USEPA standard.

2.5.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data.

On 22 March 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in in June 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of 0.12% in the flow at standard conditions (Q_s) relative to the USEPA standard.

On 2 June 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in in December 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of 0.16% in the flow at standard conditions (Q_s) relative to the USEPA standard.

2.5.3 Dustfall Samplers

The dustfall samplers were changed every month, as required.

2.5.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required.

3.0 RESULTS

The results for the Q2 2016 sampling program are presented in Appendix B-1 for the hi-vol data, Appendix B-2 for the dustfall data and Appendix B-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping was a commonly accepted practice, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparison purposes, the MOECC AAQC and CAAQS values are presented, where available.

A summary of the statistical analyses for Q2 for the TSP and $PM_{2.5}$ concentrations are presented in Tables 1 and 2 respectively. During the quarter, the 1 in 6 day hi-vol sampling schedule comprised a possible total of fifteen (15) sampling days between 1 April and 30 June 2016.

A summary of the statistical analyses for Q2 2016 for the total dustfall data is presented below in Table 3. A summary of the statistical analysis for the second quarter of 2016 for the passive SO_2 and NO_2 results is presented in Table 4.

3.1 Total Suspended Particulates and Metals

Both the Tait Road and Gallinger Road stations collected fourteen (14) valid samples in Q2 2016, resulting in 93% valid data. The 11 June 2016 samples at both station were invalidated due to the runtime not meeting MOECC criteria.

For the quarter, the arithmetic mean TSP concentrations were 46.9 µg/m^3 for the Tait Road station and 28.1 µg/m^3 for the Gallinger Road station. For values below the detection limit, by convention they are substituted with half of the detection limit. The maximum 24-hour concentration for TSP was 156 µg/m^3 at the Tait Road station (30 April 2016), and 107 µg/m^3 at the Gallinger Road station (6 May 2016). The 156 µg/m^3 measured at the Tait Road station on 30 April 2016 was the only exceedances of the TSP AAQC measured in the quarter.

In the quarter, the 24-hour metal concentrations were all below the AAQCs. For three metals (As, Se and V), statistics were not reported as more than 50% of the results were below the method detection limit.

Table 1: Summary Statistics for Q2 2016 for TSP Data

Statistic	Q2	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	34.1	19.8
Arithmetic mean (µg/m^3)	46.9	28.1
April Maximum (µg/m^3)	156	19.7
May Maximum (µg/m^3)	97.6	107
June Maximum (µg/m^3)	40.0	29.7
Maximum 24 hour (µg/m^3)	156 (30 April)	107 (6 May)
90th percentile	96.4	53.3
95th percentile	118	74.1
24-hour AAQC	120	120
No. of valid samples	14	14
% valid data	93	93
No. samples > AAQC (particulate)	1	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (elements)	0	0

3.2 $PM_{2.5}$

The Tait Road station collected thirteen (13) valid samples in Q2 2016, resulting in 87% valid data. The Tait Road $PM_{2.5}$ samples on the 17 and 29 of June 2016 were invalidated due to power outages causing the runtimes not to meet MOECC criteria. The Gallinger Road collected fourteen (14) valid samples in Q2 2016, resulting in 93% valid data. The Gallinger Road $PM_{2.5}$ sample on 30 April 2016 was invalidated due to the runtime not meeting MOECC criteria.

The arithmetic mean $PM_{2.5}$ concentrations for Q2 2016 were comparable with the Tait Road station averaging 5.67 µg/m^3 and the Gallinger Road station averaging 6.80 µg/m^3. For values below the detection limit, by convention they are substituted with a concentration representing half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 51.9 µg/m^3 at the Tait Road station (6 May 2016), and 56.9 µg/m^3 at the Gallinger Road station (6 May 2016). The two maximum values were the only concentrations measured in Q2 that exceeded the $PM_{2.5}$ AAQC of 30 µg/m^3 and the CAAQS of 28 µg/m^3 and were measured coincident with a Site Notice regarding smoke from upwind forest fires in Manitoba and the Kenora area.

The Q2 $PM_{2.5}$ data is summarized in Table 2.

Table 2: Summary Statistics for Q2 2016 for $PM_{2.5}$ Data

Statistic	Q2	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	1.44	2.92
Arithmetic mean (µg/m^3)	5.67	6.80
April Maximum (µg/m^3)	2.28	2.12
May Maximum (µg/m^3)	51.9	56.9
June Maximum (µg/m^3)	4.65	6.18
Maximum 24 hour (µg/m^3)	51.9 (6 May)	56.9 (6 May)
90th percentile	4.28	6.06
95th percentile	23.6	23.9
24-hour CAAQS	28	28
No. of valid samples	13	14
% valid data	87	93
No. samples > CAAQS	1	1

3.3 Total Dustfall

One sample was collected at each station each month for dustfall during Q2 2016; each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter. The lab noted a “moderate amount of bugs and plant material” in each jar not noted in the previous quarter. Based on lab comments and the data validation techniques outlined in the Ambient Air Operations Manual (MOECC 2008) contamination by interfering insoluble materials (e.g. excessive algae growth, bird droppings, other significant objects/materials) was noted; only the soluble results were reported though these may has also been impacted by the contamination. As only soluble dustfall is being presented the total dustfall data may be underestimated. A summary of the results are presented in Table 3.

The monthly results are shown in Appendix B-2.

Table 3: Summary Statistics for Q2 2016 Total Dustfall Data

Statistic*	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m^2/30d)	1.23	5.89
Maximum (g/m^2/30d)	1.50	7.50
30-day AAQC	7	7
No. > AAQC	0	1
No. valid samples*	3	3
% Valid data	100	100

N/A: No applicable criteria
N/R: Not Reportable
*Only soluble results reported due to possible insoluble contamination

3.4 Passive SO_2 and NO_2

In Q2 2016, three (3) valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 and NO_2 data obtained from passive samplers for the 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for comparison with dispersion modelling results. For NO_2 the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3), which is equal to the Ontario 24-hour average AAQC converted to a 30-day averaging period using the methodology outlined in the *Procedure for Preparing and Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objectives (2013) of 30 µg/m^3.

A summary of the passive results is presented in Table 4.

Table 4: Summary Statistics for Q2 2016 for Passive SO_2 and NO_2 Data (µg/m^3)

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean	0.3	0.7	0.3	0.8
Maximum	0.5	0.8	0.5	1.1
AAQC 24-hr converted to 30-day	N/A	78	N/A	78
Alberta Ambient Air Quality Objectives 2013	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

N/A: No applicable criteria

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

The following samples were collected in Q2 2016:

- Fourteen (14) valid TSP samples were collected at both the Tait and Gallinger Road Stations respectively (93% valid data), with metal analyses performed on each of the TSP filters. One (1) exceedance of the TSP AAQC was measured on 30 April 2016;
- There were no exceedances of MOECC AAQC for any of the twelve (12) metals analyzed as part of the hi-vol filter analysis;
- Thirteen (13) valid $PM_{2.5}$ samples were collected at the Tait Road station (87% valid data). An exceedance of the $PM_{2.5}$ AAQC was measured at both stations on 6 May 2016 coincident with a Site notice about smoke from upwind forest fires;
- Fourteen (14) valid $PM_{2.5}$ samples were collected at the Gallinger Road station (93% valid data). One (1) exceedance of the $PM_{2.5}$ AAQC was measured on 6 May 2016 coincident with a Site notice about smoke from upwind forest fires;
- One (1) exceedance of the dustfall AAQC was measured in Q2 based on the soluble fraction of the dustfall results. While the insoluble fraction of the results was removed due to noted contamination the insoluble results may have also been contaminated; and
- Three (3) valid passive samples for each of SO_2 and NO_2 at each of the two stations.

5.0 REFERENCES

Alberta Government. 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

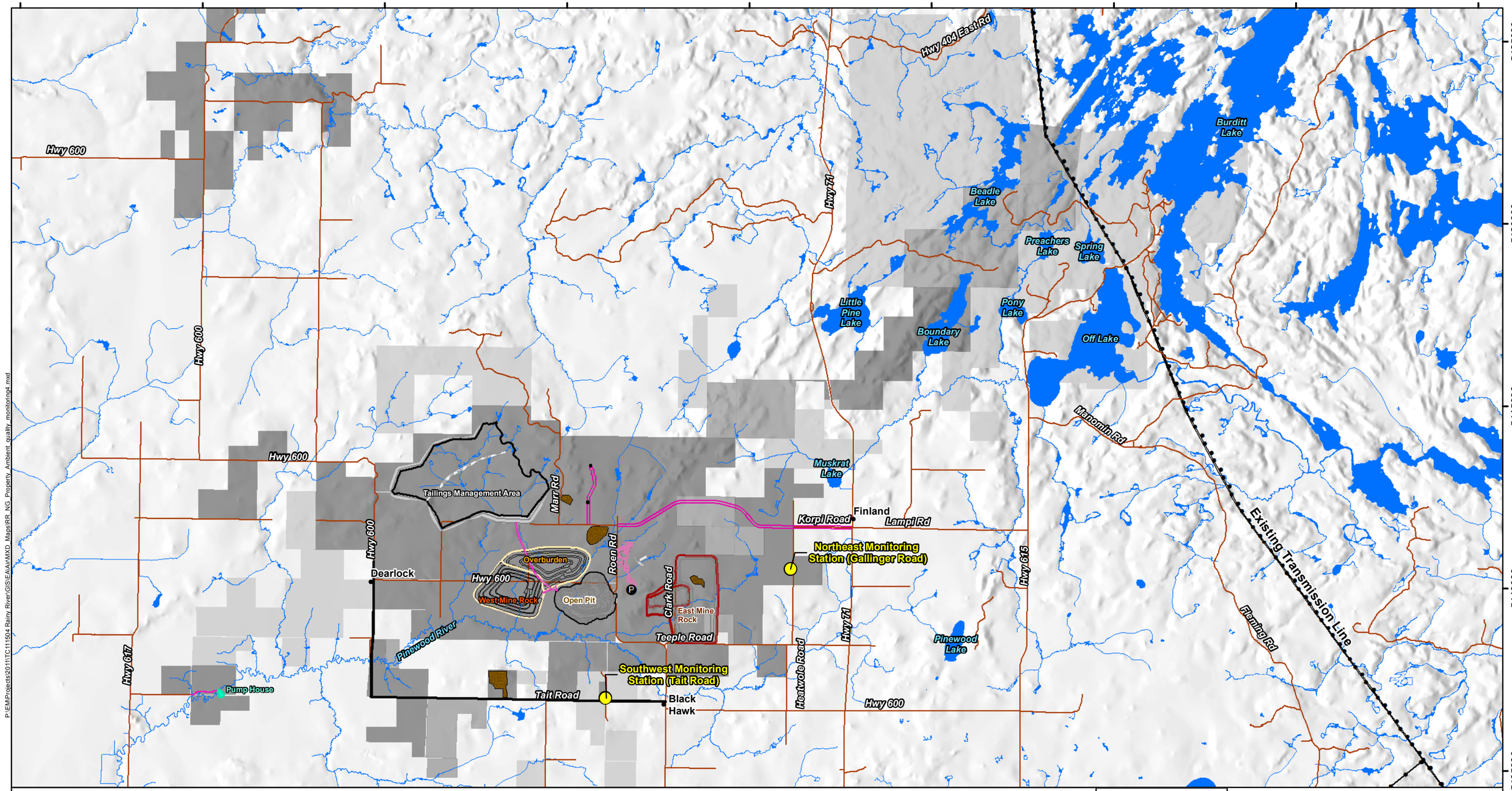
Environment and Climate Change Canada. 2013. Canadian Environmental Protection Act, 1999 *Sections 54 and 55.*

Ministry of the Environment. 2008. Operations Manual for Air Quality Monitoring in Ontario.

Ministry of the Environment. 2009. Procedure for Preparing and Emission Summary and Dispersion Modelling Report.

APPENDIX A

SATELLITE IMAGES OF THE AIR SAMPLING STATION LOCATIONS



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Unpatented Claim (Applied to bring to lease) Acquisition in Progress
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

0 2 4 8 12 16 20 Kilometres

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, June 9, 2015

Datum: NAD83
Projection: UTM Zone 15N

newgold™ Rainy River Project

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RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504 | **FIGURE: 1**

SCALE: 1:100,000 | DATE: August 2015

425950 426000 426050 426100 426150 426200

5407000

5406950

5406900

69 m

TAIT ROAD

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\Air\MXD_Maps\RR_NG_Ambient_quality_monitoring_stationTait.mxd

LEGEND

- Southwest Monitoring Station (Tait Road)
- Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection:
NAD 1983 UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504 | **FIGURE: 2**

SCALE: 1:700 | DATE: August 2015

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\MXD_Maps\RR_NG_Ambient quality_monitoring_station_Gallinger.mxd

LEGEND

- Northeast Monitoring Station (Gallinger Road)
- Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection: NAD 1983 UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 3**
SCALE: 1:700	DATE: August 2015

APPENDIX B

Appendix B-1: TSP Sampling Results

Appendix B-2: Total Dustfall Sampling Results

Appendix B-3: SO_2 AND NO_2 Passive Sampling Results

APPENDIX B-1

TSP SAMPLING RESULTS

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Southwest Tait Road Monitoring Results for TSP and Metals (Second Quarter 2016)
(results expressed in μg/m³)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
April 6, 2016	7.31	1.04	*0.00059*	0.0000529	0.0027	0.000137	0.054	0.0672	0.000496	0.00249	0.00047	*0.00059*	*0.00075*	0.0054
April 12, 2016	58.7	2.28	*0.00057*	0.0000907	0.0043	0.000434	0.072	0.610	0.000920	0.0182	0.0017	*0.00057*	0.0015	0.0069
April 18, 2016	19.8	0.125	*0.00058*	0.0000320	0.0028	0.000181	0.056	0.100	0.000314	0.00438	0.00042	*0.00058*	*0.00074*	0.0031
April 24, 2016	27.2	2.24	*0.00060*	0.0000379	0.0029	0.000208	0.032	0.262	0.000592	0.00798	0.00067	*0.00060*	*0.00076*	0.0045
April 30, 2016	156	*0.021*	*0.00059*	0.0000357	0.0077	0.00135	0.075	1.84	0.00145	0.0694	0.0038	*0.00059*	0.0040	0.012
May 6, 2016	97.6	51.9	*0.00044*	0.000451	0.0058	0.000417	0.076	0.552	0.00143	0.132	0.0014	*0.00044*	*0.00056*	0.040
May 12, 2016	29.7	1.75	*0.00044*	0.0000343	0.0076	0.000660	0.042	0.806	0.000185	0.0217	0.0013	*0.00044*	0.0012	0.0045
May 18, 2016	94.5	1.66	*0.00045*	0.0000855	0.0095	0.00117	0.056	1.07	0.000913	0.0344	0.0022	*0.00045*	0.0019	0.0089
May 24, 2016	37.9	1.58	*0.00043*	0.0000436	0.0065	0.000159	0.047	0.216	0.000327	0.00721	0.00056	*0.00043*	*0.00056*	0.0042
May 30, 2016	33.4	1.08	*0.00044*	0.0000789	0.0085	0.000121	0.055	0.140	0.000294	0.00646	0.00084	*0.00044*	*0.00056*	0.0068
June 5, 2016	23.2	2.62	*0.00043*	0.0000876	0.0050	0.000168	0.077	0.247	0.000288	0.00925	0.00076	*0.00043*	*0.00055*	0.0050
June 11, 2016	—	2.78	0.00016	0.0000441	0.0016	0.000432	0.10	0.720	0.000350	0.0183	0.00078	0.00015	0.0010	0.0046
June 17, 2016	14.7	—	*0.00044*	0.0000368	0.0056	0.000141	0.041	0.192	0.000396	0.00609	0.00090	*0.00044*	*0.00056*	0.0052
June 23, 2016	16.9	4.65	*0.00044*	0.0000480	0.0065	0.000336	0.079	0.474	0.000264	0.0122	0.0012	*0.00044*	*0.00056*	0.0050
June 29, 2016	40.0	—	*0.00044*	0.0000425	0.0065	0.00105	0.047	1.55	0.000524	0.0456	0.0022	*0.00044*	0.0025	0.0073

Geometric mean	34.1	1.44	N/R	0.0000579	0.0050	0.000333	0.058	0.389	0.000479	0.0146	0.0011	N/R	N/R	0.0064
Arithmetic mean	46.9	5.67	N/R	0.0000801	0.0056	0.000464	0.061	0.589	0.000583	0.0264	0.0013	N/R	N/R	0.0082
Max. concentration	156	51.9	N/R	0.000451	0.0095	0.00135	0.10	1.84	0.00145	0.132	0.0038	N/R	N/R	0.040
Min. concentration	7.31	0.021	N/R	0.0000320	0.0016	0.000121	0.032	0.0672	0.000185	0.00249	0.00042	N/R	N/R	0.0031
90th percentile	96.7	4.28	N/R	0.0000895	0.0082	0.00112	0.078	1.36	0.00123	0.0599	0.0022	N/R	N/R	0.011
95th percentile	118	23.6	N/R	0.000199	0.0088	0.00122	0.086	1.63	0.00144	0.0882	0.0027	N/R	N/R	0.020
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	1	0	0	0	0	0	0	0	0	0	0	0	0
AAQC (24 h)	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC (24 h)	1	1	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	14	13	15	15	15	15	15	15	15	15	15	15	15	15
No. samples < mdl	1	3	14	0	0	0	0	0	0	0	0	14	9	0
Detection limit (μg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (μg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	7	23	93	0	0	0	0	0	0	0	0	93	60	0
% valid data	93	87	100	100	100	100	100	100	100	100	100	100	100	100

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
INV: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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Northeast Gallinger Road Monitoring Results for TSP and Metals (Second Quarter 2016)
(results expressed in µg/m^3)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
April 6, 2016	2.98	1.20	*0.00056*	0.0000404	0.0023	0.000174	0.32	0.0199	0.000441	0.000851	0.00045	*0.00056*	*0.00071*	0.0050
April 12, 2016	16.1	1.33	*0.00057*	0.0000428	0.0022	0.000160	0.34	0.155	0.000396	0.00414	0.00047	*0.00057*	*0.00073*	0.0039
April 18, 2016	12.1	0.25	*0.00057*	0.0000466	0.0025	0.000081	0.24	0.029	0.000214	0.00272	0.00032	*0.00057*	*0.00072*	0.0032
April 24, 2016	5.39	2.12	*0.00058*	0.0000199	0.0026	0.000085	0.098	0.042	0.000347	0.00172	0.00037	*0.00058*	*0.00074*	0.0037
April 30, 2016	19.7	—	*0.00054*	0.0000333	0.0024	0.000198	0.46	0.194	0.000381	0.00588	0.00053	*0.00054*	*0.00070*	0.0041
May 6, 2016	107	56.9	*0.00044*	0.000424	0.0049	0.000299	0.11	0.418	0.00134	0.138	0.0011	*0.00044*	*0.00057*	0.0367
May 12, 2016	17.8	1.66	*0.00044*	0.0000240	0.0054	0.0000740	0.09	0.0822	0.000205	0.00444	0.00034	*0.00044*	*0.00057*	0.0035
May 18, 2016	24.3	2.83	*0.00043*	0.0000592	0.0061	0.000131	0.47	0.169	0.000290	0.00617	0.00051	*0.00043*	*0.00056*	0.0038
May 24, 2016	45.7	2.53	*0.00042*	0.0000659	0.0061	0.000152	0.37	0.199	0.000381	0.00743	0.00053	*0.00042*	*0.00054*	0.0044
May 30, 2016	56.5	3.90	*0.00043*	0.0000932	0.0088	0.000224	0.30	0.301	0.000502	0.0120	0.0012	*0.00043*	*0.00055*	0.0099
June 5, 2016	23.9	3.28	*0.00044*	0.0000877	0.0055	0.000156	0.45	0.117	0.000358	0.00523	0.0011	*0.00044*	*0.00056*	0.0090
June 11, 2016	—	2.91	0.00017	0.0000645	0.0015	0.0000963	0.50	0.153	0.000452	0.00526	0.00046	*0.00008*	0.00030	0.0046
June 17, 2016	15.5	5.56	*0.00045*	0.0000747	0.0054	0.0000874	0.47	0.118	0.000689	0.00411	0.0010	*0.00045*	*0.00057*	0.0076
June 23, 2016	17.3	4.57	*0.00043*	0.0000669	0.0057	0.000110	0.62	0.145	0.000249	0.00407	0.00077	*0.00043*	*0.00056*	0.0052
June 29, 2016	29.7	6.18	*0.00045*	0.0000474	0.0058	0.000162	0.30	0.281	0.000500	0.0156	0.00094	*0.00045*	*0.00058*	0.0059

Geometric mean	19.8	2.92	N/R	0.0000577	0.0040	0.000135	0.30	0.123	0.000399	0.00573	0.00061	N/R	N/R	0.0056
Arithmetic mean	28.1	6.80	N/R	0.0000793	0.0045	0.000146	0.34	0.161	0.000450	0.0145	0.00067	N/R	N/R	0.0074
Max. concentration	107	56.9	N/R	0.000424	0.0088	0.000299	0.62	0.418	0.00134	0.138	0.0012	N/R	N/R	0.0367
Min. concentration	2.98	0.249	N/R	0.0000199	0.0015	0.0000740	0.092	0.0199	0.000205	0.000851	0.00032	N/R	N/R	0.0032
90th percentile	53.3	6.00	N/R	0.0000910	0.0061	0.000214	0.486	0.293	0.000614	0.0142	0.0011	N/R	N/R	0.0096
95th percentile	74.1	23.9	N/R	0.000192	0.0069	0.000247	0.533	0.336	0.000884	0.0524	0.0011	N/R	N/R	0.0180
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	1	0	0	0	0	0	0	0	0	0	0	0	0
AAQC	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	1	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	14	14	15	15	15	15	15	15	15	15	15	15	15	15
No. samples < mdl	1	0	14	0	0	0	0	0	0	0	0	15	14	0
Detection limit (µg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	7	0	93	0	0	0	0	0	0	0	0	100	93	0
% valid data	93	93	100	100	100	100	100	100	100	100	100	100	100	100

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to more than 50% of values being less than the detection limit
N/A: Not applicable
INV: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

APPENDIX B-2

TOTAL DUSTFALL SAMPLING RESULTS

Tait Road Monitoring Results for Dustfall (Second Quarter 2016)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
April	30	—	1.50	—
May	29	—	1.44	—
June	28	—	0.75	—

Soluble Arithmetic mean	1.23
Soluble Max. concentration	1.50
Soluble Min. concentration	0.75
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Gallinger Road Monitoring Results for Dustfall (Second Quarter 2016)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
April	30	—	6.7	—
May	29	—	3.48	—
June	28	—	7.50	—

Soluble Arithmetic mean	5.89
Soluble Max. concentration	7.50
Soluble Min. concentration	3.48
AAQC	7
No. > AAQC value**	1
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Notes:
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
**Ontario Ambient Air Quality Criteria, 30-day standard

The Laboratory provided the following notes regarding the dustfall results on 3 October 2016
L1754376-11 (March) had very little particulate noted and no bugs.
L1766318-12 (April)was observed to have a moderate amount of bugs and brown liquid in container (likely decomposing organic material).
L1783884-2 (May) was observed to have a moderate amount of bugs and some plant matter (50% alcohol preservative).
L1795599-21 (June) was observed to have a moderate amount of bugs and was very difficult to filter (again, may be due to organic material).

APPENDIX B-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (Second Quarter 2016)
(results expressed in µg/m^3)

	Tait Road		Gallinger Road	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
April	0.1	0.8	0.1	0.2
May	0.5	0.6	0.5	1.1
June	0.1	0.8	0.1	0.9
Arithmetic mean	0.3	0.7	0.3	0.8
Max. concentration	0.5	0.8	0.5	1.1
Min. concentration	0.1	0.6	0.1	0.2
AAQC* 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	2	0	2	0
Detection limit	0.26	0.19	0.26	0.19
Half detection limit	0.13	0.09	0.13	0.09

Notes:
All statistics were calculated using 1/2DL for values reported as <DL
All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
*Ontario Ambient Air Quality Criteria

AIR QUALITY MONITORING PROGRAM
THIRD QUARTER 2016 REPORT
RAINY RIVER PROJECT

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November 2016

Amec Foster Wheeler Project No.: TC111504.2016.4

Revision	Date	Revised By	Description
A	1-November -2016	Caleb Vandenberg	Draft Report
B	14-November-2016	Linda Lattner	Final Q3 Report

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ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
ACFM	Cubic Feet Per Minute at Actual Conditions
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the third quarter (Q3) 2016 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Their locations are shown in the satellite images in Appendix A (Figures 1, 2 and 3).

New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler provided technical guidance to New Gold field staff, communicated with the laboratory staff as required and prepared the data summary report.

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (USEPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in its Operations Manual (MOECC 2008). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time upon which these parameters are set under Ontario Ambient Air Quality Criteria (AAQC 2012). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included, but were not limited to, the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn).

The lowest detectable limit is 0.1 milligrams (mg) of total particulate, resulting in a method detection limit of 0.06 micrograms per cubic metre (µg/m^3; based on a typical 24-hour sample volume of 1630 m^3).

The metal concentrations were determined with the standard ICP/AES method. The method detection limits are as shown in the data sheets in Appendix B-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in its Operations Manual (MOECC 2008). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS). Sampling was performed with PQ200 samplers.

The lowest detectable limit is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.3 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and MOECC method DF-E3043A (8 September 1995). Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days.

2.4 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data will only be used for screening purposes and potentially for comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objectives (2013) of 30 µg/m^3.

2.5 Field Operations

2.5.1 Hi-Vol Samplers

The two sites were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data. On 3 June 2016 and Amec Foster Wheeler staff calibrated the hi-vol samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to National Institute of Standards and Technology (NIST) traceability in October 2015. The overall uncertainty of the calibrator was determined to be 0.60% (ambient temperature, barometric pressure and flow), with an average error of -0.01% in the flow at standard conditions (Q_s) relative to the USEPA standard.

On 16 September 2016 and Amec Foster Wheeler staff calibrated the hi-vol samplers with a TISCH Environmental flow calibration orfice which was sent to the manufacturer most recently for re-certification to National Institute of Standards and Technology (NIST) traceability in July 2016.

The coefficient of determination (R^2) for the flow calibration orifice was 0.99999 and the BGI DeltaCal had an overall uncertainty of 0.35% (ambient temperature, barometric pressure) relative to the USEPA standard.

2.5.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed that are relevant to this quarter's data.

On 2 June 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in December 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of 0.16% in the flow at standard conditions (Q_s) relative to the USEPA standard.

On 2 June 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was sent to the manufacturer most recently for re-certification to NIST traceability in May 2015. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow), with an average error of -0.07% in the flow at standard conditions (Q_s) relative to the USEPA standard.

2.5.3 Dustfall Samplers

The dustfall samplers were changed every month, as required.

2.5.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required.

3.0 RESULTS

The results for the Q3 2016 sampling program are presented in Appendix B-1 for the particulate/metals data, Appendix B-2 for the dustfall data and Appendix B-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparison purposes, the MOECC AAQC and CAAQS values are presented, where available.

A summary of the statistical analyses for Q2 for the TSP and $PM_{2.5}$ concentrations are presented in Tables 1 and 2 respectively. During the quarter, the 1 in 6 day sampling schedule comprised a possible total of fifteen (15) sampling days between 1 July and 30 September 2016.

A summary of the statistical analyses for Q3 2016 for the total dustfall data is presented below in Table 3. A summary of the statistical analysis for the third quarter of 2016 for the passive SO_2 and NO_2 results is presented in Table 4.

Sample were accidentally collected on 5 August 2016 rather than 4 August 2016 to be on the standard North American sampling schedule. The results were still included as they were considered to still be representative.

3.1 Total Suspended Particulates and Metals

Tait Road collected twelve (12) valid samples and Gallinger Road collected thirteen (13) valid samples in Q3 2016, resulting in 80% and 87% valid data respectively. The 23 July 2016 samples at both stations were invalid due to a sample volume that exceeded the MOECC criterion, and the 29 July 2016 samples were not collected. The 16 August 2016 Tait Road sample was invalidated due to an extended runtime that exceeded the MOECC criterion.

For the quarter, the geometric mean TSP concentrations were 15.4 µg/m^3 for the Tait Road station and 14.6 µg/m^3 for the Gallinger Road station. For values below the detection limit, by convention they are substituted with half of the detection limit. The maximum 24-hour concentration for TSP was 32.6 µg/m^3 at the Tait Road station (5 July 2016), and 27.4 µg/m^3 at the Gallinger Road station (22 August 2016).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. For three metals (As, Se and V), statistics were not reported as more than 50% of the results were below the method detection limit.

There were no exceedances of the MOECC AAQC measured for any of the analysed particulate sizes, metals, or elements.

Table 1: Summary Statistics for Q3 2016 for TSP Data

Statistic	Q3	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	13.7	13.4
Arithmetic mean (µg/m^3)	15.4	14.6
July Maximum (µg/m^3)	32.6	21.9
August Maximum (µg/m^3)	17.0	27.4
September Maximum (µg/m^3)	21.0	22.2
Maximum 24 hour (µg/m^3)	32.6 (5 Jul.)	27.4 (22 Aug.)
90th percentile	21.6	22.2
95th percentile	26.6	24.3
24-hour AAQC	120	120
No. of valid samples	12	13
% valid data	80	87
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (elements)	0	0

3.2 $PM_{2.5}$

The Tait Road station collected thirteen (13) valid samples in Q3 2016, resulting in 87% valid data. The Tait Road $PM_{2.5}$ sample on 29 July 2016 was accidentally not collected and the 28 August 2016 sample was not collected due to a sampler malfunction likely caused by line work along the new highway 600. The Gallinger Road collected thirteen (13) valid samples in Q3 2016, resulting in 87% valid data. The Gallinger Road $PM_{2.5}$ sample on 29 July 2016 was accidentally not collected and the 5 August 2016 sample runtime was not setup correctly resulting in no sample being collected.

The arithmetic mean $PM_{2.5}$ concentrations for Q3 2016 were comparable with the Tait Road station averaging 3.71 µg/m^3 and the Gallinger Road station averaging 4.57 µg/m^3. For values below the detection limit, by convention they are substituted with a concentration representing half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 7.49 µg/m^3 at the Tait Road station (17 July 2016), and 11.19 µg/m^3 at the Gallinger Road station (21 September 2016). There were no $PM_{2.5}$ exceedances of the AAQC of 30 µg/m^3 or CAAQS of 28 µg/m^3 measured in Q3.

The Q3 $PM_{2.5}$ data is summarized in Table 2.

Table 2: Summary Statistics for Q3 2016 for $PM_{2.5}$ Data

Statistic	Q2	
	Tait Road (SW)	**Gallinger Road (NE)**
Geometric mean (µg/m^3)	3.31	4.14
Arithmetic mean (µg/m^3)	3.71	4.57
July Maximum (µg/m^3)	7.49	7.20
August Maximum (µg/m^3)	4.62	4.20
September Maximum (µg/m^3)	4.29	11.2
Maximum 24 hour (µg/m^3)	7.49 (17 July)	11.2 (21 Sept.)
90th percentile	6.06	6.87
95th percentile	6.85	8.80
24-hour CAAQS	28	28
No. of valid samples	13	13
% valid data	87	87
No. samples > CAAQS	0	0

3.3 Total Dustfall

One sample was collected at each station each month for dustfall during Q3 2016; each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter. A summary of the results are presented in Table 3.

The laboratory reported contamination of the dustfall samples, therefore sample validity has not yet been confirmed; the results in Table 3 are therefore cited as ‘pending’ and are dependent upon the outcome of discussions with the laboratory on sample validity.

The monthly results are shown in Appendix B-2.

Table 3: Summary Statistics for Q3 2016 Total Dustfall Data

Statistic*	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m^2/30d)	PENDING	PENDING
Maximum (g/m^2/30d)	PENDING	PENDING
30-day AAQC	7	7
No. > AAQC	PENDING	PENDING
No. valid samples*	3	3
% Valid data	100	100

N/A: No applicable criteria
N/R: Not Reportable
*Only soluble results reported due to possible insoluble contamination

3.4 Passive SO_2 and NO_2

In Q3 2016, three (3) valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 and NO_2 data obtained from passive samplers for the 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for comparison with dispersion modelling results. For NO_2 the monthly results were compared to the MOECC AAQC for 24-hour converted to a 30-day average (78 µg/m^3), which is equal to the Ontario 24-hour average AAQC converted to a 30-day averaging period using the methodology outlined in the *Procedure for Preparing and Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objectives (2013) of 30 µg/m^3.

A summary of the passive results is presented in Table 4.

Table 4: Summary Statistics for Q3 2016 for Passive SO_2 and NO_2 Data ($\mu g/m^3$)

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean	0.1	0.8	0.2	0.8
Maximum	0.1	1.1	0.3	0.9
AAQC 24-hr converted to 30-day	N/A	78	N/A	78
Alberta Ambient Air Quality Objectives 2013	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

N/A: No applicable criteria

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

The following samples were collected in Q3 2016:

- Twelve (12) and thirteen (13) valid TSP samples were collected at the Tait and Gallinger Road Stations respectively (80% and 87% valid data respectively), with metal analyses performed on each of the TSP filters. No exceedances of the TSP AAQC were measured in Q3 2016;
    - There were no exceedances of the MOECC AAQC measured for any of the twelve (12) metals analyzed as part of the hi-vol filter analysis;
- Thirteen (13) valid $PM_{2.5}$ samples at both the Tait Road and Gallinger Road stations (87% valid data each). No exceedances of the $PM_{2.5}$ AAQC were measured in Q3 2016;
- Three (3) dustfall samples at each of the two stations with the results pending due to potential contamination resulting in invalid samples; and
- Three (3) valid passive samples for each of SO_2 and NO_2 at each of the two stations.

5.0 REFERENCES

Alberta Government. 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

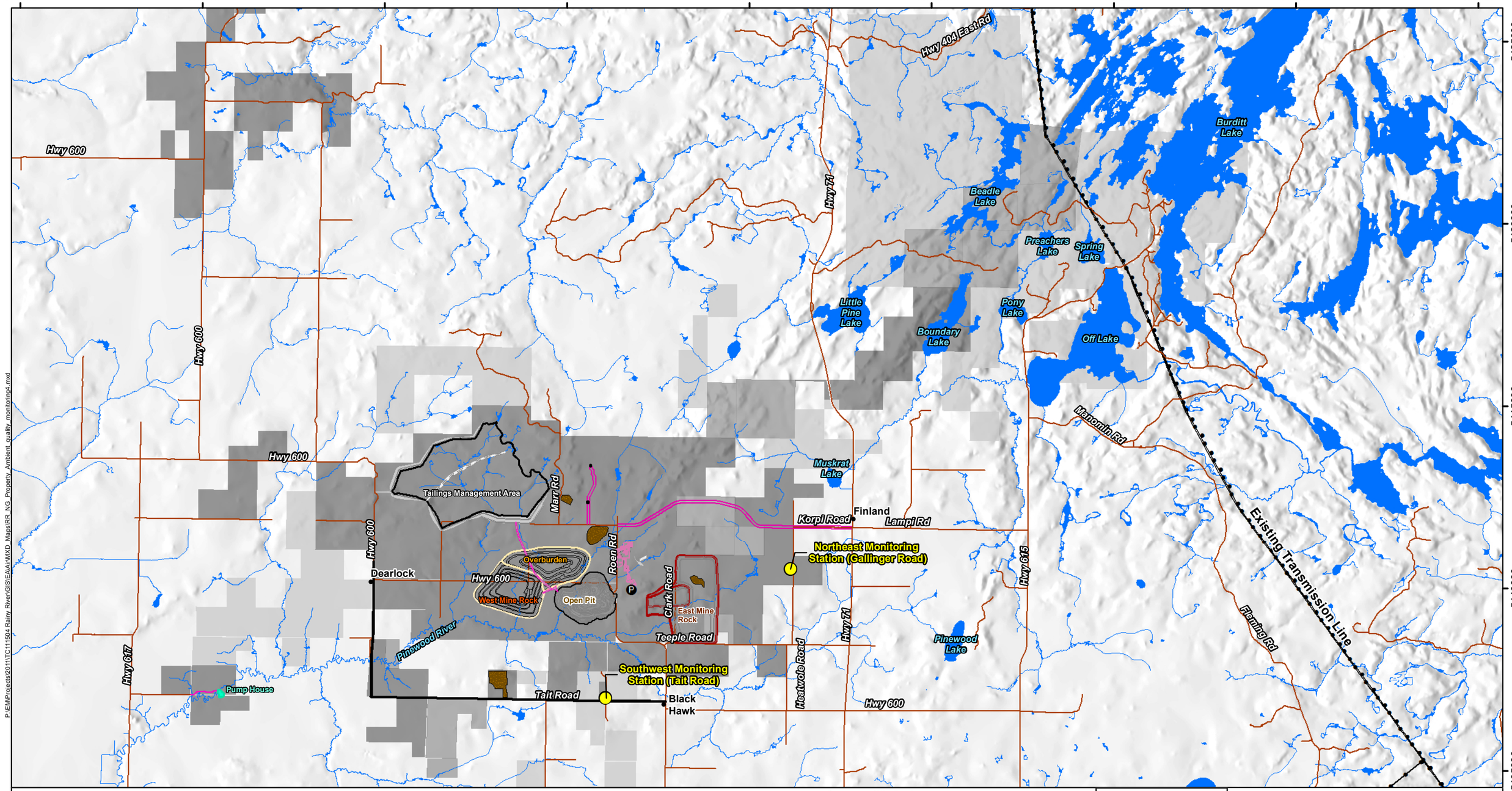
Environment and Climate Change Canada. 2013. Canadian Environmental Protection Act, 1999 S*ections 54 and 55.*

Ministry of the Environment. 2008. Operations Manual for Air Quality Monitoring in Ontario.

Ministry of the Environment. 2009. Procedure for Preparing and Emission Summary and Dispersion Modelling Report.

APPENDIX A

SATELLITE IMAGES OF THE AIR SAMPLING STATION LOCATIONS



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Unpatented Claim (Applied to bring to lease) Acquisition in Progress
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

0 2 4 8 12 16 20 Kilometres

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, June 9, 2015

Datum: NAD83
Projection: UTM Zone 15N

newgold™ Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504 | **FIGURE: 1**

SCALE: 1:100,000 | DATE: August 2015

425950 426000 426050 426100 426150 426200

5407000

5406950

5406900

69 m

TAIT ROAD

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\Air\MXD_Maps\RR_NG_Ambient_quality_monitoring_stationTait.mxd

LEGEND

- Southwest Monitoring Station (Tait Road)
- Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection:
NAD 1983 UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504 | **FIGURE: 2**

SCALE: 1:700 | DATE: August 2015

P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\MXD_Maps\RR_NG_Ambient quality_monitoring_station_Gallinger.mxd

LEGEND

- Northeast Monitoring Station (Gallinger Road)
- Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (August 2014).

Datum & Projection: NAD 1983 UTM Zone 15N

N W E S

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 3**
SCALE: 1:700	DATE: August 2015

APPENDIX B

Appendix B-1: TSP Sampling Results

Appendix B-2: Total Dustfall Sampling Results

Appendix B-3: SO_2 AND NO_2 Passive Sampling Results

APPENDIX B-1

TSP SAMPLING RESULTS

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Southwest Tait Road Monitoring Results for TSP and Metals (Third Quarter 2016)
(results expressed in µg/m^3)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
July 5, 2016	32.6	3.79	*0.00044*	0.0000532	0.0058	0.000433	0.0675	0.537	0.000492	0.0141	0.0013	*0.00044*	*0.00056*	0.0062
July 11, 2016	21.7	4.16	*0.00044*	0.0000651	0.0060	0.000212	0.0567	0.264	0.000758	0.00612	0.00092	*0.00044*	*0.00056*	0.0063
July 17, 2016	21.0	7.49	*0.00043*	0.0000619	0.0260	0.000200	0.0724	0.260	0.000705	0.00687	0.00071	*0.00043*	*0.00056*	0.0069
July 23, 2016	—	6.42	—	—	—	—	—	—	—	—	—	—	—	—
July 29, 2016	—	—	—	—	—	—	—	—	—	—	—	—	—	—
August 5, 2016	7.07	1.58	*0.00045*	0.0000310	0.046	0.0000591	0.104	0.0440	0.000203	0.00582	0.00047	*0.00045*	*0.00057*	0.0050
August 10, 2016	9.44	1.88	*0.00042*	0.0000296	0.046	0.0000675	0.0795	0.0753	0.000168	0.00259	0.00051	*0.00042*	*0.00054*	0.0030
August 16, 2016	—	4.62	—	—	—	—	—	—	—	—	—	—	—	—
August 22, 2016	17.0	4.08	*0.00043*	0.0000546	0.060	0.000139	0.0858	0.213	0.000644	0.00901	0.00072	*0.00043*	*0.00055*	0.0064
August 28, 2016	13.1	—	*0.00042*	0.0000507	0.051	0.000107	0.0771	0.110	0.000952	0.00777	0.00092	*0.00042*	*0.00054*	0.010
September 3, 2016	21.0	4.29	*0.00093*	0.0000651	0.042	0.0000874	0.0595	0.123	0.00106	0.00775	0.00045	*0.00040*	*0.00155*	0.0077
September 9, 2016	13.9	2.29	*0.00094*	0.0000332	0.0034	0.000145	0.150	0.170	0.000507	0.00623	0.00041	*0.00041*	*0.00156*	0.0041
September 15, 2016	9.41	3.29	*0.00096*	0.0000781	0.0039	0.000106	0.0896	0.113	0.000723	0.00616	0.00081	*0.00042*	*0.00160*	0.0063
September 21, 2016	12.6	2.75	*0.00087*	0.0000319	0.0030	0.0000788	0.0695	0.0887	0.000191	0.00417	0.00070	*0.00038*	*0.00145*	0.0038
September 27, 2016	5.89	1.54	*0.00092*	0.0000215	0.0026	0.0000657	0.0575	0.0730	0.000117	0.00245	0.00031	*0.00040*	*0.00153*	0.0041

Geometric mean	13.7	3.31	N/R	0.0000446	0.013	0.000118	0.0777	0.137	0.000436	0.00593	0.00064	N/R	N/R	0.0055
Arithmetic mean	15.4	3.71	N/R	0.0000480	0.025	0.000142	0.0808	0.173	0.000543	0.00659	0.00069	N/R	N/R	0.0058
Max. concentration	32.6	7.49	N/R	0.0000781	0.060	0.000433	0.150	0.537	0.00106	0.0141	0.00135	N/R	N/R	0.010
Min. concentration	5.89	1.54	N/R	0.0000215	0.0026	0.0000591	0.0567	0.0440	0.000117	0.00245	0.00031	N/R	N/R	0.0030
90th percentile	21.6	6.06	N/R	0.0000651	0.050	0.000211	0.103	0.263	0.000933	0.00889	0.00092	N/R	N/R	0.0076
95th percentile	26.6	6.85	N/R	0.0000709	0.055	0.000311	0.125	0.387	0.00100	0.0113	0.00111	N/R	N/R	0.0088
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC (24 h)	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC (24 h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	12	13	12	12	12	12	12	12	12	12	12	12	12	12
No. samples < mdl	2	0	14	2	2	2	2	2	2	2	2	14	14	2
Detection limit (µg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	17	0	117	17	17	17	17	17	17	17	17	117	117	17
% valid data	80	87	80	80	80	80	80	80	80	80	80	80	80	80

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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Northeast Gallinger Road Monitoring Results for TSP and Metals (Third Quarter 2016)
(results expressed in μg/m^3)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
July 5, 2016	15.8	4.12	*0.00044*	0.0000557	0.0054	0.000119	0.444	0.102	0.000365	0.00461	0.000848	*0.00044*	*0.00057*	0.0076
July 11, 2016	13.3	4.41	*0.00044*	0.0000653	0.0057	0.0000613	0.361	0.0610	0.000722	0.00289	0.000622	*0.00044*	*0.00056*	0.0068
July 17, 2016	21.9	7.20	*0.00044*	0.0000684	0.024	0.000115	0.460	0.0552	0.000613	0.00336	0.000495	*0.00044*	*0.00056*	0.0074
July 23, 2016	—	5.58	—	—	—	—	—	—	—	—	—	—	—	—
July 29, 2016	—	—	—	—	—	—	—	—	—	—	—	—	—	—
August 5, 2016	8.00	—	*0.00045*	0.0000447	0.048	0.0000691	0.351	0.0672	0.000194	0.00470	0.000486	*0.00045*	*0.00058*	0.0038
August 10, 2016	10.6	2.46	*0.00044*	0.0000500	0.049	0.000104	0.520	0.0895	0.000182	0.00369	0.000813	*0.00044*	*0.00057*	0.0033
August 16, 2016	16.2	4.20	*0.00042*	0.0000460	0.049	0.000100	0.661	0.151	0.000376	0.00655	0.000625	*0.00042*	*0.00054*	0.0051
August 22, 2016	27.4	3.50	*0.00043*	0.0000725	0.058	0.000170	0.645	0.299	0.000775	0.0115	0.000800	*0.00043*	*0.00056*	0.0073
August 28, 2016	10.5	2.70	*0.00038*	0.0000908	0.048	0.0000595	0.377	0.0741	0.00141	0.00521	0.000600	*0.00038*	*0.00049*	0.0066
September 3, 2016	22.2	4.33	*0.00095*	0.0000654	0.045	0.000115	0.124	0.143	0.00109	0.00832	0.000578	*0.00041*	*0.00159*	0.0077
September 9, 2016	12.1	2.16	*0.00094*	0.0000332	0.039	0.0000527	0.232	0.0451	0.000332	0.00412	0.000407	*0.00041*	*0.00157*	0.0037
September 15, 2016	12.8	3.25	*0.00091*	0.0000489	0.0030	0.0000822	0.286	0.106	0.000628	0.00593	0.000580	*0.00039*	*0.00151*	0.0055
September 21, 2016	14.1	11.2	*0.00095*	0.0000620	0.0032	0.0000677	0.476	0.0601	0.000215	0.00291	0.000431	*0.00041*	*0.00158*	0.0052
September 27, 2016	4.96	4.33	*0.00090*	0.0000317	0.0029	0.0000544	0.141	0.0161	0.000150	0.00164	0.000323	*0.00039*	*0.00150*	0.0050

Geometric mean	13.4	4.14	N/R	0.0000542	0.017	0.0000845	0.350	0.0789	0.000430	0.00448	0.000564	N/R	N/R	0.0056
Arithmetic mean	14.6	4.57	N/R	0.0000565	0.029	0.0000900	0.391	0.0977	0.000542	0.00503	0.000585	N/R	N/R	0.0058
Max. concentration	27.4	11.2	N/R	0.0000908	0.058	0.000170	0.661	0.299	0.00141	0.0115	0.000848	N/R	N/R	0.0077
Min. concentration	4.96	2.16	N/R	0.0000317	0.0029	0.0000527	0.124	0.0161	0.000150	0.00164	0.000323	N/R	N/R	0.0033
90th percentile	22.2	6.87	N/R	0.0000717	0.049	0.000118	0.620	0.150	0.00102	0.00796	0.000810	N/R	N/R	0.0076
95th percentile	24.3	8.80	N/R	0.0000798	0.053	0.000139	0.651	0.210	0.00122	0.00958	0.000827	N/R	N/R	0.0077
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	13	13	13	13	13	13	13	13	13	13	13	13	13	13
No. samples < mdl	1	1	14	1	1	1	1	1	1	1	1	14	14	1
Detection limit (μg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (μg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	8	8	108	8	8	8	8	8	8	8	8	108	108	8
% valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to more than 50% of values being less than the detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

APPENDIX B-2

TOTAL DUSTFALL SAMPLING RESULTS

Tait Road Monitoring Results for Dustfall (Third Quarter 2016) (results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
July	34	PENDING	PENDING	PENDING
August	28	PENDING	PENDING	PENDING
September	31	PENDING	PENDING	PENDING

Arithmetic mean	PENDING
Max. concentration	PENDING
Min. concentration	PENDING
AAQC	7
No. > AAQC value**	PENDING
No. of valid samples	3
% Valid data	100
No. samples < mdl	1
Detection limit	0.3
Half detection limit	0.15

Gallinger Road Monitoring Results for Dustfall (Third Quarter 2016) (results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
July	34	PENDING	PENDING	PENDING
August	28	PENDING	PENDING	PENDING
September	31	PENDING	PENDING	PENDING

Arithmetic mean	PENDING
Max. concentration	PENDING
Min. concentration	PENDING
AAQC	7
No. > AAQC value**	PENDING
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Notes:
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
INV: Invalid Sample
**Ontario Ambient Air Quality Criteria, 30-day standard

APPENDIX B-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (Third Quarter 2016)
(results expressed in µg/m^3)

	Tait Road		Gallinger Road	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
April	0.1	0.4	0.1	0.6
May	0.1	0.8	0.1	0.8
June	0.1	1.1	0.3	0.9

Arithmetic mean	0.1	0.8	0.2	0.8
Max. concentration	0.1	1.1	0.3	0.9
Min. concentration	0.1	0.4	0.1	0.6
AAQC* 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	3	0	2	0
Detection limit	0.26	0.19	0.26	0.19
Half detection limit	0.13	0.09	0.13	0.09

Notes:

All statistics were calculated using 1/2DL for values reported as <DL

All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C

N/R: Statistics not reported due to high % of values <detection limit

N/A: Not applicable

INV: Invalid Sample

*Ontario Ambient Air Quality Criteria

AIR QUALITY MONITORING PROGRAM
FOURTH QUARTER 2016 REPORT
RAINY RIVER PROJECT

Submitted to:

New Gold Inc.
Rainy River Project
5967 Highway 11/71
P.O. Box 5
Emo, Ontario, Canada P0W IE0

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

February 2017

Amec Foster Wheeler Project No.: TC111504

February 13, 2017

Amec Foster Wheeler Project No.: TC111504

New Gold Inc.
Rainy River Project
5967 Highway 11/71
P.O. Box 5
Emo, Ontario, Canada P0W IE0
Attention: Darrell Martindale
Environment Manager

Dear Mr. Martindale:

Re: Rainy River Project, Fourth Quarter 2016 Air Monitoring Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the Fourth Quarter 2016 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

The key findings of the Q4 2016 monitoring are as follow:

- There were no exceedances of the $PM_{2.5}$, TSP, or Metals' AAQC measured in Q4 2016.

The measured TSP and $PM_{2.5}$ concentrations for the Fourth Quarter 2016 are depicted in Figures CL-1 and CL-2.

Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd. E., Suite 110
Mississauga, Ontario, CANADA L4Z 3K7
Phone 905.568.2929

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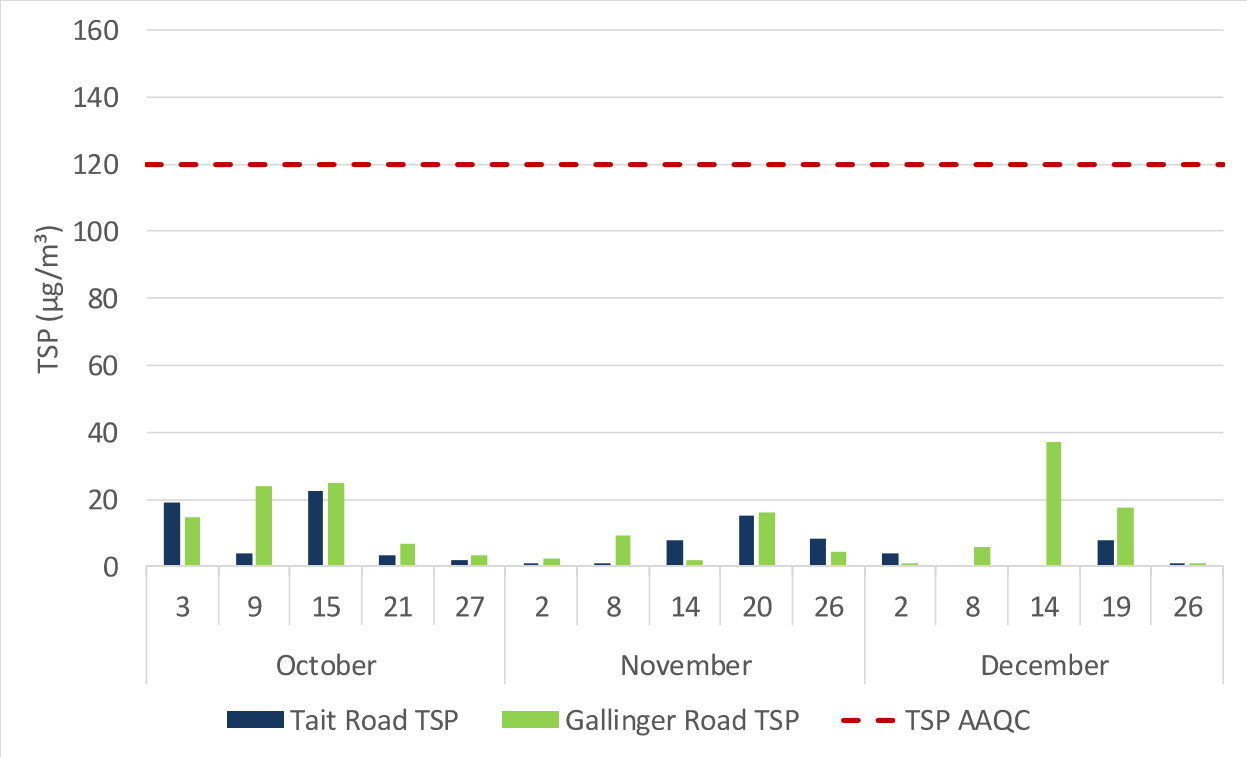

Figure CL-1: TSP Concentrations (2016 – Q4)

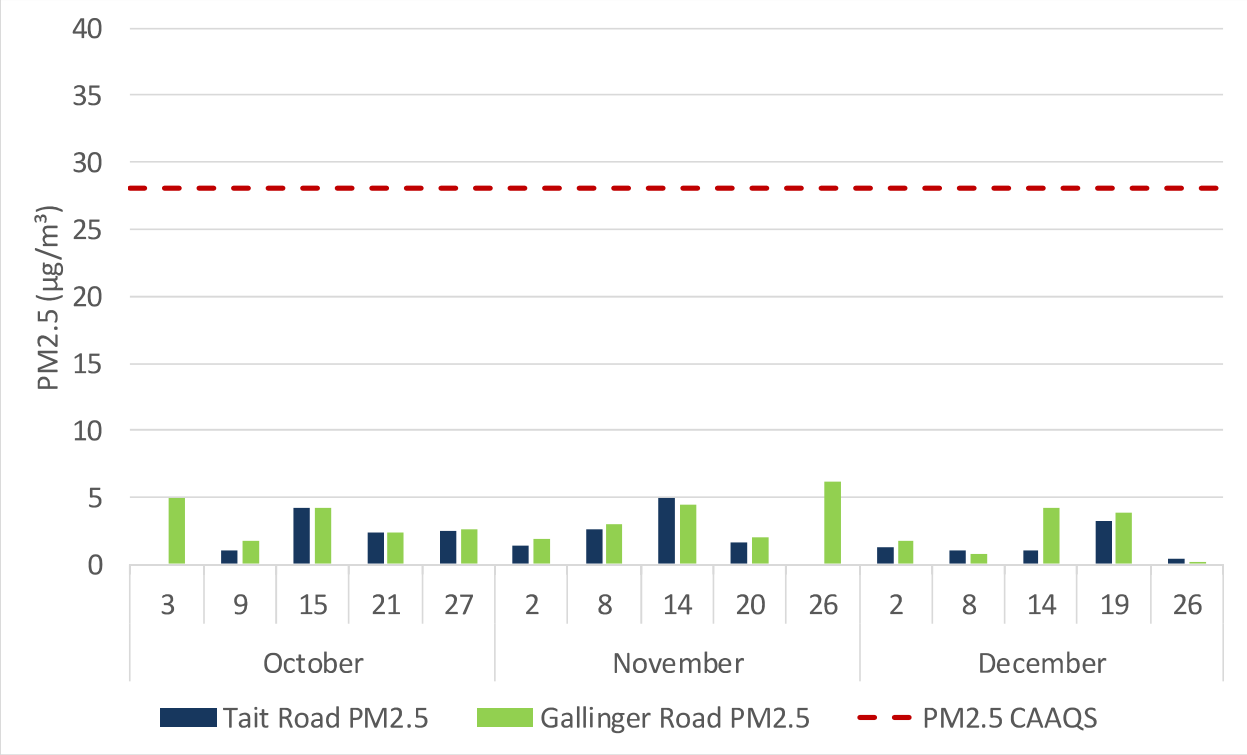

Figure CL-2: $PM_{2.5}$ Concentrations (2016 – Q4)

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

<Original signed by>	<Original signed by>
	Ph.D., QEP
Air Quality Engineer	Senior Air Quality Consultant

Revision	Date	Revised By	Description
A	February 2, 2017	Ryan Fletcher	Draft Report
B	February 13, 2017	Linda Lattner	Final Report

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ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the Fourth Quarter (Q4) 2016 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Their locations are shown in the satellite images in Appendix A (Figures 1, 2 and 3).

New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (US EPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in the Operations Manual (MOECC, 2008). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time of the relevant Ontario Ambient Air Quality Criteria (AAQC; MOECC, 2012); particulate samples are collected every sixth day on the North American schedule (USEPA, 2017). Sampling was performed with Hi-Vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as arsenic that has both metallic and non-metallic compounds.

The lowest detectable limit is 2.3 milligrams (mg) of total particulate on the filter, resulting in a method detection limit of 1.4 micrograms per cubic metre ($\mu g/m^3$) based on a typical 24-hour sample volume of 1630 m^3.

The metal concentrations were determined with the standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) method. The method detection limits are as shown in the data sheets in Appendix B-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in the Operations Manual (MOECC, 2008). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS) ; particulate samples are collected every sixth day on the North American schedule (USEPA, 2017). Sampling was performed with PQ200 samplers.

The lowest detectable limit on the Teflon filters is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 $\mu g/m^3$ (based on a typical 24-hour sample volume of 24 m^3).

2.3 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and MOECC method DF-E3043A (July 4, 2016). Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days.

2.4 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 $\mu g/m^3$) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC, 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 $\mu g/m^3$ (AEP, 2016).

2.5 Field Operations

2.5.1 Hi-Vol Samplers

The two stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed during this quarter:

- On September 16, 2016, Amec Foster Wheeler staff calibrated the Hi-Vol samplers with a TISCH Environmental flow calibration orifice which was re-certified to National Institute of Standards and Technology (NIST) traceability in July 2016. The coefficient of determination (R^2) for the flow calibration orifice was 0.99999. Temperature and pressure readings were taken from the BGI flow calibrator used for the PQ200s.

- On December 20, 2016, Amec Foster Wheeler staff calibrated the Hi-Vol samplers with a BGI digital flow calibrator which was re-certified to National Institute of Standards and Technology (NIST) traceability in July 2016. The overall uncertainty of the calibrator was

determined to be 0.60% (ambient temperature, barometric pressure and flow) relative to the US EPA standard.

There were no MOECC audits during this quarter.

2.5.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Two calibrations were performed during this quarter:

- On September 16, 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was re-certified to NIST traceability in May 2016. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow) relative to the US EPA standard.

- On December 20, 2016, Amec Foster Wheeler staff recalibrated both PQ200 samplers with a BGI flow calibrator which was re-certified to NIST traceability in May 2016. The overall uncertainty of the calibrator was determined to be 0.35% (ambient temperature, barometric pressure and flow) relative to the US EPA standard.

There were no MOECC audits during this quarter.

2.5.3 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month, as required. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

2.5.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required. Permeation filters were kept in filter cassettes inside a Ziploc bags until deployed to prevent premature exposure. After the sample is collected, the filter is placed back in its cassette inside a Ziploc bag for shipment to the lab.

3.0 RESULTS

The results for the Q4 2016 sampling program are presented in Appendix B-1 for the particulate and metals data, Appendix B-2 for the dustfall data and Appendix B-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available.

A summary of the statistical analyses for Q4 2016 for the TSP and $PM_{2.5}$ concentrations is presented in Tables 1 and 2 respectively. During the quarter, the 1 in 6 day sampling schedule results in a possible total of fifteen (15) sampling days between October 1 and December 31, 2016.

A summary of the statistical analyses for Q4 2016 for the total dustfall data is presented below in Table 3.

A summary of the statistical analysis for the Q4 2016 passive SO_2 and NO_2 results is presented in Table 4.

The samples scheduled for December 20, 2016 were collected on December 19, 2016 in order that Amec Foster Wheeler field staff could perform equipment calibrations.

3.1 Total Suspended Particulates and Metals

The Tait Road station collected thirteen (13) valid samples and the Gallinger Road station collected fifteen (15) valid samples in Q4 2016, resulting in 87% and 100% valid data respectively. The December 8, 2016 and December 14, 2016 samples at the Tait Road station were invalid due to insufficient sample volume; seasonal temperature changes and slightly low sample times resulted in the volume collected being more than 10% under to desired 1632m^3 target volume

For the quarter, the geometric mean TSP concentrations were 4.19 µg/m^3 for the Tait Road station and 6.32 µg/m^3 for the Gallinger Road station. Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 22.4 µg/m^3 at the Tait Road station (October 15, 2016), and 37.2 µg/m^3 at the Gallinger Road station (December 14, 2016).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. The arsenic, selenium, and vanadium statistics were not reported as more than 50% of the results were below the method detection limit.

Appendix B-1 presents individual sample data.

The Q4 2016 TSP summary statistics are summarized in Table 1.

There were no exceedances of the MOECC AAQC measured for any of TSP metals, or metalloids in Q4 2016.

Table 1: Summary Statistics for Q4 2016 for TSP Data

Statistic	Q4	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	4.2	6.3
Arithmetic mean (µg/m^3)	7.4	11.3
October Maximum (µg/m^3)	22.4	25.1
November Maximum (µg/m^3)	15.4	15.9
December Maximum (µg/m^3)	7.7	37.2
Maximum 24 hour (µg/m^3)	22.4 (Oct.15)	37.2 (Dec.14)
90th percentile	18.3	24.7
95th percentile	20.4	28.7
24-hour AAQC	120	120
No. of valid samples	13	15
% valid data	87	100
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (metalloids)	0	0

3.2 $PM_{2.5}$

The Tait Road station collected thirteen (13) valid samples and the Gallinger Road station collected fifteen (15) valid samples in Q4 2016, resulting in 87% and 100% valid data respectively. The Tait Road $PM_{2.5}$ samples on October 3, 2016 and November 26, 2016 were not collected due to a sampler malfunction; brownouts caused by line work on the highway 600 reroute were suspected as the cause and a backup battery supply was installed during the December 2016 calibration

Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 4.95 µg/m^3 at the Tait Road station (November 14, 2016), and 6.12 µg/m^3 at the Gallinger Road station (November 26, 2016). There were no $PM_{2.5}$ exceedances of the AAQC of 30 µg/m^3 or CAAQS (ECCC, 2013) of 28 µg/m^3 measured in Q4 2016. Appendix B-1 presents individual sample data.

The Q4 2016 $PM_{2.5}$ summary statistics are summarized in Table 2.

There were no exceedances of the $PM_{2.5}$ CAAQS in Q4 2016.

Table 2: Summary Statistics for Q4 2016 for $PM_{2.5}$ Data

Statistic	Q4	
	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (µg/m^3)	2.13	2.92
October Maximum (µg/m^3)	4.20	4.99
November Maximum (µg/m^3)	4.95	6.12
December Maximum (µg/m^3)	3.29	4.24
Maximum 24 hour (µg/m^3)	4.95 (Nov.14)	6.12 (Nov.26)
90th percentile	4.02	4.79
95th percentile	4.50	5.33
24-hour CAAQS	28	28
No. of valid samples	13	15
% valid data	87	100
No. samples > CAAQS	0	0

3.3 Total Dustfall

In Q4 2016, three (3) valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter.

A summary of the results are presented in Table 3 and the monthly results are presented in Appendix B-2.

There were no exceedances of the dustfall MOECC AAQC measured in Q4 2016.

Table 3: Summary Statistics for Q4 2016 Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean ($g/m^2/30d$)	0.79	0.90
Maximum ($g/m^2/30d$)	1.3	1.5
30-day AAQC	7	7
No. > AAQC	0	0
No. valid samples*	3	3
% Valid data	100	100

N/A: No applicable criteria
N/R: Not Reportable

3.4 Passive SO_2 and NO_2

In Q4 2016, three (3) valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 $\mu g/m^3$) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC, 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 $\mu g/m^3$ (AEP, 2016).

A summary of the passive results are presented in Table 4 and the monthly results are presented in Appendix B-3.

Table 4: Summary Statistics for Q4 2016 for Passive SO_2 and NO_2 Data

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m³)	0.5	1.3	0.4	2.1
Maximum (µg/m³)	0.5	1.7	0.5	2.6
AAQC 24-hr converted to 30-day (µg/m³)	N/A	78	N/A	78
Alberta AAQO (µg/m³)	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

N/A: No applicable criterion

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

A summary of the Q4 2016 air quality sampling program is provided below:

- There were 28 valid TSP samples collected (93% sample validity), with metal and metalloid (arsenic) analyses performed on each of the TSP filters. No exceedances of the AAQC were measured for TSP, or for any of the metals and metalloids.
- There were 28 valid $PM_{2.5}$ samples collected (93% sample validity), and no exceedances of the CAAQS were measured.
- Six dustfall samples were collected (100% sample validity), and no exceedances of the AAQC were measured.
- Six valid passive samples for each of SO_2 and NO_2 were collected (100% sample validity). There were no exceedances of AEP Criterion for SO_2 or of the 30-day equivalent AAQC for NO_2.
- There were two calibrations of the TSP Hi-Vols and PQ200s performed in Q4 2016, and no MOECC audits.

5.0 REFERENCES

Alberta Environment and Parks (AEP). 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

American Society for Testing and Materials (ASTM). 2004. Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter).

Environment and Climate Change Canada (ECCC). 2013. Canadian Environmental Protection Act, 1999 S*ections 54 and 55.* Ministry of the Environment and Climate Change (MOECC). 2008. Operations Manual for Air Quality Monitoring in Ontario.

Ministry of the Environment and Climate Change (MOECC). 2009. Procedure for Preparing and Emission Summary and Dispersion Modelling Report.

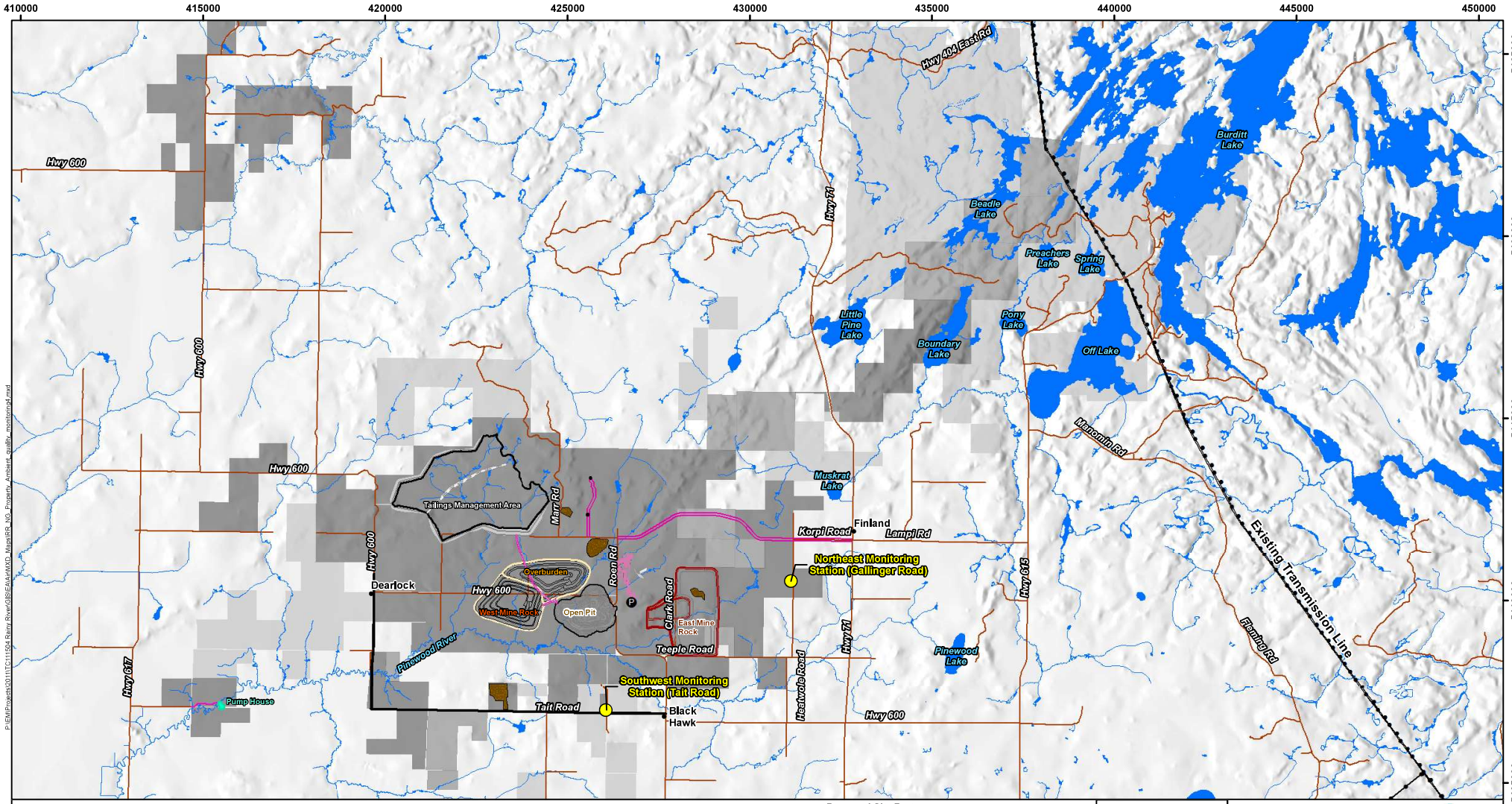
Ministry of the Environment and Climate Change (MOECC). 2012. Ontario's Ambient Air Quality Criteria, PIBS # 6570e01.

Ministry of the Environment and Climate Change (MOECC). 2016. Determination of Total Dustfall in Air Particulate Matter by Gravimetry, E3043.

United States Environmental Protection Agency (USEPA). 2017. Sampling Schedule Calendar, https://www3.epa.gov/ttnamti1/calendar.html (Accessed February 10, 2017).

APPENDIX A

SATELLITE IMAGES OF THE AIR SAMPLING STATION LOCATIONS



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Unpatented Claim (Applied to bring to lease) Acquisition in Progress
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

0 2 4 8 12 16 20 Kilometres

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, June 9, 2015

Datum: NAD83
Projection: UTM Zone 15N

newgold™ Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504 | **FIGURE: 1**

SCALE: 1:100,000 | DATE: August 2015

P:\EWProjects\2011\TC111504\Rainy River\GIS\ESA\mxd\GIS_ESA_AmbAirQ_MonitoringStation_Tait.mxd

LEGEND

- Southwest Monitoring Station (Tait Road)
- Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleades imagery (August 2014).

Datum & Projection: NAD 1983 UTM Zone 15N

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RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504	**FIGURE: 2**
SCALE: 1:700	DATE: August 2015

P:\EM\Projects\2011\TC111504 Rainy River\GIS\ArcMXD_Maps\RRA_NIS_Ambient quality_monitoring_station_Gallinger.mxd

LEGEND

- Northeast Monitoring Station (Gallinger Road)
- Gallinger Road

Notes:
- Aerial imagery provided by RRR Pleades imagery (August 2014).

Datum & Projection: NAD 1983 UTM Zone 15N

0 10 20 40 60 80 100 Meters

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 3**
SCALE: 1:700	DATE: August 2015

APPENDIX B

Appendix B-1: TSP Sampling Results

Appendix B-2: Total Dustfall Sampling Results

Appendix B-3: SO_2 AND NO_2 Passive Sampling Results

APPENDIX B-1

TSP SAMPLING RESULTS

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Southwest Tait Road Monitoring Results for TSP and Metals (Fourth Quarter 2016)
(results expressed in µg/m³)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
October 3, 2016	19.0	—	*0.00089*	0.0000588	0.0027	0.000176	0.0208	0.212	0.000706	0.00641	0.000617	*0.00039*	*0.0015*	0.00427
October 9, 2016	3.76	1.08	*0.00090*	0.0000245	0.0027	0.000068	0.0331	0.0466	0.000209	0.00174	0.000275	*0.00039*	*0.0015*	*0.0013*
October 15, 2016	22.4	4.20	*0.00096*	0.0000575	0.0030	0.000176	0.0268	0.316	0.00152	0.0185	0.000582	*0.00042*	*0.0016*	0.00646
October 21, 2016	3.35	2.37	*0.00098*	0.0000249	0.0031	0.000059	0.0161	0.0800	0.000269	0.00578	0.000308	*0.00043*	*0.0016*	0.0132
October 27, 2016	2.10	2.46	*0.00096*	0.0000261	0.0029	0.000039	0.0198	0.0363	0.000331	0.00263	0.000344	*0.00041*	*0.0016*	0.00720
November 2, 2016	*0.73*	1.37	*0.00095*	0.0000366	0.0039	0.000141	0.029	0.0473	0.000366	0.00315	0.000404	*0.00041*	*0.0016*	0.00668
November 8, 2016	*0.73*	2.62	*0.00095*	0.0000578	0.0051	0.000091	0.0526	0.0514	0.000229	0.00207	0.000438	*0.00041*	*0.0016*	0.0054
November 14, 2016	*7.60*	4.95	*0.00095*	0.0000561	0.0048	0.000277	0.0293	0.4370	0.000479	0.02106	0.000687	*0.00041*	*0.0016*	0.009522
November 20, 2016	15.4	1.58	*0.00095*	0.0000838	0.0058	0.000269	0.0349	0.415	0.000330	0.01264	0.000876	*0.00041*	*0.0016*	0.0107
November 26, 2016	8.27	—	*0.00095*	0.0000915	0.0052	0.000098	0.0389	0.0372	0.000966	0.00307	0.000827	*0.00041*	*0.0016*	0.0675
December 2, 2016	3.91	1.25	*0.00101*	0.0000479	0.0045	0.000106	0.0437	0.144	0.000560	0.00337	0.000614	*0.00044*	*0.0017*	0.00688
December 8, 2016	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—
December 14, 2016	—	1.08	—	—	—	—	—	—	—	—	—	—	—	—
December 19, 2016	7.68	3.29	*0.00095*	0.000314	0.0051	0.000129	0.0207	0.177	0.00111	0.00588	0.00126	*0.00041*	*0.0016*	0.0142
December 26, 2016	*0.71*	0.42	*0.00092*	0.000496	0.0053	0.000078	0.0404	0.0855	0.000547	0.00239	0.000800	*0.00040*	*0.0015*	0.0127

Geometric mean	4.19													
Arithmetic mean	7.36	2.13	N/R	0.000106	0.0042	0.000131	0.0313	0.160	0.000586	0.00682	0.000618	N/R	N/R	0.0128
Max. concentration	22.4	4.95	N/R	0.000496	0.0058	0.000277	0.053	0.437	0.00152	0.0211	0.00126	N/R	N/R	0.0675
Min. concentration	0.71	0.42	N/R	0.0000245	0.0027	0.0000389	0.0161	0.0363	0.000209	0.00174	0.000275	N/R	N/R	0.0013
90th percentile	18.3	4.02	N/R	0.000270	0.0053	0.000251	0.043	0.395	0.001082	0.0173	0.000866	N/R	N/R	0.0140
95th percentile	20.4	4.50	N/R	0.000387	0.0055	0.000273	0.047	0.424	0.00127	0.0195	0.00103	N/R	N/R	0.0355
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC (24 h)	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC (24 h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	13	13	13	13	13	13	13	13	13	13	13	13	13	13
No. samples < mdl	4	0	13	0	0	0	0	0	0	0	0	13	13	1
Detection limit (µg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	31	0	100	0	0	0	0	0	0	0	0	100	100	8
% valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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Northeast Gallinger Road Monitoring Results for TSP and Metals (Fourth Quarter 2016)
(results expressed in µg/m³)

Date	TSP	PM2.5	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
October 3, 2016	14.7	4.99	*0.00086*	0.0000529	0.0025	0.000159	0.137	0.140	0.000753	0.00491	0.000511	*0.00037*	*0.0014*	0.00517
October 9, 2016	24.1	1.71	*0.00092*	0.0000324	0.0029	0.000136	0.155	0.185	0.000275	0.00580	0.000428	*0.00040*	*0.0015*	0.00348
October 15, 2016	25.1	4.24	*0.00090*	0.0000660	0.0035	0.0001987	0.097	0.3620	0.001651	0.01939	0.000787	*0.00039*	*0.0015*	0.00805
October 21, 2016	6.55	2.37	*0.00094*	0.0000449	0.0027	0.0000705	0.163	0.0948	0.000262	0.00661	0.000324	*0.00041*	*0.0016*	0.00580
October 27, 2016	3.12	2.62	*0.00094*	0.0000505	0.0032	0.0000493	0.126	0.0374	0.000424	0.00190	0.000330	*0.00041*	*0.0016*	0.00736
November 2, 2016	2.48	1.83	*0.00087*	0.0000473	0.0039	0.000108	0.155	0.0600	0.000358	0.00327	0.000473	*0.00038*	*0.0014*	0.00820
November 8, 2016	9.17	2.95	*0.00094*	0.0000766	0.0043	0.000160	0.171	0.143	0.000245	0.00509	0.000559	*0.00041*	*0.0016*	0.00766
November 14, 2016	1.89	4.50	*0.00092*	0.0000543	0.0040	0.0000714	0.138	0.058	0.000299	0.00354	0.000415	*0.00040*	*0.0015*	0.00415
November 20, 2016	15.9	1.96	*0.00092*	0.0000462	0.0053	0.000203	0.191	0.225	0.000271	0.0059	0.000726	*0.00040*	*0.0015*	0.00474
November 26, 2016	4.51	6.12	*0.00094*	0.0000708	0.0046	0.0000683	0.150	0.0276	0.000770	0.00115	0.000344	*0.00041*	*0.0016*	0.00902
December 2, 2016	*0.73*	1.71	*0.00096*	0.0000434	0.0049	0.000153	0.098	0.0906	0.000428	0.00223	0.000568	*0.00041*	*0.0016*	0.00517
December 8, 2016	5.72	0.83	*0.00096*	0.000112	0.0045	0.000109	0.132	0.115	0.000340	0.00364	0.000629	*0.00042*	*0.0016*	0.0160
December 14, 2016	37.2	4.24	*0.00098*	0.000328	0.0064	0.000348	0.061	0.593	0.001167	0.01541	0.001528	*0.00043*	*0.0016*	0.0222
December 19, 2016	17.8	3.83	*0.00093*	0.000220	0.0050	0.0001569	0.032	0.2289	0.001005	0.00713	0.000930	*0.00040*	*0.0016*	0.0115
December 26, 2016	*0.67*	*0.02*	*0.00087*	0.000162	0.0050	0.0000498	0.093	0.0469	0.000434	0.00133	0.000619	*0.00038*	*0.0014*	0.00932
Geometric mean	6.32													
Arithmetic mean	11.31	2.93	N/R	0.0000938	0.0042	0.000136	0.127	0.160	0.000579	0.00582	0.000612	N/R	N/R	0.00852
Max. concentration	37.2	6.12	N/R	0.000328	0.0064	0.000348	0.191	0.593	0.00165	0.0194	0.00153	N/R	N/R	0.0222
Min. concentration	0.67	0.02	N/R	0.0000324	0.0025	0.0000493	0.032	0.0276	0.000245	0.00115	0.000324	N/R	N/R	0.0035
90th percentile	24.7	4.79	N/R	0.000197	0.0052	0.000201	0.168	0.309	0.001102	0.01210	0.000873	N/R	N/R	0.0142
95th percentile	28.7	5.33	N/R	0.000252	0.0056	0.000246	0.177	0.431	0.001312	0.01660	0.001110	N/R	N/R	0.0179
CAAQS	N/A	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAQC	120	30	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15
No. samples < mdl	2	1	15	0	0	0	0	0	0	0	0	15	15	0
Detection limit (µg)	100	1	1.4	0.0090	1.4	0.0077	3.4	17	0.081	0.44	0.10	1.4	1.8	1.4
Half detection limit (µg)	50	0.5	0.7	0.0045	0.7	0.00385	1.7	8.5	0.0405	0.22	0.05	0.7	0.9	0.7
% < detection limit	13	7	100	0	0	0	0	0	0	0	0	100	100	0
% valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to more than 50% of values being less than the detection limit
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

APPENDIX B-2

TOTAL DUSTFALL SAMPLING RESULTS

Tait Road Monitoring Results for Dustfall (Fourth Quarter 2016)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
October	31	*0.15*	1.1	1.3
November	29	0.45	0.33	0.78
December	31	0.33	*0.15*	0.33

Arithmetic mean	0.79
Max. concentration	1.3
Min. concentration	0.33
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.3
Half detection limit	0.15

Gallinger Road Monitoring Results for Dustfall (Fourth Quarter 2016)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
October	31	0.57	0.9	1.5
November	29	*0.15*	*0.15*	*0.15*
December	31	1.08	*0.15*	1.1

Arithmetic mean	0.90
Max. concentration	1.5
Min. concentration	0.15
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	1
Detection limit	0.3
Half detection limit	0.15

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
INV: Invalid Sample
**Ontario Ambient Air Quality Criterion (30-day)

APPENDIX B-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (Fourth Quarter 2016)
(results expressed in µg/m^3)

	Tait Road		Gallinger Road	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
October	0.5	0.9	0.5	1.7
November	0.5	1.3	*0.1*	2.1
December	0.5	1.7	0.5	2.6

Arithmetic mean	0.5	1.3	0.4	2.1
Max. concentration	0.5	1.7	0.5	2.6
Min. concentration	0.5	0.9	0.1	1.7
AAQC* (24-hr AAQC converted to equivalent 30 day average)	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	0	0	1	0
Detection limit	0.3	0.2	0.3	0.2
Half detection limit	0.1	0.1	0.1	0.1

Notes:
All statistics were calculated using 1/2DL for values reported as <DL
All results reported by the lab in parts per billion (ppb) and are converted to µg/m³ assuming 101.23kPA and 25°C
N/R: Statistics not reported due to high % of values <detection limit
N/A: Not applicable
INV: Invalid Sample
*Ontario Ambient Air Quality Criteria

Ministry of the Environment
435 James Street South.
Suite 331
Thunder Bay, ON P7E 6S7

Ministère de l'Environnement
435, rue James sud
Bureau 331
Thunder Bay, ON P7E 6S7

Ontario

Fax/télécopieur: (807) 475-1754
Phone/ téléphone: (807) 475-1205

Northern Region Technical Support Section – Thunder Bay

July 28, 2016

Cailey Anderson
Environmental Specialist

New Gold Inc.
Rainy River Project
5967 Highway 11/71, P.O. Box 5, Emo
Ontario, Canada, P0W IE0
M: (807) 707-3058

Dear Ms. Anderson:

Re: Air Monitoring Station Audit – Non-Continuous Monitors

On July 26th 2016 your company's station [s] were audited. Attached is a copy of the Audit record, below is a summary of the results:

1. Tait Road (Station #62054)

Sampler Type	Sampler S/N	% Error	Criteria Met
PQ200 PM2.5	1752	3.5% High	Yes
TSP Tisch	4118	4.75% High	Yes
Dustfall Jars	N/A	N/A	Yes

2. Galllinger Road (Station #62055)

Sampler Type	Sampler S/N	% Error	Criteria Met
PQ200 PM2.5	1751	1.6% High	Yes
TSP Tisch	4035	5.5% High	Yes
* Dustfall Jars*	N/A	N/A	Yes see note below

*Gallinger Road dustfall has a possible tree problem with one tree located within the 20 mtr allowance [NW side] that can be an issue in about 5 year time frame, please just take note may need trimming.

If you have any questions, do not hesitate to call.
Yours truly,

Jim Stachowich
Senior Environmental Officer
Air, Pesticides and Environmental Planning
Technical Support Section
Northern Region

c: Garnet Cornell Newgold Inc.
c: Ray Boivin Senior Environmental Officer, Kenora District Office, MOE
c: File AQ 06 13 Thunder Bay/NewGold Inc./62054/62055/2016/Qtr#1

Ontario
Ministry of the Environment

Non-Continuous Instrumentation
Dustfall
Site Audit

Dustfall Site Audit			
Site Name/Address:	New Gold Fair Road		
City/Town:	Fmo		
Site ID #: 62054	Operator/Representative: New Gold		
Date (yr/mm/dd): 16/07/26	Auditor: Jan Stackhouse		<Original signed by>

Criteria	Requirements	Observed	Criteria Met? YES	NO
Sampler height	3 m above ground		✓	○
Distance from Obstructions	270° arc of unrestricted airflow & wind from point source quadrant must be included in arc		✓	○
	No overhead obstructions (hydro telephone wires) to interfere with particle deposition		✓	○
Distance from trees	Should be > 20 m from drip line of trees		✓	○
Distance from road	No nearby unpaved roads & parking lot		✓	○
Rooftop installation	Avoid building wake effect		✓	○
	No nearby chimney or flues that could emit particles (soot/coal)		✓	○
Bracket installation	Should be level & jar must be level in bracket		✓	○
Ground cover	Should have vegetative cover		✓	○
Liner	4 mil liner must be used		✓	○

Comments/observations and overall audit opinion:

Action Required (Auditor): <Original signed by>	Signature: <Original signed by>
Action Taken (Auditee):	Signature: <Original signed by>

Ontario
Ministry of the Environment

Non-Continuous Instrumentation
Particulate Matter
Atmospheric Analyser Performance Audit

Particulate Matter Performance Audit			
Site Name/Address: NEW GOLD TRAIT ROAD			
City/Town: EMO			
Site ID #: 62054	Operator/Representative:		
Date (yr/mm/dd): 16/07/26	Auditor: JIM STALHAMMER		
Calibrator make: BGI TRI-CAL	Instrumental serial #: 1751	Instrument make: PQ200	
Calibrator Serial No.: TC-5 64	Pollutant: PM 2.5		
Accuracy (GPS)	Zone		
Easting	Northing		
+/- 10% Objective/Criteria Met	Yes ○	No ○	

Results

Calibration Orifice and Equation - Manometer

Calibration orifice number	Manometer type:	Manometer S/N:

S = slope of the calibration orifice

I = intercept of the calibration orifice

Ambient Temperature 27 / 30.0 (INST / TRUE) Ambient Pressure 727 mmHg / 970 mb (INST / TRUE)

Audit Results	Required flow	
Manometer reading (in. of water)	Hi-vol & PM	40 cfm
True flow calculated result: $\sqrt{MR \times S + 1}$	PAH	30 cfm
Percent error = (true flow value – required flow) x 100 / required flow	Dioxins	8 cfm
Leak Test: 17.31 − 16.7 / 16.7 × 100 = 13.5%	47 mm	16.7 L/M

Temperature Correction = SQRT [298/(273+/-Ta)] Ta = AMBIENT TEMP °C

Comments/observations (also general station conditions and status of logbooks):

Action Required (Auditor):	Signature:
NONE	<Original signed by>
Action Taken (Auditee):	Signature: <Original signed by>

00151

Ontario Ministry of the Environment

Atmospheric Analyser Audit Particulate

Site Information

Date YYYY MM DD: 2016 07 26	Company: NEW GOLD		
Station/Site No.: 62054	Location Address: EMO TIBIT ROAD		
Calibrator make		Instrument serial #: 9118	Instrument make: TE-5007 TISCH
Calibrator Serial No.		Pollutant: TSP	
Accuracy (GPS)		Zone	
Easting		Northing	
+/- 10% Objective/Citeria Met: ☑ Yes ☐ No			
Audit performed by (Name and Signature): JIM STATHAM <Original signed by>			

Results

Calibration Orifice and Equation - Manometer

Calibration orifice number: 41	Manometer type: DWYER-MERIAM	Manometer S/N: 1200076
1.60	S = slope of the calibration orifice	
0.25	I = intercept of the calibration orifice	

Ambient Temperature 27.5°C Ambient Pressure 970 mb

Audit Results		Required flow	
Manometer reading (in.of water)	5.4	Hi-vol & PM	40 cfm
True flow calculated result: $\sqrt{MR \times S+1}$	41.9	PAH	30 cfm
Percent error = (true flow value - required flow) x 100 / required flow	4.75%	Dioxins	8 cfm
Leak Test		47 mm	16.7 L/M

Temperature Correction = SQRT [298/(273+/-Ta)] Ta = AMBIENT TEMP °C

Remarks

Signature (Witness) <Original signed by>	Name: Garnet Cornell	Title: Enviro. Technician
Has the instrument been restored to service? ☐ Yes ☐ No		

COPY 3

1999 (12/07)

Ontario
Ministry of the Environment

Non-Continuous Instrumentation
Dustfall
Site Audit

Dustfall Site Audit

Site Name/Address: NEW Gold Gallinger Road
City/Town: Emo
Site ID #: 62055
Operator/Representative: NEW Gold
Date (yr/mm/dd): 1606/26
Auditor: Jim Stallbaum <Original signed by>

Criteria	Requirements	Observed	Criteria Met? YES	NO
Sampler height	3 m above ground		✓	
Distance from Obstructions	270° arc of unrestricted airflow & wind from point source quadrant must be included in arc		✓	
	No overhead obstructions (hydro telephone wires) to interfere with particle deposition		✓	
Distance from trees	Should be > 20 m from drip line of trees		✓	
Distance from road	No nearby unpaved roads & parking lot		✓	
Rooftop installation	Avoid building wake effect		✓	
	No nearby chimney or flues that could emit particles (soot/coal)		✓	
Bracket installation	Should be level & jar must be level in bracket		✓	
Ground cover	Should have vegetative cover	N/A	✓	
Liner	4 mil liner must be used		✓	

Comments/observations and overall audit opinion:

Action Required (Auditor):
Possible Tree Approx 20 mtrs from Dustfall Can be A Issue In 5 years Time Ok now 5-1

Signature: <Original signed by>

Action Taken (Auditee):

Signature: <Original signed by>

Ontario
Ministry of the Environment

Non-Continuous Instrumentation
Particulate Matter
Atmospheric Analyser Performance Audit

Particulate Matter Performance Audit			
Site Name/Address: New Gold Gallinger Kmo			
City/Town:			
Site ID #: 62055	Operator/Representative:		
Date (yr/mm/dd): 16/07/26	Auditor: Tim Stathowich		
Calibrator make BGI TRT-IAL	Instrumental serial # 1751	Instrument make PQ200 BGI	
Calibrator Serial No. TC-5 64	Pollutant Pm 2.5		
Accuracy (GPS)	Zone		
Easting	Northing		
+/- 10% Objective/Criteria Met	Yes ✓	No ○	

Results

Calibration Orifice and Equation - Manometer

Calibration orifice number	Manometer type:	Manometer S/N:

	S = slope of the calibration orifice
	I = intercept of the calibration orifice

Ambient Temperature 27.9 / 32.1 (INST / TRIAL) Ambient Pressure 727 mm Hg / 0969 mb (INST / TRIAL)

Audit Results	Required flow	
Manometer reading (in. of water)	Hi-vol & PM	40 cfm
True flow calculated result: $\sqrt{MR \times S + 1}$	PAH	30 cfm
Percent error = (true flow value – required flow) x 100 / required flow	Dioxins	8 cfm
Leak Test $\frac{16.92 - 16.7}{16.7} \times 100 = 1.6\%$	47 mm	16.7 L/M

Temperature Correction = SQRT [298/(273+/-Ta)] Ta = AMBIENT TEMP °C

Comments/observations (also general station conditions and status of logbooks):

Action Required (Auditor): None	Signature: <Original signed by>
Action Taken (Auditee):	Signature: <Original signed by>

00761

Ontario Ministry of the Environment

Atmospheric Analyser Audit Particulate

Site Information

Date (YYYY MM DD): 2016 07 26	Company: NEW GOLD		
Station/Site No.: 620055	Location Address: EMO GALLIMORE ROAD		TE5007
Calibrator make	Instrument serial #: 9035	Instrument make: TISCH	
Calibrator Serial No.	Pollutant: TSP		
Accuracy (GPS)	Zone		
Easting	Northing		
+/- 10% Objective/Citeria Met ☑ Yes ☐ No			
Audit performed by (Name and Signature): JIM STACHOWICH <Original signed by>			

Results

Calibration Orifice and Equation - Manometer

Calibration orifice number: 41	Manometer type: AIR-NEOTRONICS	Manometer S/N: 120076
17.60	S = slope of the calibration orifice	
0.25	I = intercept of the calibration orifice	

Ambient Temperature 25.6°C Ambient Pressure 0968 mb

Audit Results		Required flow	
Manometer reading (in.of water)	5.2	Hi-vol & PM	40 cfm
True flow calculated result: $\sqrt{MR \times S+1}$	42.2	PAH	30 cfm
Percent error = (true flow value - required flow) x 100 / required flow	5.5% ↑	Dioxins	8 cfm
Leak Test		47 mm	16.7 L/M

Temperature Correction = SQRT [298/(273+/-Ta)] Ta = AMBIENT TEMP °C

Remarks

MTC Logs kept on site lab

Signature (Witness)	Name	Title
<Original signed by>	Garnet Connell	Enviro. Technician

Has the instrument been restored to service? ☐ Yes ☐ No

COPY 3

1999 (12/07)

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05
General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

- *(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,*
  - *(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or*
  - *(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;*
- *(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.*

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

- *(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.*

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

- *(a) an approved dispersion model or other dispersion model; or*
- *(b) a dispersion model that is not used in accordance with this Regulation.*

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
District Office	**Fax Number**
Thunder Bay District Office	(807) 473-3160

Supporting information attached? ☐ Yes ☒ No

If yes, number of pages: _____

2. Site Information

Name of Person Making the Notification	Business Name
Cailey Anderson	New Gold Inc.
North American Industry Classification System (NAICS) Code	**Business Activity Description** *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)*
212220	Gold Ore Mining
Site Name	**MOE District Office**
Rainy River Project	Thunder Bay District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 24 Marr Road

Unit Identifier *(i.e. suite or apartment number)*:

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number — Lot: ; Conc.:

Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan — Part: ; Reference Plan:

Non Address Information *(includes any additional information to clarify applicants' physical location)*:

Municipality/Unorganized Township	County/District	Postal Code
Barwick	Rainy River	P0W 1A0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	15U	+/-5m	Google Earth	426537	5411220

Certificate of Approval Number (s) – *attach a separate list if more space is required*

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

☒ This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☒ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

☐ This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☐ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

☐ This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

☐ Yes ☐ No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

☐ Yes

☒ No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
AAQC exceedance (not standard)	

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

☐ Yes

☐ No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
TSP High Volume Sampler	30/04/2016	24-hr average

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Monitoring Plan was submitted, and plan approval is forthcoming.

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Tait Road & McMillan Road

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act.*
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Cailey Anderson	Environmental Specialist

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
Rainy River Project, 5967 Highway 11/71, P.O. Box 5	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Emo		Ontario	Canada	P0W 1E0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(807) 707-3058		Cailey.Anderson@newgold.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Intersection of Tait Road and McMillan Road	30/04/2016	0:00	24hr	Mixed Forest/Pasture

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	Total Suspended Particulate	N/A 1	HiVol	N/A	24	120	Visibility	N/A	130%
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

For additional measurement locations / sampling times, please included additional tables
****If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05
General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

- *(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,*
  - *(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or*
  - *(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;*
- *(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.*

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

- *(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.*

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

- *(a) an approved dispersion model or other dispersion model; or*
- *(b) a dispersion model that is not used in accordance with this Regulation.*

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
District Office	**Fax Number**
Thunder Bay District Office	(807) 473-3160

Supporting information attached? ☐ Yes ☒ No

If yes, number of pages: _____

2. Site Information

Name of Person Making the Notification	Business Name
Cailey Anderson	New Gold Inc.
North American Industry Classification System (NAICS) Code	**Business Activity Description** *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)*
212220	Gold Ore Mining
Site Name	**MOE District Office**
Rainy River Project	Thunder Bay District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 24 Marr Road

Unit Identifier *(i.e. suite or apartment number)*:

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number — Lot: ____ Conc.: ____

Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan — Part: ____ Reference Plan: ____

Non Address Information *(includes any additional information to clarify applicants' physical location)*:

Municipality/Unorganized Township	County/District	Postal Code
Barwick	Rainy River	P0W 1A0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	15U	+/-5m	Google Earth	426537	5411220

Certificate of Approval Number (s) – *attach a separate list if more space is required*

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

☒ This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☒ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

☐ This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☐ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

☐ This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

☐ Yes ☐ No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

☐ Yes
☒ No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
AAQC exceedance (not standard)	

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

☐ Yes
☒ No — If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? not applicable

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
TSP High Volume Sampler	30/04/2016	24-hr average

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Monitoring Plan was submitted, and plan approval is forthcoming.

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Gallinger Road Station

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act.*
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Cailey Anderson	Environmental Specialist

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
Rainy River Project, 5967 Highway 11/71, P.O. Box 5	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Emo		Ontario	Canada	P0W IE0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(807) 707-3058		Cailey.Anderson@newgold.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
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15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Gallinger Road b/n Korpi Road and Teeple Road	06/05/2016	0:00	24hr	Mixed Forest/Pasture

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	Fine Particulate Matter (PM2.5)	N/A 1	PQ200	N/A	24	30	Health	N/A (AAQC)	203%
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05
General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

- *(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,*
  - *(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or*
  - *(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;*
- *(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.*

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

- *(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or*
- *(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.*

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

- *(a) an approved dispersion model or other dispersion model; or*
- *(b) a dispersion model that is not used in accordance with this Regulation.*

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
District Office	**Fax Number**
Thunder Bay District Office	(807) 473-3160

Supporting information attached? ☐ Yes ☒ No

If yes, number of pages: _____

2. Site Information

Name of Person Making the Notification	Business Name
Cailey Anderson	New Gold Inc.
North American Industry Classification System (NAICS) Code	**Business Activity Description** *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)*
212220	Gold Ore Mining
Site Name	**MOE District Office**
Rainy River Project	Thunder Bay District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
24 Marr Road	

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Barwick	Rainy River	P0W 1A0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	15U	+/-5m	Google Earth	426537	5411220

Certificate of Approval Number (s) – *attach a separate list if more space is required*

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

☒ This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☒ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

☐ This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

☐ Schedule 1 ☐ Schedule 2 ☐ Schedule 3 ☐ POI Guideline ☐ Ambient Air Quality Criteria

☐ Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

☐ This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

☐ Yes ☐ No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

		Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
☐ Yes			
☒ No	If No, please provide the following:	AAQC exceedance (not standard)	

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

☐ Yes

☐ No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
PQ200 low volume sampler	30/04/2016	24-hr average

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Monitoring Plan was submitted, and plan approval is forthcoming.

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Tait Road & McMillan Road

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act.*
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Cailey Anderson	Environmental Specialist

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
Rainy River Project, 5967 Highway 11/71, P.O. Box 5	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Emo		Ontario	Canada	P0W IE0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(807) 707-3058		Cailey.Anderson@newgold.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Intersection of Tait Road and McMillan Road	06/05/2016	0:00	24hr	Mixed Forest/Pasture

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	Fine Particulate Matter (PM2.5)	N/A 1	PQ200	N/A	24	30	Health	N/A	185%
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Rainy River Project
2016 Fish Tissue
Monitoring Program

Prepared For:
New Gold Inc.
Emo, ON

Prepared By:
Minnow Environmental Inc.
Georgetown, ON

March 2017

Rainy River Project
2016 Fish Tissue Monitoring Program

Report Prepared for:

New Gold Inc.
Rainy River Project

Report Prepared by:
Minnow Environmental Inc.

<Original signed by>

Jess Tester, B.Sc.
Project Manager

<Original signed by>

Pierre Stecko, M.Sc., EP, RPBio
Project Principal

February 2017

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1.0 INTRODUCTION

1.1 Site Description

New Gold Inc. owns the Rainy River Project (RRP), located in northwestern Ontario in the Township of Chapple and District of Rainy River, approximately 65 km northwest of Fort Frances, and approximately 420 km west of Thunder Bay (Figure 1.1). The RRP is located within the Pinewood River watershed. The Pinewood River flows past the site and drains into the Rainy River approximately 37 km downstream.

Earliest exploration of the RRP began in 1967. Rainy River Resources Ltd. acquired the project in 2005 and began conducting baseline studies in 2008. The RRP was acquired by New Gold Inc. in 2013 and an Environmental Assessment (EA) report was submitted in 2014 (AMEC 2014). Site construction began following provincial and federal EA approvals in 2015, and is ongoing. Upon completion, the RRP site construction will include:

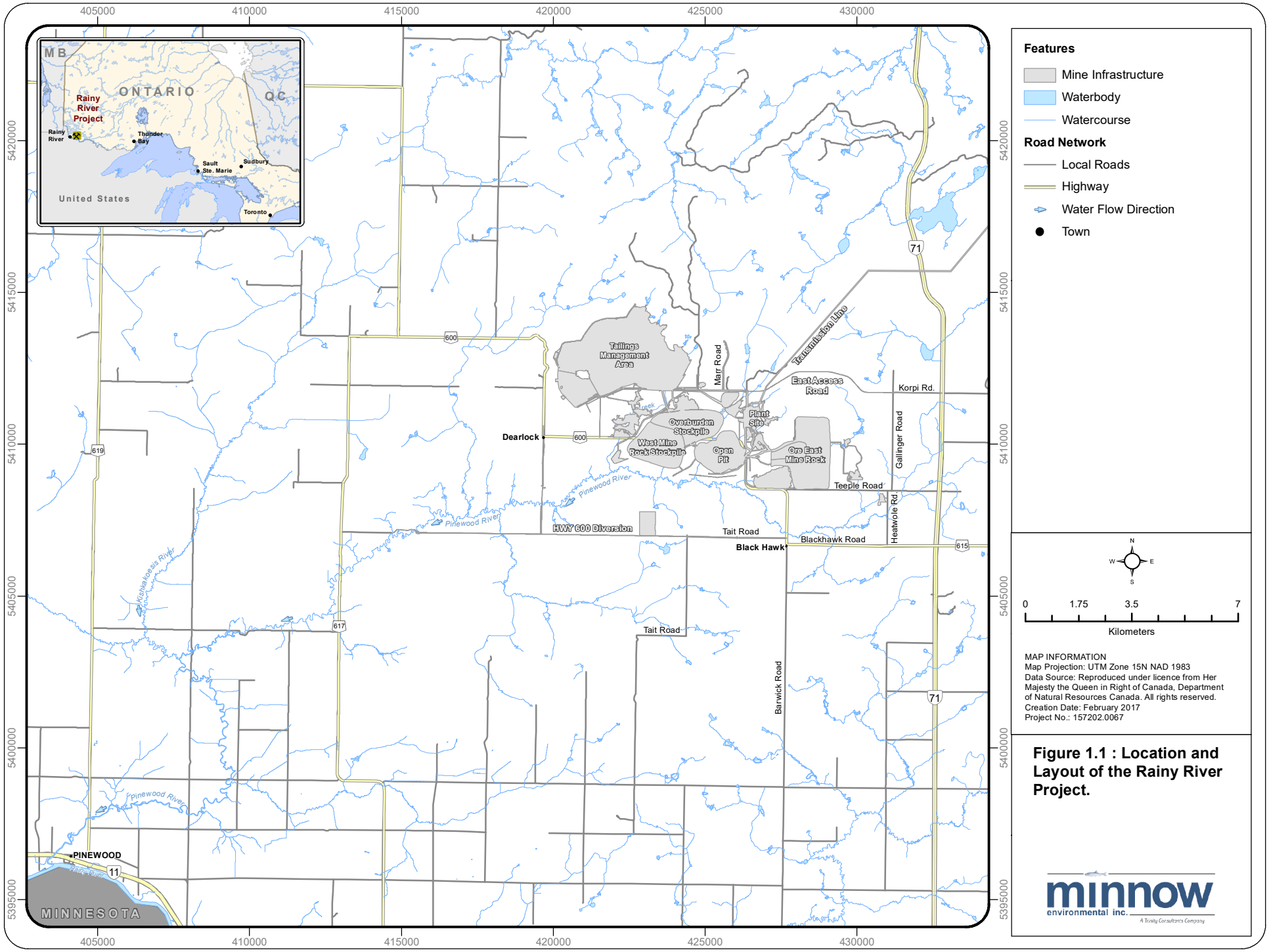
- an open pit mine,
- an underground mine,
- ore storage facilities,
- a process plant,
- a Tailings Management Facility (TMF) including a water management pond (WMP) and Tailings Management Area (TMA),
- water management infrastructure including, watercourse diversions, site drainage works,
- a fuel tank farm, and
- explosives mixing and storage facilities.

Mill commissioning and production start is predicted for 2017.

1.2 Project Background and Objective

The fish tissue monitoring program is one part of RRP's comprehensive environmental monitoring activities and is a requirement of both the Federal EA Approval and provincial Environmental Compliance Approval (ECA). The ECA, Number 5178-9TUPD9, was issued by the Ministry of the Environment and Climate Change (MOECC) on September 1, 2015.

The objective of the fish tissue monitoring is to characterize concentrations of contaminants of potential concern (COPC; arsenic, boron, cadmium, cobalt, copper, chromium, iron, lead, manganese, mercury, molybdenum, nickel, selenium and zinc) in muscle and liver tissues of two sport fish species, northern pike (*Esox lucius*) and walleye (*Sander vitreus*), collected in the Pinewood River. COPC concentration data will be used to determine whether the RRP



MAP INFORMATION
Map Projection: UTM Zone 15N NAD 1983
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Creation Date: February 2017
Project No.: 157202.0067

Figure 1.1 : Location and Layout of the Rainy River Project.

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has affected these concentrations, and, if it has, to communicate any potential risk to human health from the consumption of the sentinel sport fish.

1.3 Study Design

The 2016 study included fish assessment in the Pinewood River downstream of the RRP extending to approximately 100 m upstream of the confluence with the Rainy River. The study focused on the collection of tissue samples from two sport fish species, northern pike and walleye. Three types of tissue were sampled: muscle, liver, and ovary. Muscle and liver samples were collected to meet regulatory requirements, while ovaries were sampled (as available), based on discussion with local First Nations community members who expressed interest in having the roe sampled.

Fifteen individuals of each species (i.e., northern pike and walleye) were targeted. Data were compared to provincial, federal and international criteria for the protection of human health (Health Canada 2007, Health Canada 2010, MOECC 2015, IRIS 2017) as well as baseline concentrations (AMEC 2013).

2.0 METHODS

The RRP Fish Tissue Monitoring Program was conducted from September 19th to 24th, 2016. The program focused on fish tissue assessment, targeting northern pike and walleye in the Pinewood River downstream of the RRP. All fish collection locations were recorded using a handheld GPS and maps, and were chosen based on habitat characteristics preferred by the target species.

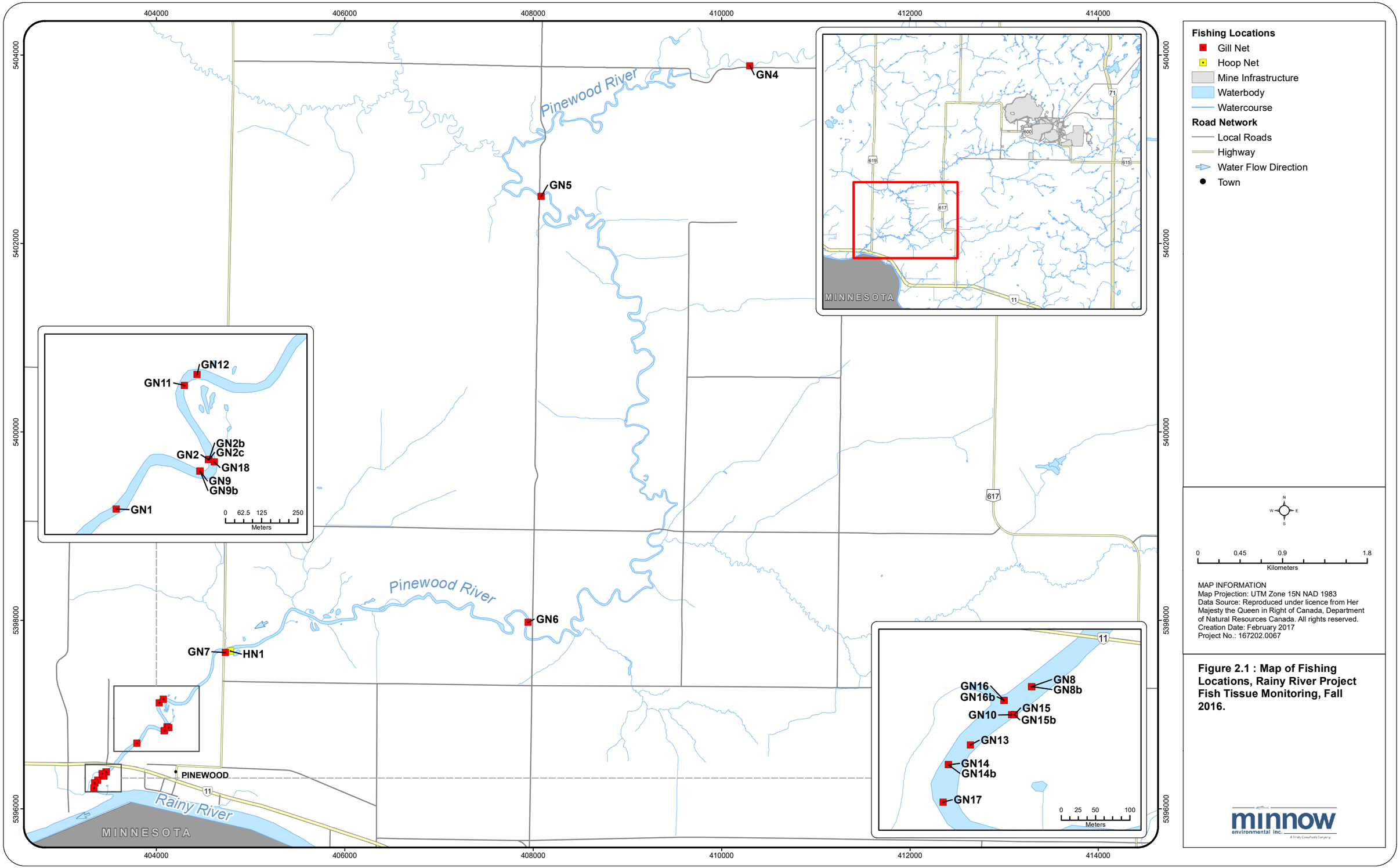
2.1 Field Data Collection

Fish sampling was performed under an Ontario Ministry of Natural Resources Licence to Collect Fish for Scientific Purposes (Licence No. 1084026; Appendix B). Fishing was conducted in the Pinewood River downstream of the RRP using gill nets and hoop nets (Figure 2.1). Gill nets were standard 100-ft lengths with mesh sizes of 3" and 4". Medium hoop nets (0.75 m diameter hoops, 2.5 cm stretched mesh) were used. Time of deployment and retrieval were recorded for every net set. Upon retrieval of each net, captured fish were identified and counted, and results were recorded on catch data sheets. Only northern pike and walleye of edible size were retained for sampling (>30 cm total length, based on MOECC recommendations for the Rainy River; MOECC 2015). A total of fifteen northern pike and fifteen walleye were retained for detailed assessment. Any live bycatch[1] or additional target species captured were released.

All retained northern pike and walleye were measured to determine length (fork and total) and weight. Lengths were measured to the nearest millimetre on a fish board. Weights were recorded to the nearest 1 to 5% of total weight using Pesola™ spring scales. Two ageing structures (scales and either cleithra [northern pike] or dorsal spines [walleye]) were collected from each sacrificed fish. Livers and gonads were removed using clean implements (cutting boards, fillet knives and tweezers) and weighed to the nearest 0.001 g (with ± 1% precision) using a Scout Pro balance. Tissue samples of boneless, skinless muscle tissue, whole livers, and whole ovaries (where present and developed) were collected from each fish and placed in clean, labeled Whirl-Pak™ bags and frozen until analysis.

Quality Assurance/Quality Control (QA/QC) measures included sampling of field duplicates (duplicate fillets, split liver, and split ovary samples) for 10% of tissue samples (i.e., a total of seven field duplicate samples). Upon completion of the sampling program, tissue samples were submitted to ALS Environmental in Burnaby, British Columbia, along with a chain-of-custody record, a list of expected Method Detection Limits (MDLs) and laboratory

[1] Unwanted fish species caught while conducting targeted sampling for a different species (i.e., in this study, any fish species other than northern pike and walleye).



MAP INFORMATION
Map Projection: UTM Zone 15N NAD 1983
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Creation Date: February 2017
Project No.: 167202.0067

Figure 2.1 : Map of Fishing Locations, Rainy River Project Fish Tissue Monitoring, Fall 2016.

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QA/QC requirements (Appendix A). Ageing structures were shipped to North Shore Environmental Services in Thunder Bay, Ontario, along with a chain-of-custody record for determination of fish ages.

2.2 Analysis of Catch and Meristic Data

Fish catch data were compiled and summarized. The catch compilations, along with data on the gill net and hoop net set durations were used to calculate total and species-specific catch-per-unit effort (CPUE) for each capture method in the Pinewood River.

2.3 Analysis of Chemical Data

Upon receipt of the chemical data from ALS, a data quality assessment (DQA) was performed. This included the assessment of field precision, laboratory precision and laboratory accuracy against data quality objectives (DQOs) established at the outset of the project (Appendix A). A minimum of 10% of the analyses represented quality control samples (e.g., field duplicates, laboratory duplicates, and certified reference materials). The DQA indicated excellent data quality (Appendix A). After DQA, summary statistics were calculated for each analyte (i.e., mean, standard deviation, minimum, and maximum).

Mercury is the only metal[2] for which a commercial guideline and various consumption level advisories have been established for fish muscle tissue (Health Canada 2007, MOECC 2015). Health Canada has established a standard of 0.5 mg/kg wet weight (w.w.) as the maximum acceptable concentration of mercury in commercially sold fish, enforceable by the Canadian Food Inspection Agency (Health Canada 2007). Although this guideline is only applicable to commercially sold fish, 0.5 mg/kg w.w. is also the level at which a complete consumption restriction is advised for vulnerable populations (i.e., women of child-bearing age and children under 15; Table 2.1; MOECC 2015). In addition to evaluating mercury concentrations relative to health guidelines, relationships between mercury concentrations in fish muscle tissue and age were explored graphically. Mercury concentrations were also compared to baseline data (AMEC 2013).

Concentrations of other metals in muscle, liver, and ovary tissue were evaluated relative to consumption benchmarks (Table 2.2). These benchmarks were derived based on the lowest reported tolerable daily intake (TDI; Health Canada 2010, IRIS 2017) and established consumption rates for fish eating populations (Richardson 1997, USEPA 1997, OHM 1990, Health Canada 2010), assuming a typical adult body weight of 70 kg, where:

Fish Consumption Limit Benchmark = TDI mg/kg x 70 kg / consumption rate (kg).

[2] Here and elsewhere in this document, “metal” includes metalloids, such as arsenic and selenium.

Table 2.1: Fish consumption advisories for vulnerable populations and for the general population based on fish tissue mercury concentrations (MOECC 2015).

Advisory recommended maximum number of meals per month	Fish tissue mercury concentration (mg/kg w.w.)	
	As consumed by vulnerable populations[a]	As consumed by the general population
32	0	0
16	0.06	0.15
12	0.12	0.3
8	0.16	0.4
4	0.25	0.6
2	-	1.2
0	0.5	1.8

[a] i.e., women of child-bearing age and children under 15.
w.w. - wet weight.

Table 2.2: Consumption benchmarks for metals (including all COPC) in fish tissue (mg/kg).

Analyte	Tolerable Daily Intake (mg/kg day)[1]	Fish Concentration Benchmarks (mg/kg) Based on		
		6.5 g/day[2]	21.8 g/day[3]	111 g/day[4]
Antimony	0.0004 [5]	4.3	1.3	0.3
Arsenic	0.0003 [5]	3.2	1.0	0.2
Barium	0.2 [5,6]	2,153.8	642.2	126
Beryllium	0.002 [5]	21.5	6.4	1.3
Boron	0.0175 [6]	188.5	56.2	11.0
Cadmium	0.001 [5,6]	10.8	3.2	0.6
Chromium	0.001 [6]	10.8	3.2	0.6
Cobalt	none available	-	-	-
Copper	0.091 [6,8]	980.0	292.2	57.4
Iron	none available	-	-	-
Lead	0.0036 [6]	38.8	11.6	2.3
Manganese	0.122 [6,8]	1,313.8	391.7	76.9
Molybdenum	0.005 [5]	53.8	16.1	3.2
Nickel	0.0011 [6,7]	11.8	3.5	0.7
Selenium	0.005 [5]	53.8	16.1	3.2
Silver	0.005 [5]	53.8	16.1	3.2
Strontium	0.6 [5]	6,462	1,927	378
Uranium	0.0006 [6]	6.5	1.9	0.4
Zinc	0.3 [5]	3,231	963	189

Selected benchmark.

COPC - Contaminants of Potential Concern.

[1] Where values were reported by both IRIS (2016) and Health Canada (2010), the lowest value was used to derive a conservative benchmark.

[2] USEPA (1997) mean consumption rate for general population; mean value for anglers is 8.0 g/day, 95th percentile for anglers is 25 g/day.

[3] Upper limit consumption rate for Canadian population based on high caloric intake (OHM 1990). Also the highest consumption level considered in development of fish advisories in Ontario.

[4] Health Canada (2010) consumption rate for screening level risk assessments, from Richardson (1997). Exceeds the average value for fishing subsistence populations (70 g/day; USEPA 1997).

[5] IRIS (2016).

[6] Health Canada (2010).

[7] Based on nickel chloride.

[8] Most conservative concentration (tolerable daily intakes are defined on an age-group specific basis).

Investigations during the EA determined that the RRP area does not support a significant commercial or recreational fishery and that no traditional activities are currently undertaken within the RRP area by local First Nation and Métis people (AMEC 2014). Further discussion with local First Nations community members in August 2016 confirmed that the Pinewood River does not support a significant traditional fishery, and that it is only occasionally used for recreational fishing, with most fishing located near the mouth (Appendix D). In light of this, the consumption rate category of 21.8 g/d was used in deriving the benchmarks, representing the upper limit consumption rate for Canadian population based on high caloric intake (Table 2.2; OHM 1990, Richardson 1997).

In the previous fish tissue study (Minnow 2016a), the consumption rate used for determining benchmarks exceeded the average value for subsistence populations (70 g/day; USEPA 1997) and is considered excessive relative to the actual fishing activity occurring within the Pinewood River. The consumption rate of 21.8 g/d still results in the derivation of conservative benchmarks, as it is more than double the mean consumption rate for anglers within a general population (8.0 g/d; USEPA 1997). Additionally, 21.8 g/d is the highest consumption level considered in development of fish advisories in Ontario. Benchmarks were derived for COPC where health criteria or TDI values were available (Table 2.2):

- antimony,
- arsenic,
- barium,
- beryllium,
- boron,
- cadmium,
- chromium,
- copper,
- lead,
- manganese,
- molybdenum,
- nickel,
- selenium,
- silver,
- strontium,
- uranium, and
- zinc.

Of the COPC, only cobalt and iron do not have applicable health criteria or TDI values (i.e., benchmarks could not be calculated), so concentrations were only compared to baseline data.

3.0 RESULTS

3.1 Fish Communities and Catch-per-unit-effort

A total of seven fish species were captured in the Pinewood River using gill nets and hoop nets (Table 3.1). Northern pike were the most abundant fish, followed by black crappie and walleye (Table 3.1).

3.2 Fish Tissue Quality

3.2.1 Muscle Tissue Chemistry

Northern pike and walleye muscle tissue samples contained metal concentrations that were well below human consumption benchmarks (established in Section 2.3), except for mercury in two northern pike muscle samples (Tables 3.2 and C.5). Despite these two exceptions, the average muscle tissue mercury concentrations were still below the benchmark in both species (Table 3.2). All fish muscle tissue mercury concentrations were well below the complete consumption restriction level for the general population (1.8 mg/kg; Table 2.1, Figures 3.1 and 3.2; MOECC 2015).

RRP effluent has had no detectable mercury concentrations (Minnow 2016b), suggesting that effluent does not contribute to mercury accumulation in Pinewood River fish. Naturally elevated mercury concentrations are often observed in predatory fish species in northern lakes and depositional rivers due to naturally elevated mercury levels, atmospheric deposition of mercury, and biogeochemical conditions that favour mercury methylation (Evers et al. 2011). Methylated mercury is biomagnified through the food chain resulting in elevated concentrations in predatory fish species such as walleye and northern pike (Evers et al. 2011). In addition to this, methylated mercury has a long residence time in tissues and, with continued exposure, will bioaccumulate over the organism's lifetime (Evers et al. 2011). Bioaccumulation in northern pike in the Pinewood River is characterized by the relationship between mercury concentration in muscle tissue and fish size (i.e., fork length and age; Figures 3.1 and 3.2). Walleye tissue typically exhibits the same relationship between muscle tissue and fish size, however this relationship may be obscured in the 2016 data set, as most walleye fork lengths are within a narrow range (i.e., 30.5 to 37 cm), with only two much larger (female) fish (Figure 3.1, Table B.4).

Combined (2012, 2015 and 2016) northern pike fork length and muscle mercury concentration data indicated that mercury in Pinewood River northern pike muscle tissue generally occurs at concentrations above the benchmark in fish that are greater than roughly 60.5 cm in fork length

Table 3.1: Summary of fishing effort in the Pinewood River, Rainy River Project Fish Monitoring, 2016.

a) Fish catch numbers by sampling method.

Species	Gill Nets	Medium Hoop Nets	Total Catch
Northern pike	76	0	76
Walleye	17	0	17
Black crappie	30	1	31
Rock bass	3	0	3
Shorthead redhorse	3	0	3
White sucker	3	0	3
Yellow perch	1	0	1

b) Catch-per-unit-effort (CPUE) by sampling method.

Species	Gill Nets (fish per 100 m*hr)	Medium Hoop Nets (fish per trap*day)
Northern pike	0.46	0.00
Walleye	0.1	0.00
Black crappie	0.18	1.08
Rock bass	0.02	0.00
Shorthead redhorse	0.02	0.00
White sucker	0.02	0.00
Yellow perch	0.01	0.00
Total CPUE	0.81	1.08

Table 3.2: Metal concentrations in fish tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Northern Pike											
					Muscle				Liver				Ovary			
					Average (n=15)	SD	Minimum	Maximum	Average (n=15)	SD	Minimum	Maximum	Average (n=7)	SD	Minimum	Maximum
% Moisture		0.25	%	-	78.6	1.2	76.7	81.2	74.1	4.7	66.0	79.9	81.5	1.0	80.3	82.9
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	0.5	0.1	<0.4	0.7	1.0	0.5	<0.4	1.7	0.4	0.1	<0.4	0.5
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	0.0001	<0.002	<0.002	0.003	0.001	<0.002	0.004	<0.002	0.0001	<0.002	<0.002
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.086	0.037	0.022	0.143	0.040	0.012	0.010	0.056	0.022	0.011	0.005	0.043
	Barium (Ba)	0.050	mg/kg w.w.	126	0.027	0.018	0.011	0.070	0.013	0.002	<0.010	0.017	0.024	0.016	0.011	0.051
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	0.0001	<0.002	<0.002	<0.003	0.0005	<0.002	<0.003	<0.002	0.0001	<0.002	<0.002
	Bismuth (Bi)	0.010	mg/kg w.w.	-	0.003	0.0006	<0.002	0.004	0.004	0.001	<0.002	0.008	<0.002	0.0001	<0.002	<0.002
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	0.01	<0.2	<0.2	<0.3	0.05	<0.2	<0.3	<0.2	0.01	<0.2	<0.2
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	0.0013	0.0008	<0.0009	0.0040	0.073	0.048	0.0149	0.182	0.0060	0.0025	0.0021	0.0097
	Calcium (Ca)	20	mg/kg w.w.	-	284	147	118	641	45	14	30	71	123	9	106	137
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0071	0.0028	0.0039	0.0128	0.0036	0.0019	0.00170	0.0091	0.0055	0.0015	0.0035	0.0081
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	0.022	0.023	<0.010	0.075	0.02	0.02	<0.010	0.07	0.018	0.012	<0.009	0.039
	Cobalt (Co)	0.020	mg/kg w.w.	-	0.004	0.0003	<0.004	0.005	0.050	0.0169	0.0252	0.075	0.057	0.0191	0.030	0.080
	Copper (Cu)	0.10	mg/kg w.w.	57.4	0.15	0.03	0.11	0.22	24.5	10.5	8.0	46	1.26	0.137	0.97	1.38
	Iron (Fe)	3.0	mg/kg w.w.	-	1.7	0.38	1.2	2.5	203	169	37	498	52	8.3	40	61
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.004	0.0002	<0.004	<0.005	0.01	0.004	<0.004	0.02	<0.004	0.0002	0.003	0.00
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.11	0.006	<0.09	<0.12	<0.13	0.02	<0.10	<0.17	<0.09	0.005	<0.09	<0.10
	Magnesium (Mg)	2.0	mg/kg w.w.	-	329	15	297	346	158	24	119	213	244	16	221	263
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	0.36	0.22	0.152	1.02	1.14	0.35	0.52	1.7	34	6.8	23	44
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.36	0.127	0.160	0.61	0.125	0.071	0.059	0.33	0.029	0.013	0.0169	0.052
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	<0.004	0.0002	<0.004	<0.005	0.179	0.051	0.097	0.279	0.053	0.0101	0.037	0.062
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	<0.04	0.002	<0.04	<0.05	0.053	0.01	<0.04	0.07	0.04	0.007	<0.03	0.05
	Phosphorus (P)	10	mg/kg w.w.	-	2,335	208	1,974	2,685	2,774	485	1,822	3,689	3,054	127	2,822	3,193
	Potassium (K)	20	mg/kg w.w.	-	4,317	229	3,837	4,618	2,764	294	2,271	3,225	3,840	156	3,675	4,099
	Rubidium (Rb)	0.050	mg/kg w.w.	-	5.7	1.11	4.5	8.6	5.5	1.34	3.6	8.5	5.7	0.79	4.6	6.8
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.18	0.023	0.14	0.22	1.75	0.42	1.01	2.5	0.97	0.35	0.73	1.74
	Sodium (Na)	20	mg/kg w.w.	-	292	109	123	601	843	130	626	1,027	870	94	721	1,034
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.131	0.085	0.039	0.32	0.037	0.011	0.021	0.061	0.074	0.021	0.056	0.108
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.004	0.0002	<0.004	<0.005	<0.005	0.0009	<0.004	<0.007	0.004	0.0002	<0.003	0.004
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0029	0.0015	0.0018	0.0076	0.0030	0.0021	0.00119	0.0089	0.0038	0.0011	0.0027	0.0058
	Tin (Sn)	0.10	mg/kg w.w.	-	0.06	0.02	0.03	0.10	0.07	0.02	0.03	0.1	0.02	0.005	<0.02	0.03
	Uranium (U)	0.0020	mg/kg w.w.	0.4	0.0004	0.00003	<0.0004	0.0005	0.0005	0.0001	<0.0004	0.0008	<0.0004	0.00002	<0.0003	<0.0004
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.02	0.001	<0.02	<0.02	0.18	0.11	0.06	0.40	0.03	0.01	<0.02	0.04
	Zinc (Zn)	0.50	mg/kg w.w.	189	4.1	1.0	3.0	6.7	38	9.2	18	53	70	12.5	50	85
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.04	0.002	<0.04	<0.05	<0.05	0.009	<0.04	<0.07	<0.04	0.002	<0.03	<0.04

SD - Standard Deviation.

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table 3.2: Metal concentrations in fish tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Walleye											
					Muscle				Liver				Ovary			
					Average (n=15)	SD	Minimum	Maximum	Average (n=15)	SD	Minimum	Maximum	Average (n=8)	SD	Minimum	Maximum
% Moisture		0.25	%	-	78.8	0.9	77.5	80.2	75.8	2.6	69.7	80.6	70.2	2.2	67.7	73.1
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	0.5	0.2	<0.4	1.1	0.8	0.5	<0.4	1.5	<0.6	0.04	<0.5	<0.6
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	0.0001	<0.002	<0.002	<0.002	0.0003	<0.002	<0.003	<0.003	0.0002	<0.003	<0.003
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.037	0.012	0.024	0.070	0.069	0.020	0.036	0.117	0.043	0.008	0.032	0.055
	Barium (Ba)	0.050	mg/kg w.w.	126	0.011	0.001	<0.010	0.012	0.017	0.020	<0.010	0.088	0.021	0.006	<0.014	0.035
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	0.00009	<0.002	<0.002	<0.002	0.0003	<0.002	<0.003	<0.003	0.0002	<0.003	<0.003
	Bismuth (Bi)	0.010	mg/kg w.w.	-	0.003	0.0007	<0.002	0.004	0.003	0.0004	<0.002	0.0035	<0.003	0.0002	<0.003	<0.003
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	0.009	<0.2	<0.2	<0.2	0.03	<0.2	<0.3	<0.3	0.02	<0.3	<0.3
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	<0.0011	0.0003	<0.0010	<0.0023	0.103	0.104	0.043	0.439	0.0020	0.0011	<0.0014	0.0045
	Calcium (Ca)	20	mg/kg w.w.	-	118	35	95	216	180	338	55	1,389	213	46	149	294
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0118	0.0024	0.0094	0.0181	0.0079	0.0020	0.0060	0.013	0.0099	0.0011	0.0086	0.0113
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	0.01	0.010	<0.010	0.045	<0.027	0.020	<0.010	<0.06	<0.015	0.001	<0.013	<0.016
	Cobalt (Co)	0.020	mg/kg w.w.	-	<0.004	0.0002	<0.004	<0.005	0.128	0.094	0.038	0.34	0.060	0.013	0.037	0.075
	Copper (Cu)	0.10	mg/kg w.w.	57.4	0.134	0.019	0.08712	0.16	1.98	1.69	1.01	7.97	0.72	0.054	0.66	0.83
	Iron (Fe)	3.0	mg/kg w.w.	-	1.0	0.3	0.6699	1.9	70	31	33	137	24.5	4.2	17.4	31
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.005	0.002	<0.004	<0.011	<0.008	0.004	<0.004	<0.015	<0.006	0.0004	<0.005	<0.006
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.11	0.005	<0.10	<0.11	<0.12	0.013	<0.10	<0.15	<0.15	0.01	<0.13	<0.16
	Magnesium (Mg)	2.0	mg/kg w.w.	-	324	19	294	360	178	46	122	301	332	51	271	419
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	0.09	0.02	0.06	0.11	1.49	0.59	0.80	2.8	4	2.1	1	7
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.35	0.099	0.187	0.484	0.091	0.034	0.049	0.163	0.0250	0.006	0.0149	0.031
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	<0.005	0.001	<0.004	<0.009	0.121	0.039	0.055	0.178	0.012	0.003	0.006	0.016
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	0.05	0.01	0.04	0.07	0.05	0.006	<0.04	0.0606	<0.06	0.004	<0.05	<0.06
	Phosphorus (P)	10	mg/kg w.w.	-	2,295	173	1,856	2,588	2,769	671	1,838	4,313	2,719	194	2,439	2,946
	Potassium (K)	20	mg/kg w.w.	-	4,401	220	4,005	4,815	2,680	289	2,034	3,003	3,118	277	2,582	3,504
	Rubidium (Rb)	0.050	mg/kg w.w.	-	12.7	2.97	8.81	21.32	8.5	2.1	5.0	12.238	9.2	1.57	7.2	11.5
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.21	0.02	0.18	0.27	0.68	0.11	0.47	0.87	0.83	0.15	0.52	0.96
	Sodium (Na)	20	mg/kg w.w.	-	264	61	120	369	1,076	185	780	1,517	786	201	441	1,095
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.019	0.010	<0.010	0.046	0.11	0.20	0.038	0.81765	0.061	0.019	0.035	0.097
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.004	0.0002	<0.004	<0.005	<0.005	0.0005	<0.004	<0.006	<0.006	0.0004	<0.005	<0.006
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0033	0.00076	0.0023	0.0045	0.0093	0.0032	0.0057	0.0166474	0.0072	0.0017	0.0044	0.0095
	Tin (Sn)	0.10	mg/kg w.w.	-	0.02	0.003	<0.02	0.03	0.10	0.06	<0.02	0.25863	0.04	0.01	<0.03	0.06
	Uranium (U)	0.0020	mg/kg w.w.	0.4	<0.0004	0.00002	<0.0004	<0.0005	0.0005	0.0001	<0.0004	0.000946	<0.0006	0.00004	<0.0005	<0.0006
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.02	0.001	<0.02	<0.02	0.03	0.03	<0.02	0.1419	<0.03	0.002	<0.03	<0.03
	Zinc (Zn)	0.50	mg/kg w.w.	189	2.8	0.3	2.4	3.4	15.9	2.2	12.9563	18.9981	31	4.4	22	35
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.04	0.002	<0.04	<0.05	<0.05	0.005	<0.04	<0.06	<0.06	0.004	<0.05	<0.06

SD - Standard Deviation.

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

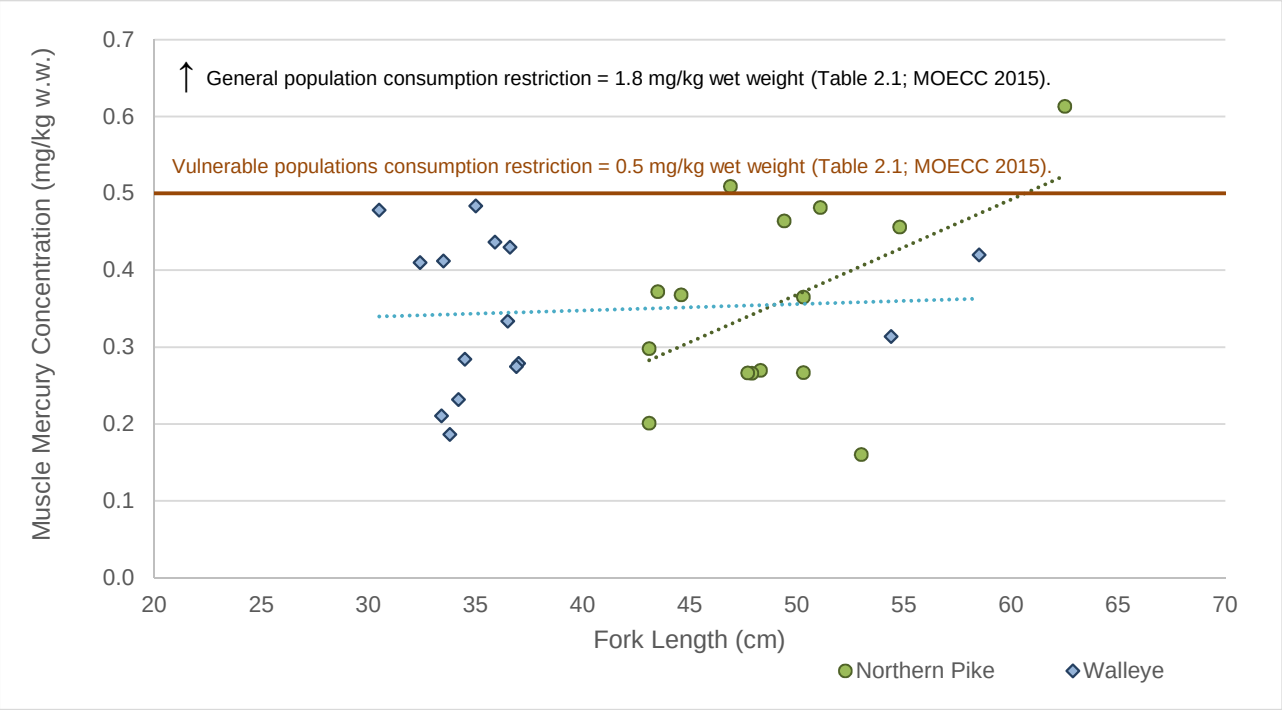

Figure 3.1: Muscle mercury concentration and fork length of fish from the Pinewood River, Rainy River Project Fish Tissue Monitoring, 2016.

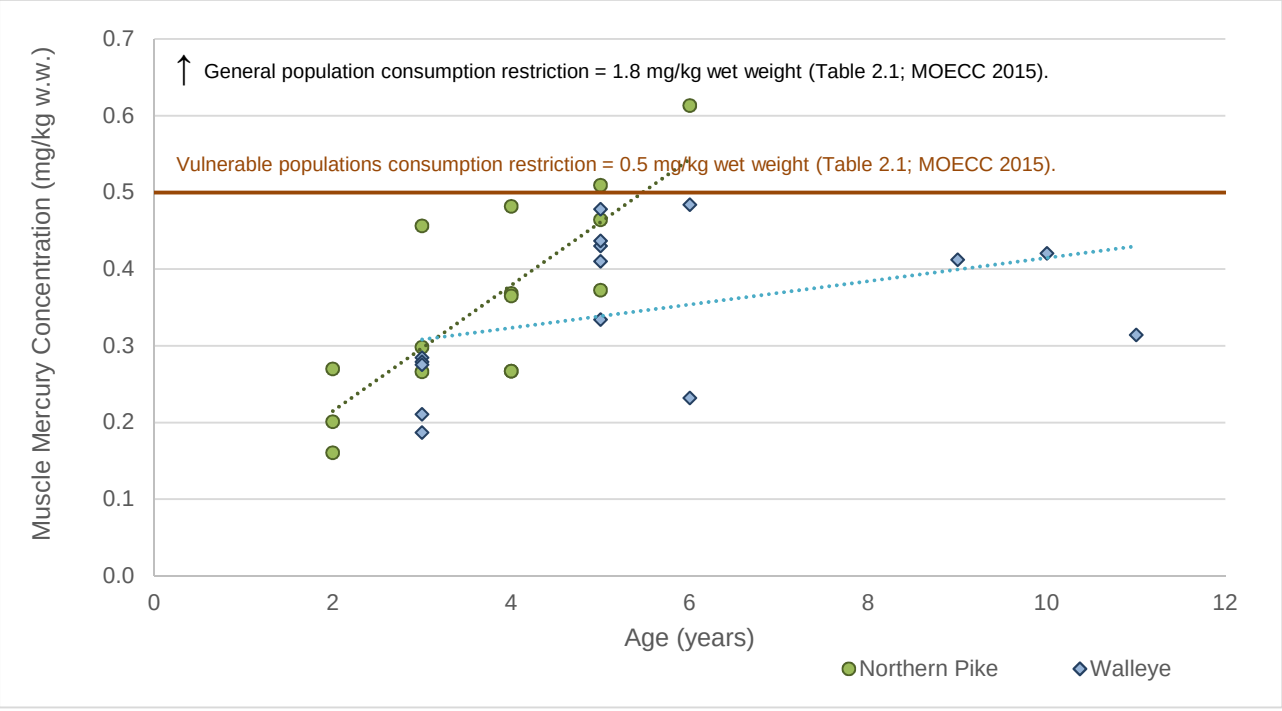

Figure 3.2: Muscle mercury concentration and age of fish from the Pinewood River, Rainy River Project Fish Tissue Monitoring, 2016.

(Figure 3.3). For Pinewood River walleye, the combined data suggest that fish with fork lengths greater than 38.8 cm will have mercury concentrations greater than this benchmark (Figure 3.4).

The 2016 muscle mercury concentrations were compared to 2015 data and baseline data. The assessment was made by comparing concentrations at length, due to the established relationship between mercury concentrations and fish size. Comparison with baseline data showed that concentrations have generally remained within the same range or lower, despite notably different maximum sizes/ages for both species (Figure 3.3 and 3.4; AMEC 2013). The longest/oldest northern pike captured in the 2016 was bigger than the largest/oldest captured in the baseline. For walleye, the opposite was true. Generally, average metal concentrations in northern pike and walleye muscle tissue were within the range of baseline (2012) data for all metals (Table 3.3; AMEC 2013). Average metal concentrations in muscle tissue of fish collected in 2016 were also within range of fish collected in 2015 for all metals (Table 3.3).

Overall, the majority of metal concentrations in fish muscle were below human consumption benchmarks. Mercury concentrations in two northern pike muscle samples were marginally above the benchmark (i.e., the guideline for commercially sold fish and the consumption restriction guideline for vulnerable populations; Health Canada 2007, MOECC 2015). However, mercury concentrations were below the consumption restriction guideline for the general population (Table 2.1, MOECC 2015). Based comparison to human consumption benchmarks and baseline data, it appears that the RRP has not influenced metal concentrations in tissues of exposed northern pike or walleye.

3.2.2 Liver Tissue Chemistry

Fish liver tissue is not recommended for human consumption (MOECC 2015). Discussion with local First Nations community members in August 2016 indicated that organs of fish caught in the Pinewood River are not regularly eaten by community members (Appendix D). It is unclear whether livers are included with canned northern pike, a process which includes 80% of the fish (Appendix D). However, since RRP has regulatory requirements to monitor for key contaminants in northern pike and walleye livers, concentrations of metals in livers have been screened against benchmarks for context. Many metals are known to accumulate to higher concentrations in liver tissue than in muscle tissue (e.g., chromium, lead), and liver is more likely to contain quantifiable chemical concentrations.

Liver tissue samples contained metal concentrations that were well below human consumption benchmarks for metals with established TDI values or a commercial guideline (Tables 3.2 and

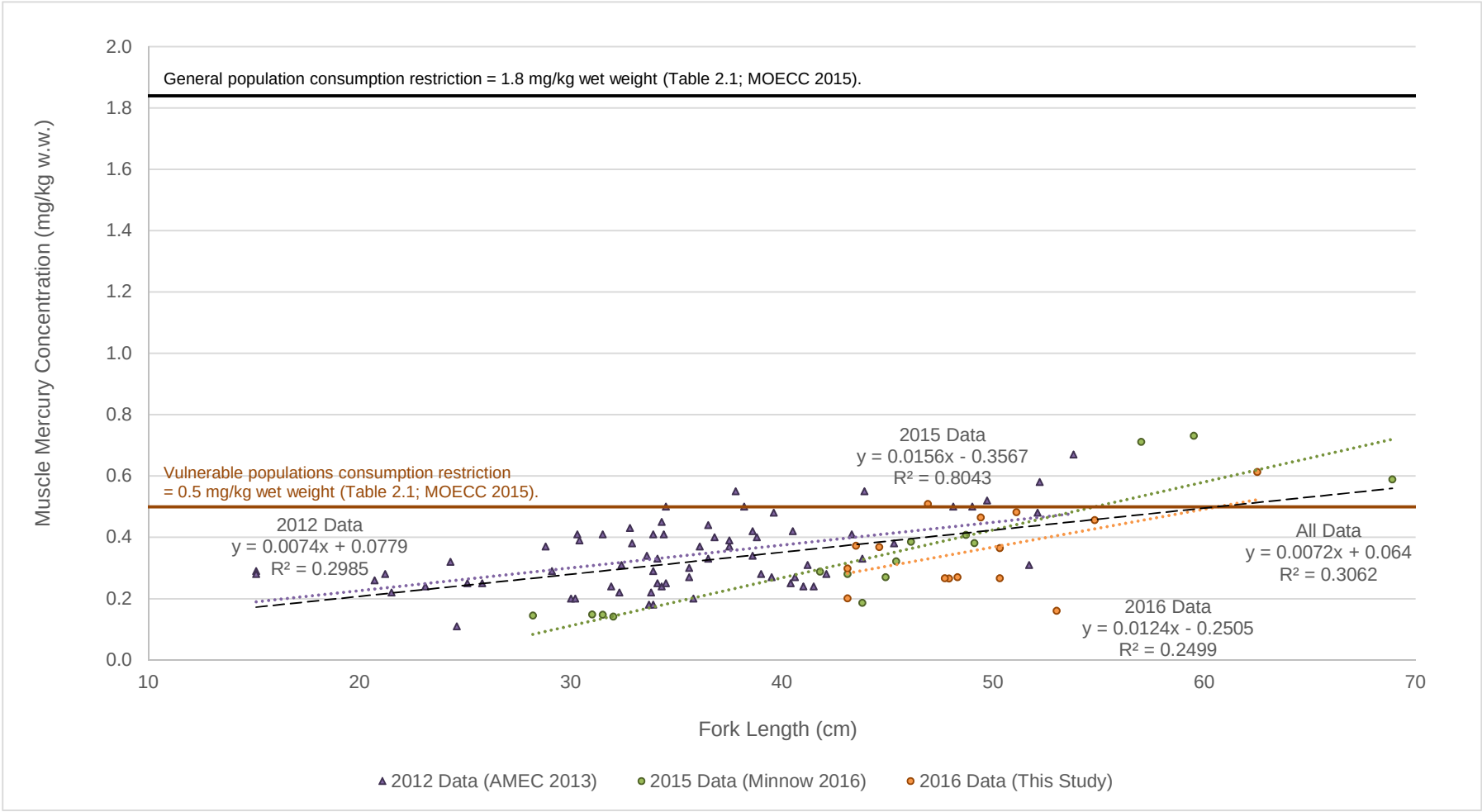

Figure 3.3: Muscle mercury concentration and fork length of northern pike from the Pinewood River, comparing fish caught during the baseline (2012; n = 70) and construction (2015 [n = 15] and 2016 [n = 15]) periods, Rainy River Project Fish Tissue Monitoring, 2016.

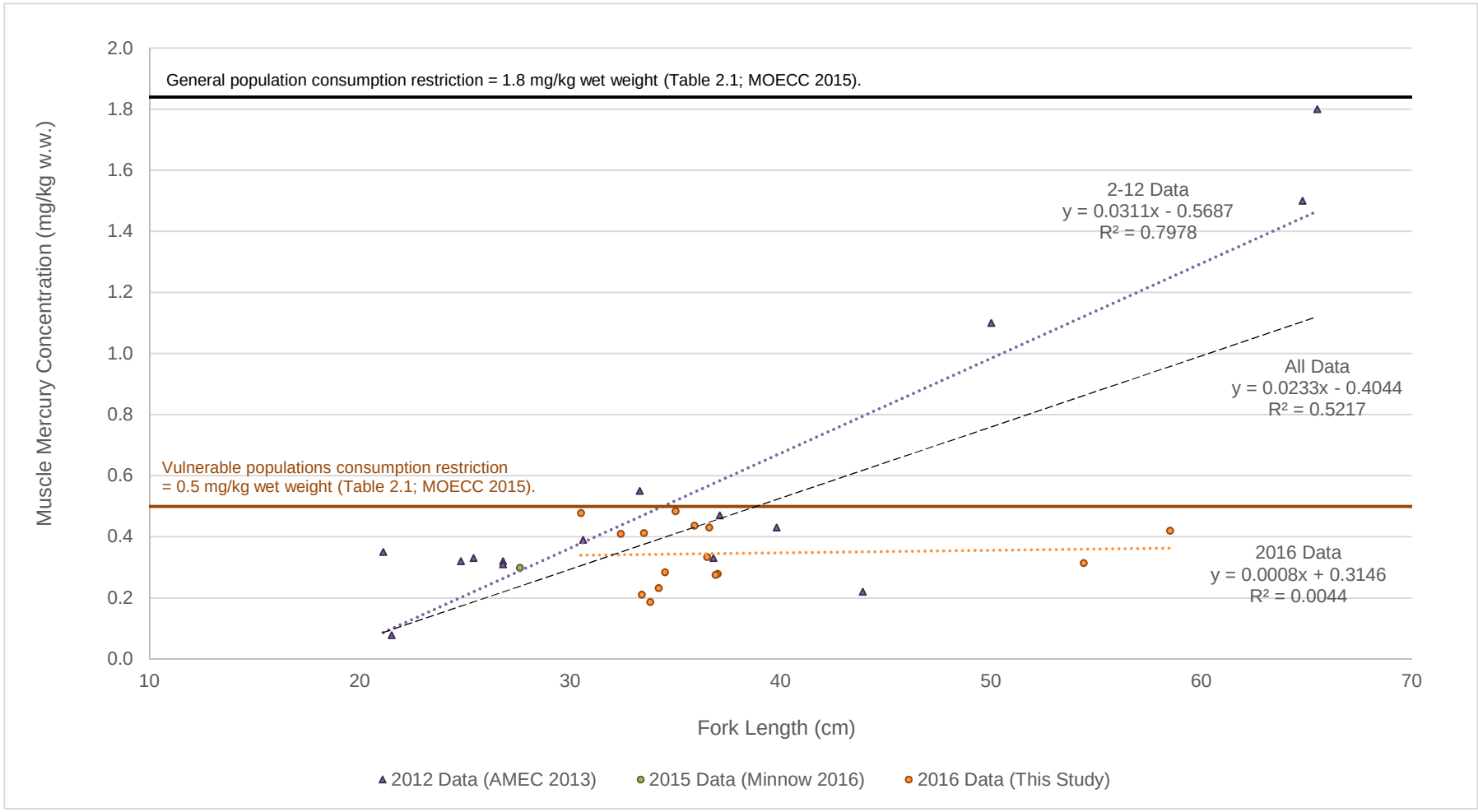

Figure 3.4: Muscle mercury concentration and fork length of walleye from the Pinewood River, comparing fish caught during the baseline (2012; n = 15) and construction (2015 [n = 15] and 2016 [n = 15]) periods, Rainy River Project Fish Tissue Monitoring, 2016.

Table 3.3: Concentrations (mean ± standard deviation) of contaminants of potential concern (COPC) in northern pike and walleye muscle tissue, comparing baseline (2012) and construction (2015, 2016) data, Rainy River Project Fish Tissue Monitoring.

COPC	Units	Benchmark[1,2]	Northern Pike Muscle Tissue Average ± SD			Walleye Muscle Tissue Average ± SD		
			Baseline 2012 Data (n = 70; AMEC 2013)	2015 Data (n = 15; Minnow 2016)	2016 Data (n = 15; This Study)	Baseline 2012 Data (n = 15; AMEC 2013)	2015 Data (n = 1; Minnow 2016)	2016 Data (n = 15; This Study)
Arsenic (As)	mg/kg w.w.	1.0	0.10 ± 0	0.093 ± 0.021	0.086 ± 0.037	0.1 ± 0	0.10	0.04 ± 0.01
Boron (B)	mg/kg w.w.	56.2	<0.50 ± 0	<0.22 ± 0.011	<0.21 ± 0.012	<0.5 ± 0	<0.21	<0.2 ± 0.009
Cadmium (Cd)	mg/kg w.w.	3.2	<0.01 ± 0	0.0018 ± 0.0016	0.0013 ± 0.00077	<0.01 ± 0	<0.0010	<0.0011 ± 0.0003
Chromium (Cr)	mg/kg w.w.	3.2	<0.30 ± 0	0.024 ± 0.023	0.022 ± 0.023	<0.3 ± 0	<0.010	0.01 ± 0.010
Cobalt (Co)	mg/kg w.w.	-	0.01 ± 0.00051	0.0045 ± 0.00024	0.0044 ± 0.00034	<0.005 ± 0	<0.0042	<0.004 ± 0.0002
Copper (Cu)	mg/kg w.w.	292.2	0.51 ± 0.048	0.18 ± 0.041	0.15 ± 0.030	0.54 ± 0.15	0.15	0.13 ± 0.02
Iron (Fe)	mg/kg w.w.	-	3.23 ± 0.52	2.76 ± 0.88	1.69 ± 0.38	3.2 ± 0.56	2.2	1.0 ± 0.3
Lead (Pb)	mg/kg w.w.	11.6	0.03 ± 0	0.012 ± 0.018	<0.0043 ± 0.00024	<0.03 ± 0	0.007	<0.005 ± 0.002
Manganese (Mn)	mg/kg w.w.	391.7	0.78 ± 0.73	0.44 ± 0.25	0.36 ± 0.22	0.31 ± 0.03	0.16	0.09 ± 0.02
Mercury (Hg)	mg/kg w.w.	0.5	0.34 ± 0.11	0.34 ± 0.20	0.36 ± 0.13	0.57 ± 0.50	0.30	0.35 ± 0.099
Molybdenum (Mo)	mg/kg w.w.	16.1	0.05 ± 0.012	0.0056 ± 0.0020	<0.0043 ± 0.00024	<0.05 ± 0	<0.0042	<0.005 ± 0.001
Nickel (Ni)	mg/kg w.w.	3.5	0.10 ± 0.44	<0.044 ± 0.0021	<0.043 ± 0.0024	<0.05 ± 0	<0.042	0.05 ± 0.01
Selenium (Se)	mg/kg w.w.	16.1	0.20 ± 0.017	0.21 ± 0.031	0.18 ± 0.023	0.21 ± 0.04	0.29	0.21 ± 0.02
Zinc (Zn)	mg/kg w.w.	963	5.0 ± 1.8	4.6 ± 2.6	4.1 ± 1.0	3.5 ± 0.6	3.2	2.8 ± 0.3

w.w. - wet weight.

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1; MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

C.6). Generally, average liver concentrations were within the range of 2015 and baseline (2012) data for all metals (Table 3.4; AMEC 2013).

3.2.3 Ovary Tissue Chemistry

Discussion with local First Nations community members in August 2016 indicated that roe of fish caught in the Pinewood River is not regularly eaten by community members (Appendix D). Despite this, concentrations of metals in ovaries have been screened against benchmarks as a precaution. Some metals are known to accumulate to higher concentrations in ovary tissue than in muscle tissue (e.g., selenium).

Screening of 2016 ovary tissue samples showed that ovaries contained metal concentrations that were below human consumption benchmarks for metals with established TDI values or a commercial guideline (Tables 3.2 and C.7). Average ovary concentrations of northern pike collected in 2016 were within range of fish collected in 2015 for all metals (Table 3.5). No female walleye were sampled in 2015. Ovaries could not be compared to baseline, as they were not sampled during the project baseline.

Table 3.4: Concentrations (mean ± standard deviation) of contaminants of potential concern (COPC) in northern pike and walleye liver tissue, comparing baseline (2012) and construction (2015, 2016) data, Rainy River Project Fish Tissue Monitoring.

COPC	Units	Benchmark[1,2]	Northern Pike Liver Tissue Average ± SD			Walleye Liver Tissue Average ± SD		
			Baseline 2012 Data (n = 70; AMEC 2013)	2015 Data (n = 15; Minnow 2016)	2016 Data (n = 15; This Study)	Baseline 2012 Data (n = 13; AMEC 2013)	2015 Data (n = 1; Minnow 2016)	2016 Data (n = 15; This Study)
Arsenic (As)	mg/kg w.w.	1.0	0.10 ± 0.013	0.044 ± 0.020	0.040 ± 0.012	<0.10 ± 0	0.020	0.012 ± 0.020
Boron (B)	mg/kg w.w.	56.2	<0.50 ± 0	<0.28 ± 0.058	<0.26 ± 0.047	<0.05 ± 0	<0.06	<0.05 ± 0.026
Cadmium (Cd)	mg/kg w.w.	3.2	0.051 ± 0.050	0.054 ± 0.038	0.073 ± 0.048	0.112 ± 0.055	0.038	0.048 ± 0.104
Chromium (Cr)	mg/kg w.w.	3.2	<0.30 ± 0	0.039 ± 0.039	0.023 ± 0.020	<0.30 ± 0	0.039	0.020 ± 0.020
Cobalt (Co)	mg/kg w.w.	-	0.056 ± 0.057	0.043 ± 0.017	0.050 ± 0.017	0.13 ± 0.088	0.017	0.017 ± 0.094
Copper (Cu)	mg/kg w.w.	292.2	13 ± 9.3	25 ± 12	24 ± 11	2.0 ± 0.5	12	11 ± 2
Iron (Fe)	mg/kg w.w.	-	112 ± 73	122 ± 112	203 ± 169	84 ± 24	112	169 ± 31
Lead (Pb)	mg/kg w.w.	11.6	0.031 ± 0.0075	0.044 ± 0.13	0.0071 ± 0.0044	0.030 ± 0	0.127	0.0044 ± 0.0042
Manganese (Mn)	mg/kg w.w.	391.7	1.5 ± 0.49	1.4 ± 0.58	1.1 ± 0.35	1.9 ± 0.45	0.6	0.3 ± 0.59
Mercury (Hg)	mg/kg w.w.	0.5	0.18 ± 0.16	0.14 ± 0.10	0.13 ± 0.071	0.33 ± 0.32	0.10	0.07 ± 0.034
Molybdenum (Mo)	mg/kg w.w.	16.1	0.17 ± 0.046	0.15 ± 0.042	0.18 ± 0.051	0.14 ± 0.046	0.04	0.05 ± 0.039
Nickel (Ni)	mg/kg w.w.	3.5	0.05 ± 0	<0.057 ± 0.012	0.053 ± 0.011	<0.05 ± 0	<0.012	0.011 ± 0.006
Selenium (Se)	mg/kg w.w.	16.1	1.3 ± 0.39	1.5 ± 0.38	1.8 ± 0.42	0.79 ± 0.16	0.4	0.4 ± 0.11
Zinc (Zn)	mg/kg w.w.	963	34 ± 13	47 ± 16	38 ± 9.2	19 ± 2	16	9 ± 2.2

w.w. - wet weight.

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1; MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table 3.5: Concentrations (mean ± standard deviation) of contaminants of potential concern (COPC) in northern pike and walleye ovary tissue, comparing 2015 and 2016 (construction period) data, Rainy River Project Fish Tissue Monitoring.

COPC	Units	Benchmark[1,2]	Northern Pike Ovary Tissue Average ± SD		Walleye Ovary Tissue Average ± SD
			2015 Data (n = 9; Minnow 2016)	2016 Data (n = 7; This Study)	2016 Data (n = 8; This Study)
Arsenic (As)	mg/kg w.w.	1.0	0.025 ± 0.0056	0.022 ± 0.011	0.043 ± 0.008
Boron (B)	mg/kg w.w.	56.2	<0.22 ± 0.026	<0.2 ± 0.01	<0.3 ± 0.02
Cadmium (Cd)	mg/kg w.w.	3.2	0.0076 ± 0.0026	0.0060 ± 0.0025	0.0020 ± 0.0011
Chromium (Cr)	mg/kg w.w.	3.2	0.017 ± 0.012	0.018 ± 0.012	<0.015 ± 0.001
Cobalt (Co)	mg/kg w.w.	-	0.067 ± 0.015	0.057 ± 0.0191	0.060 ± 0.013
Copper (Cu)	mg/kg w.w.	292.2	1.18 ± 0.160	1.26 ± 0.137	0.72 ± 0.054
Iron (Fe)	mg/kg w.w.	-	54.9 ± 11.1	52 ± 8.3	24.5 ± 4.2
Lead (Pb)	mg/kg w.w.	11.6	0.0076 ± 0.0071	<0.004 ± 0.0002	<0.006 ± 0.0004
Manganese (Mn)	mg/kg w.w.	391.7	35.4 ± 11.8	34 ± 6.8	4 ± 2.1
Mercury (Hg)	mg/kg w.w.	0.5	0.0310 ± 0.0176	0.029 ± 0.013	0.0250 ± 0.006
Molybdenum (Mo)	mg/kg w.w.	16.1	0.042 ± 0.0073	0.053 ± 0.0101	0.012 ± 0.003
Nickel (Ni)	mg/kg w.w.	3.5	<0.044 ± 0.0053	0.04 ± 0.007	<0.06 ± 0.004
Selenium (Se)	mg/kg w.w.	16.1	1.17 ± 0.287	0.97 ± 0.35	0.83 ± 0.15
Zinc (Zn)	mg/kg w.w.	963	80.0 ± 19.8	70 ± 12.5	31 ± 4.4

w.w. - wet weight.

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1; MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Conclusions of the fish assessment undertaken in the Pinewood River downstream from the Rainy River Project in the fall of 2016 are listed below.

1. Fish communities and catchability (CPUE) were generally consistent with the results of previous sampling efforts, with higher CPUE for northern pike relative to walleye. CPUE for walleye was higher in 2016 than in 2015 and in baseline studies.

2. New benchmarks were used in 2016 based on discussions regarding local fishing and consumption rates. The benchmarks were calculated based on the upper limit consumption rate for the Canadian population. Despite this change, even comparison to benchmarks derived from the much higher subsistence consumption rates (i.e., benchmarks used in 2015) would not change the conclusions of this report.

3. Northern pike and walleye muscle, liver, and ovary tissue samples contained metal concentrations that were below human consumption benchmarks for metals with established TDI values, except for mercury in two northern pike muscle samples. Mean concentrations of mercury in both species were below the benchmark for all tissue sample types and within the range of baseline for muscle and liver samples.

4. Screening of metal concentrations in northern pike and walleye muscle tissue indicated that mercury in northern pike occurs at concentrations above some consumption benchmarks in larger fish (greater than approximately 60.5 cm in length). Mercury concentrations in fish muscle tissue of larger predatory fish are often naturally high in northern environments and do not indicate that the RRP has influenced fish tissue quality.

Overall, the data indicate that the Rainy River Project has not had any influence on the concentrations of metals in muscle and liver tissues of sentinel fish species (northern pike and walleye).

4.2 Recommendations

Based on information acquired during the 2016 fish tissue monitoring study, recommendations for future monitoring include:

1. Utilize local fisherpersons for targeted angling of northern pike and walleye (particularly focused on the latter). In addition to providing opportunity for First Nations involvement,

local knowledge of the habitat may result in efficient capture of walleye by angling while reducing the bycatch and the stress to fish associated with gillnetting. An angling event with local support could occur during one or two evenings, with subsequent supplementary gill and hoop netting by Minnow to ensure the capture of 15 individuals.

2. Discontinue monitoring of ovaries, as the roe of northern pike and walleye caught in the Pinewood River are not regularly eaten by community members (Appendix D) and there is no apparent benefit of analyzing ovaries in addition to fish muscle tissue.

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APPENDIX A

Data Quality Assessment

APPENDIX A: DATA QUALITY ASSESSMENT

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A1.0 INTRODUCTION

Data Quality Assessment (DQA) was conducted on data collected as part of the Rainy River Project (RRP) 2015 Fish Tissue Monitoring Program. The objective of DQA is to define the overall quality of the data presented in the report, and, by extension, the confidence with which the data can be used to derive conclusions.

A1.1 Background

A variety of factors can influence the physical, chemical and biological measurements made in an environmental study and thus affect the accuracy and/or precision of the data. Depending on the magnitude of the problem, inaccuracy or imprecision have the potential to affect the reliability of any conclusions made from the data. Therefore, it is important to ensure that programs incorporate appropriate steps to control the non-natural sources of data variability (i.e., minimize the variability that does not reflect natural spatial and temporal variability in the environment) and thus assure the quality of the data.

Data quality as a concept is meaningful only when it relates to the intended use of the data. That is, one must know the context in which the data will be interpreted in order to establish a relevant basis for judging whether or not the data set is adequate. DQA involves comparison of actual field and laboratory measurement performance to data quality objectives (DQOs) established for a particular study, such as evaluation of method detection limits, blank sample data, data precision (based on field and laboratory duplicate samples), and data accuracy (based on matrix spike recoveries and/or analysis of standards or certified reference materials). A trusted analytical laboratory certified by Canadian Association for Laboratory Accreditation (CALA) with a rigorous internal quality assurance program was selected to ensure the highest possible quality.

DQOs were established a-priori to reflect reasonable and achievable performance expectations. Programs involving a large number of samples and analytes usually yield some results that exceed the DQOs. This is particularly so for multi-element scans since the analytical conditions are not necessarily optimal for every element included in the scan. Generally, scan results may be considered acceptable if no more than 20% of the parameters fail to meet the DQOs. Overall, the intent of DQA is not to reject any measurement that did not meet a DQO, but to ensure that any questionable data received more scrutiny to determine what effect, if any, this had on interpretation of results within the context of this project.

A1.2 Types of Quality Control Samples

Several types of quality control (QC) samples were assessed based on samples collected (or prepared) in the field and laboratory. These samples include the following:

- **Blanks** are samples of de-ionized water and/or appropriate reagent(s) that are handled and analyzed the same way as regular samples. These samples will reflect any contamination that occurred in the laboratory (in the case of laboratory or method blanks). Analyte concentrations should be non-detectable, although a data quality objective of twice the method detection limit allows for slight "noise" around the detection limit.
- **Field Duplicates** are sub-sample pairs collected from a randomly selected field station using identical collection and handling methods that are then analyzed separately in the laboratory. The duplicate samples are handled and analyzed in an identical manner in the laboratory. The data from field duplicate samples reflect natural variability, as well as the variability associated with sample collection methods, and therefore provide a measure of field precision.
- **Laboratory Duplicates** are sub-sample pairs created in the laboratory from randomly selected field samples which are sub-sampled and then analyzed independently using identical analytical methods. The laboratory duplicate sample results reflect any variability introduced during laboratory sample handling and analysis and thus provide a measure of laboratory precision.
- **Certified Reference Materials and QC Standards** are samples containing known chemical concentrations that are processed and analyzed along with batches of environmental samples. The sample results are then compared to target results to provide a measure of analytical accuracy. The results are reported as the percent of the known amount that was recovered in the analysis.

A2.0 FISH TISSUE SAMPLES

A2.1 Holding Time and General Laboratory Flags

All tissue analyses were conducted within ALS Environmental's recommended hold times. There were no general laboratory flags associated with the analytical report (i.e., ALS Environmental Report L1845628; Appendix C).

A2.2 Method Detection Limits

The analytical laboratory report (Appendix C) was examined to provide an inventory of analytes for which sample results were less than the method detection limit (MDL). Twenty of 35 analytes had results reported as less than MDL (Table A.1). All of the achieved MDL were lower than applicable benchmarks. Thus, the achieved MDLs were appropriate for the study and instances of results reported as <MDL did not adversely affect data interpretability.

A2.3 Laboratory Blank Sample Analysis

All but one of the 335 reported method blank results were non-detectable (Appendix C). In one method blank, manganese was slightly above the MDL; however, all samples had detectable concentrations of manganese that were at least 5-times greater than the method detection limit (Table C.5 to C.7), indicating that this one detectable result did not affect data interpretability. The method blank results for this study suggest no inadvertent sample contamination within the laboratory.

A2.4 Data Precision

Laboratory Duplicate Samples

Six laboratory duplicate samples were evaluated for moisture and another seven or eight laboratory duplicate samples were evaluated for each of the metals (Appendix C). All laboratory duplicate results (271 in total) met ALS Environmental's applicable DQOs. Overall, laboratory precision achieved in this study is considered good.

Field Duplicate Samples

Seven field duplicate samples (three muscle tissue, two liver, and one ovary) were collected for quality assurance (Table A.2). Most of duplicate samples had excellent agreement. In four of the ten samples only one analyte (chromium, copper, strontium, or tin) exceeded the DQO of ≤40% RPD (Table A.2). Although these results did not always

Table A.1: Laboratory method detection limit (MDL) evaluation for tissue chemistry analyses relative to criteria. Only analytes with <MDL values are reported. Highlighted values indicate MDL greater than Benchmark.

Analyte		Benchmark[1,2]	MDL Achieved	
			mg/kg dry weight	mg/kg wet weight[3]
Total Metals	Aluminum (Al)	-	2.0	0.4
	Antimony (Sb)	0.3	0.010	0.002
	Barium (Ba)	10.1	0.050	0.010
	Beryllium (Be)	1.3	0.010	0.002
	Bismuth (Bi)	-	0.010	0.002
	Boron (B)	11	1.0	0.2
	Cadmium (Cd)	0.5	0.0050	0.0009
	Cesium (Cs)	-	0.0050	0.0017
	Chromium (Cr)	0.6	0.050	0.009
	Cobalt (Co)	-	0.020	0.004
	Lead (Pb)	2.3	0.020	0.003
	Lithium (Li)	-	0.50	0.09
	Molybdenum (Mo)	3.2	0.020	0.004
	Nickel (Ni)	0.8	0.20	0.20
	Strontium (Sr)	378.4	0.050	0.010
	Tellurium (Te)	-	0.020	0.003
	Tin (Sn)	-	0.10	0.02
	Uranium (U)	0.4	0.0020	0.0003
	Vanadium (V)	-	0.10	0.02
	Zirconium (Zr)	-	0.20	0.03

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

[3] Calculated from mg/kg dry weight results.

Table A.2: Field duplicate results. Highlighted values did not meet the data quality objective of≤ 40% Relative Percent Difference (RPD).

Lab Report L1845628																								
Client Sample ID:			**PINR-NP01-M**	**PINR-NPX-M**	**RPD (%)**	**PINR-NP06-M**	**PINR-NPZ-M**	**RPD (%)**	**PINR-WA01-M**	**PINR-WAX-M**	**RPD (%)**	**PINR-WA06-M**	**PINR-WAZ-M**	**RPD (%)**	**PINR-NP01-L**	**PINR-NPX-L**	**RPD (%)**	**PINR-WA01-L**	**PINR-WAX-L**	**RPD (%)**	**PINR-NP01-O**	**PINR-NPX-O**	**RPD (%)**
Date Sampled:			**21-Sep-2016**	**21-Sep-2016**		**21-Sep-2016**	**21-Sep-2016**		**21-Sep-2016**	**21-Sep-2016**		**23-Sep-2016**	**23-Sep-2016**		**21-Sep-2016**	**21-Sep-2016**		**21-Sep-2016**	**21-Sep-2016**		**21-Sep-2016**	**21-Sep-2016**	
ALS Sample ID:			**L1845628-1**	**L1845628-16**		**L1845628-6**	**L1845628-17**		**L1845628-42**	**L1845628-57**		**L1845628-47**	**L1845628-58**		**L1845628-18**	**L1845628-33**		**L1845628-59**	**L1845628-74**		**L1845628-34**	**L1845628-41**	
Analytes	**Units**	**Lowest MDL**																					
% Moisture	%	0.25	77.2	77.3	0.1	78.6	78.1	0.6	79.0	78.1	1	77.5	77.5	0	79.6	78.3	2	73.9	76.0	3	80.5	80.8	0.4
Aluminum (Al)	mg/kg d.w.	2.0	2.3	2.7	16	<2.0	<5.0	0	<2.0	<2.0	0	<5.0	<5.0	0	2.6	2.7	4	<5.0	<5.0	0	<2.0	<2.0	0
Antimony (Sb)	mg/kg d.w.	0.010	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0
Arsenic (As)	mg/kg d.w.	0.020	0.090	0.107	17	0.470	0.394	18	0.174	0.141	21	0.166	0.188	12	0.040	0.055	32	0.259	0.280	8	0.025	0.026	4
Barium (Ba)	mg/kg d.w.	0.050	0.291	0.266	9	0.168	0.480	96	<0.050	<0.050	0	0.054	<0.050	8	<0.050	<0.050	0	<0.050	<0.050	0	0.295	0.231	24
Beryllium (Be)	mg/kg d.w.	0.010	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.010	<0.010	0
Bismuth (Bi)	mg/kg d.w.	0.010	<0.010	<0.010	0	<0.010	<0.010	0	0.011	0.012	9	0.019	0.018	5	<0.010	0.011	10	<0.010	<0.010	0	<0.010	<0.010	0
Boron (B)	mg/kg d.w.	1.0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
Cadmium (Cd)	mg/kg d.w.	0.0050	<0.0050	<0.0050	0	<0.0050	<0.010	0	<0.0050	<0.0050	0	<0.010	<0.010	0	0.0706	0.0711	0.7	0.187	0.203	8	0.0099	0.0120	19
Calcium (Ca)	mg/kg d.w.	20	2,520	2,280	10	1,810	4,110	78	793	531	40	489	446	9	150	157	5	377	275	31	660	601	9
Cesium (Cs)	mg/kg d.w.	0.0050	0.0524	0.0500	5	0.0224	0.0381	52	0.0499	0.0441	12	0.0483	0.0441	9	0.0123	0.0125	2	0.0283	0.0322	13	0.0348	0.0350	0.6
Chromium (Cr)	mg/kg d.w.	0.050	0.082	0.056	38	<0.050	<0.20	0	<0.050	<0.050	0	<0.20	<0.20	0	<0.050	<0.050	0	<0.20	<0.20	0	0.096	0.311	106
Cobalt (Co)	mg/kg d.w.	0.020	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	0.130	0.109	18	0.273	0.351	25	0.154	0.159	3
Copper (Cu)	mg/kg d.w.	0.10	0.86	0.86	0	0.78	0.62	23	0.77	0.74	4	0.77	0.41	61	55.7	63.3	13	4.84	4.96	2	6.64	6.77	2
Iron (Fe)	mg/kg d.w.	3.0	9.0	7.9	13	8.1	8.1	0	3.8	3.4	11	7.5	5.1	38	548	455	19	184	172	7	211	217	3
Lead (Pb)	mg/kg d.w.	0.020	<0.020	0.028	33	<0.020	<0.050	0	<0.020	<0.020	0	<0.050	<0.050	0	<0.020	<0.020	0	<0.050	<0.050	0	<0.020	<0.020	0
Lithium (Li)	mg/kg d.w.	0.50	<0.50	<0.50	0	<0.50	<0.50	0	<0.50	<0.50	0	<0.50	<0.50	0	<0.50	<0.50	0	<0.50	<0.50	0	<0.50	<0.50	0
Magnesium (Mg)	mg/kg d.w.	2.0	1,540	1,480	4	1,600	1,440	11	1,580	1,450	9	1,390	1,220	13	754	742	2	707	777	9	1,290	1,320	2
Manganese (Mn)	mg/kg d.w.	0.050	2.54	2.31	9	2.81	6.64	81	0.494	0.370	29	0.530	0.424	22	2.79	2.98	7	7.09	7.74	9	117	119	2
Mercury (Hg)	mg/kg d.w.	0.0050	2.01	2.00	0.5	1.80	1.64	9	2.04	1.97	3	2.17	2.08	4	0.630	0.688	9	0.301	0.305	1	0.188	0.210	11
Molybdenum (Mo)	mg/kg d.w.	0.020	<0.020	<0.020	0	<0.020	<0.040	0	<0.020	<0.020	0	<0.040	<0.040	0	0.521	0.480	8	0.406	0.493	19	0.276	0.308	11
Nickel (Ni)	mg/kg d.w.	0.20	<0.20	<0.20	0	<0.20	<0.20	0	0.21	0.28	29	<0.20	<0.20	0	<0.20	0.20	0	<0.20	<0.20	0	0.22	<0.20	10
Phosphorus (P)	mg/kg d.w.	10	12,100	11,500	5	11,900	11,100	7	11,500	9,710	17	8,410	8,090	4	13,800	13,700	0.7	10,300	11,200	8	16,400	16,600	1
Potassium (K)	mg/kg d.w.	20	19,200	18,600	3	20,400	17,800	14	21,400	18,600	14	17,600	18,000	2	14,900	13,700	8	8,940	10,500	16	19,000	19,800	4
Rubidium (Rb)	mg/kg d.w.	0.050	20.5	20.0	2	21.4	20.1	6	53.3	48.3	10	40.1	38.2	5	18.5	17.4	6	29.1	32.6	11	22.9	24.3	6
Selenium (Se)	mg/kg d.w.	0.050	0.666	0.642	4	1.08	0.94	14	1.07	1.04	3	0.93	0.90	3	4.58	5.02	9	2.23	2.19	2	4.35	4.20	4
Sodium (Na)	mg/kg d.w.	20	1,170	1,180	0.9	1,930	1,280	40	1,660	1,780	7	901	769	16	3,980	3,510	13	3,690	4,080	10	4,570	4,460	2
Strontium (Sr)	mg/kg d.w.	0.050	1.51	1.34	12	0.775	1.97	87	0.181	0.080	77	<0.10	<0.10	0	0.167	0.130	25	0.24	0.18	29	0.603	0.509	17
Tellurium (Te)	mg/kg d.w.	0.020	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0	<0.020	<0.020	0
Thallium (Tl)	mg/kg d.w.	0.0020	0.0127	0.0110	14	0.0120	0.0123	2	0.0153	0.0136	12	0.0193	0.0192	0.5	0.0093	0.0069	30	0.0244	0.0278	13	0.0224	0.0241	7
Tin (Sn)	mg/kg d.w.	0.10	0.40	0.40	0	0.54	0.34	45	<0.10	<0.10	0	0.13	0.16	21	0.43	0.28	42	0.37	0.45	20	0.16	0.17	6
Uranium (U)	mg/kg d.w.	0.0020	<0.0020	0.0024	18	<0.0020	<0.0020	0	<0.0020	<0.0020	0	<0.0020	<0.0020	0	<0.0020	<0.0020	0	<0.0020	<0.0020	0	<0.0020	<0.0020	0
Vanadium (V)	mg/kg d.w.	0.10	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	0.28	0.25	11	<0.10	<0.10	0	<0.10	<0.10	0
Zinc (Zn)	mg/kg d.w.	0.50	17.9	17.6	2	20.0	21.9	9	13.7	12.0	13	10.8	10.2	6	111	111	0	50.4	55.9	10	367	373	2
Zirconium (Zr)	mg/kg d.w.	0.20	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0

d.w. - dry weight.
MDL - Method Detection Limit.

achieve the DQO, the absolute differences in concentration between duplicate samples were low, particularly considering that concentrations were approaching the corresponding MDLs (i.e., within 10-times the MDL). One muscle tissue sample (PINR-NP06-M) had concentrations that exceeded the DQO for barium, calcium, cesium, manganese, sodium, strontium, and tin (Table A.2). For some of these analytes (barium, cesium, and tin), absolute differences were relatively small and approaching the MDL. Concentrations of calcium, manganese, sodium, and strontium were well above the MDLs (Table A.2; Appendix C). Of these, only manganese is a contaminant of potential concern, but had excellent agreement in the other six samples. Samples were split in the field prior to laboratory homogenization, so the differences between duplicate samples may reflect natural spatial variability of fish tissues. However, it may also result from the apparent laboratory difficulty with complete sample homogenization of muscle tissue (Laboratory Duplicate Samples; Appendix C). Overall, the data suggest that reported sample data were reasonably precise representations of tissue conditions at the time of sampling.

A2.5 Data Accuracy

Data accuracy was evaluated based on results of certified reference materials (CRM), and laboratory control samples (LCS; Appendix C). All CRM and LCS results (536 in total) met ALS Environmental's data quality objectives for accuracy (Appendix C). Laboratory accuracy achieved in this study is considered excellent.

A3.0 DATA QUALITY STATEMENT

Data collected for the 2016 fish tissue monitoring at the Rainy River Project was of good quality as characterized by good detectability, negligible analyte concentrations in method blanks, good laboratory and field precision, and good laboratory accuracy. Therefore, associated data can be used with a high level of confidence in the derivation of conclusions.

APPENDIX B

Fish Catch and Meristic Data

Fish Catch Data
Fish Meristic Data
Fish Permit

Table B.1: Summary of gill net catch records in the Pinewood River, Rainy River Project Fish Tissue Monitoring, 2016.

Net Set ID	Mesh Size (in)	Length (m)	UTM (NAD83, 15N)		Set Date	Lift Date	Set Time	Lift Time	Time (hrs)	Effort (m*hrs/ 100 m)	Northern Pike		Walleye		Black Crappie		Rock Bass		Shorthead Redhorse		White Sucker		Yellow Perch	
			Easting	Northing							Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
GN1	4	45.72	403797	5396699	20-Sep-16	21-Sep-16	18:00	13:35	19.58	8.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GN2	3	45.72	404116	5396869	20-Sep-16	21-Sep-16	18:15	13:20	19.08	8.72	3	0.34	2	0.23	2	0.23	0	0	1	0.11	0	0	0	0
GN2b	3	45.72	404116	5396869	21-Sep-16	22-Sep-16	13:25	13:50	24.42	11.16	2	0.18	0	0	2	0.18	0	0	0	0	1	0.09	0	0
GN2c	3	45.72	404116	5396869	22-Sep-16	22-Sep-16	13:57	18:00	4.05	1.85	1	0.54	0	0	0	0	1	0.54	0	0	0	0	0	0
GN3	3	45.72	412958	5405686	21-Sep-16	21-Sep-16	9:41	18:53	9.20	4.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GN4	3	45.72	410302	5403889	21-Sep-16	21-Sep-16	10:06	18:34	8.47	3.87	1	0.26	0	0	0	0	0	0	0	0	0	0	0	0
GN5	3	45.72	408086	5402502	21-Sep-16	21-Sep-16	10:40	18:05	7.42	3.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GN6	3	45.72	407948	5397979	21-Sep-16	21-Sep-16	11:10	17:30	6.33	2.90	3	1.04	0	0	0	0	0	0	0	0	0	0	0	0
GN7	3	45.72	404735	5397659	21-Sep-16	21-Sep-16	11:36	14:06	2.50	1.14	2	1.75	0	0	0	0	0	0	0	0	0	0	0	0
GN8	4	45.72	403469	5396389	21-Sep-16	22-Sep-16	13:39	12:45	23.10	10.56	0	0	0	0	0	0	0	0	0	0	1	0.09	0	0
GN8b	3	45.72	403469	5396389	22-Sep-16	23-Sep-16	13:00	11:17	22.28	10.19	4	0.39	0	0	1	0.10	0	0	0	0	0	0	1	0.10
GN9	3	45.72	404086	5396830	21-Sep-16	22-Sep-16	14:49	13:34	22.75	10.40	4	0.38	2	0.19	0	0	0	0	1	0.10	0	0	0	0
GN9b	3	45.72	404086	5396830	22-Sep-16	23-Sep-16	13:39	11:32	21.88	10.01	4	0.40	0	0	2	0.20	0	0	0	0	0	0	0	0
GN10	3	45.72	403440	5396348	22-Sep-16	23-Sep-16	15:05	9:26	18.35	8.39	8	0.95	3	0.36	4	0.48	2	0.24	0	0	0	0	0	0
GN11	3	45.72	404032	5397125	22-Sep-16	23-Sep-16	15:16	10:47	19.52	8.92	2	0.22	0	0	2	0.22	0	0	0	0	0	0	0	0
GN12	3	45.72	404076	5397163	22-Sep-16	23-Sep-16	15:34	10:19	18.75	8.57	4	0.47	1	0.12	3	0.35	0	0	0	0	1	0.12	0	0
GN13	3	45.72	403380	5396304	22-Sep-16	23-Sep-16	15:20	8:50	17.50	8.00	6	0.75	2	0.25	1	0.12	0	0	1	0.12	0	0	0	0
GN14	3	45.72	403348	5396275	23-Sep-16	23-Sep-16	11:47	16:00	4.22	1.93	6	3.11	1	0.52	0	0	0	0	0	0	0	0	0	0
GN14b	3	45.72	403348	5396275	23-Sep-16	24-Sep-16	16:05	8:23	16.30	7.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GN15	3	45.72	403444	5396348	23-Sep-16	23-Sep-16	11:52	16:13	4.35	1.99	3	1.51	0	0	0	0	0	0	0	0	0	0	0	0
GN15b	3	45.72	403444	5396348	23-Sep-16	24-Sep-16	16:18	8:40	16.37	7.48	5	0.67	2	0.27	4	0.53	0	0	0	0	0	0	0	0
GN16	3	45.72	403429	5396369	23-Sep-16	24-Sep-16	16:20	18:40	26.33	12.04	5	0.42	2	0.17	0	0	0	0	0	0	0	0	0	0
GN16b	3	45.72	403429	5396369	23-Sep-16	24-Sep-16	18:45	8:29	13.73	6.28	6	0.96	0	0	7	1.11	0	0	0	0	0	0	0	0
GN17	3	45.72	403340	5396221	23-Sep-16	24-Sep-16	16:39	8:09	15.50	7.09	7	0.99	2	0.28	2	0.28	0	0	0	0	0	0	0	0
GN18	3	45.72	404136	5396861	23-Sep-16	23-Sep-16	16:50	18:10	1.33	0.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0
									Total	**166.1**	**76**	**0.46**	**17**	**0.10**	**30**	**0.18**	**3**	**0.02**	**3**	**0.02**	**3**	**0.02**	**1**	**0.01**

CPUE = catch-per-unit-effort, expressed as the number of fish per 100 m/hr.

Table B.2: Summary of hoop net catch records in the Pinewood River, Rainy River Project Fish Tissue Monitoring, 2016.

Net Set ID	Net Size	UTM (NAD83, 15U)		Set Date	Lift Date	Set Time	Lift Time	Time (hrs)	Effort (trap*days)	Black Crappie	
		Easting	Northing							Catch	CPUE
HN1	m	404788	5397675	21-Sep-16	22-Sep-16	16:00	14:17	22.28	0.93	1	1.08
								Total	**0.93**	**1**	**1.08**

CPUE = catch-per-unit-effort, expressed as the number of fish per trap*day.
m = medium sized hoop nets (2.5' [0.75 m] diameter hoops, 1” [2.5 cm] stretched mesh).

Table B.3: Northern pike data for fish caught in the Pinewood River, Rainy River Project Fish Monitoring, 2016.

Date	Fish ID	Sex	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Organ Weight (g)		Mercury Concentration (mg/kg w.w.)			Age	Abnormalities
						Gonad	Liver	Muscle	Liver	Ovary		
21-Sep-16	PINR-NP01	F	54.8	58.8	1,170	24.033	20.133	0.456	0.139	0.039	3	-
21-Sep-16	PINR-NP02	F	48.3	51.4	800	10.777	7.503	0.270	0.088	0.017	2	-
21-Sep-16	PINR-NP03	F	51.1	55.2	930	15.605	11.628	0.482	0.131	0.030	4	-
21-Sep-16	PINR-NP04	M	47.9	51.1	815	12.022	5.780	0.266	0.109	-	3	-
21-Sep-16	PINR-NP05	M	44.6	47.4	720	19.804	11.807	0.368	0.072	-	4	-
21-Sep-16	PINR-NP06	M	43.5	46.6	605	11.104	5.952	0.372	0.109	-	5	-
21-Sep-16	PINR-NP08	F	43.1	47.5	700	10.640	6.886	0.201	0.082	0.018	2	-
21-Sep-16	PINR-NP09	M	53.0	45.9	630	7.163	7.646	0.160	0.059	-	2	-
22-Sep-16	PINR-NP10	M	43.1	46.1	620	16.562	8.503	0.298	0.087	-	3	-
22-Sep-16	PINR-NP11	M	46.9	49.8	720	10.562	7.815	0.509	0.203	-	5	-
22-Sep-16	PINR-NP12	F	50.3	53.7	1,020	19.377	14.061	0.267	0.076	0.018	4	-
22-Sep-16	PINR-NP13	M	49.4	52.7	790	9.731	5.766	0.464	0.325	-	5	-
22-Sep-16	PINR-NP14	F	50.3	53.5	880	14.931	12.305	0.365	0.128	0.031	4	-
22-Sep-16	PINR-NP15	M	47.7	50.6	750	13.344	4.977	0.267	0.067	-	4	-
22-Sep-16	PINR-NP16	F	62.5	65.7	1,640	20.357	17.235	0.613	0.203	0.052	6	-
Mean			**49.1**	**51.7**	**853**	**14.40**	**9.866**	**0.357**	**0.125**	**0.0293**	**4**	**-**
Minimum			**43.1**	**45.9**	**605**	**7.163**	**4.977**	**0.160**	**0.0589**	**0.0169**	**2**	**-**
Maximum			**62.5**	**65.7**	**1,640**	**24.03**	**20.13**	**0.613**	**0.325**	**0.0523**	**6**	**-**
Standard Deviation			**5.1**	**5.3**	**267**	**4.799**	**4.538**	**0.127**	**0.071**	**0.0131**	**1**	**-**

w.w. - wet weight.

Table B.4: Walleye data for fish caught in the Pinewood River, Rainy River Project Fish Monitoring, 2016.

Date	Fish ID	Sex	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Organ Weight (g)		Mercury Concentration (mg/kg w.w.)			Age	Abnormalities
						Gonad	Liver	Muscle	Liver	Ovary		
21-Sep-16	PINR-WA01	F	36.6	38.9	500	12.598	9.784	0.430	0.079	0.031	5	-
21-Sep-16	PINR-WA02	F	34.2	36.1	420	8.002	7.371	0.232	0.068	0.023	6	-
22-Sep-16	PINR-WA03	I	34.5	36.9	500	1.218	7.194	0.284	0.082	-	3	-
22-Sep-16	PINR-WA04	F	36.5	38.4	490	10.121	7.087	0.334	0.092	0.028	5	-
22-Sep-16	PINR-WA05	F	32.4	34.3	400	12.007	5.603	0.410	0.120	0.030	5	-
23-Sep-16	PINR-WA06	M	30.5	32.5	300	6.043	3.278	0.478	0.163	-	5	-
23-Sep-16	PINR-WA07	I	33.8	35.9	490	1.309	4.347	0.187	0.071	-	3	-
23-Sep-16	PINR-WA08	F	35.0	37.3	460	11.488	11.776	0.484	0.101	0.029	6	-
23-Sep-16	PINR-WA09	F	35.9	37.5	430	14.685	5.232	0.437	0.154	0.026	5	-
23-Sep-16	PINR-WA11	I	37.0	39.3	600	1.721	9.168	0.279	0.058	-	3	-
24-Sep-16	PINR-WA12	F	58.5	62.3	2,550	59.180	54.401	0.420	0.083	0.018	10	-
24-Sep-16	PINR-WA13	F	54.4	57.8	1,920	51.577	33.021	0.314	0.078	0.015	11	-
24-Sep-16	PINR-WA14	I	36.9	38.2	560	1.422	11.279	0.275	0.049	-	3	-
24-Sep-16	PINR-WA15	M	33.5	36.1	410	8.454	3.904	0.412	0.113	-	9	tumour on side
24-Sep-16	PINR-WA16	I	33.4	35.6	470	1.328	7.569	0.211	0.054	-	3	-
Mean			**37.5**	**39.8**	**700**	**13.41**	**12.068**	**0.346**	**0.091**	**0.0250**	**5**	**-**
Minimum			**30.5**	**32.5**	**300**	**1.218**	**3.278**	**0.187**	**0.0493**	**0.0149**	**3**	**-**
Maximum			**58.5**	**62.3**	**2,550**	**59.18**	**54.40**	**0.484**	**0.163**	**0.0313**	**11**	**-**
Standard Deviation			**7.9**	**8.4**	**638**	**17.728**	**13.702**	**0.099**	**0.034**	**0.0060**	**3**	**-**

w.w. - wet weight.

Ontario

Ministry of Natural Resources

Ministère des Richesses naturelles

Licence to Collect Fish for Scientific Purposes

Permis pour faire la collecte de poissons à des fins scientifiques

Licence No. / N° de permis	1084026
Local Reference No. / N° de référence local	FF2016-1618
Issuer Account No. / N° de compte du délivreur de permis	10003073

This licence is issued under Part I of the Fish Licensing Regulation made under the Fish and Wildlife Conservation Act, 1997 to:

Ce permis est délivré en vertu de la Partie I du règlement sur la délivrance de permis de pêche formulé conformément à la Loi sur la protection du poisson et de la faune de 1997 à:

	Last Name / Nom de famille	First Name / Prénom	Middle Name / Second Prénom
Name of Licencee / Nom du titulaire du permis	Ms. Tester	Jess	

Name of Business/Organization/Affiliation (if applicable) / Nom de l'entreprise/de l'organisme/de l'affiliation (le cas échéant)

Minnow Environment Inc.

Mailing address of Licencee / ***Adresse postale du titulaire du permis***

Street Name & No./PO Box/RR#/Gen. Del./ N° rue/C.P./R.R./poste restante

2 Lamb Street

City/Town/Municipality / Ville/village/municipalité	Province/State / Province/État	Postal Code/Zip Code / Code Postal/Zip
Georgetown	ON	L7G 3M9

to collect the species, size and quantites of fish from the waters as set out below.
Pour faire la collecte des espèces suivantes (stade et nombre indiqués ci-dessous):

Species / Espèces	Eggs / Oeuf X	Juvenile / Fretin X	Adults / Adulte X	Numbers / Nombre	Name of Waterbody / Nom de l'étendue d'eau
Northern Pike			X	15	Pinewood River
Walleye			X	15	Pinewood River

Yes/Oui ☐ Additional species/Waterbody list attached / Liste d'espèces/d'étendue d'eau additionnelles ci-jointe

Purpose of collection / ***But de la collecte***: Fish tissue monitoring as a requirement of the Federal ESA approval

Licence Dates / ***Dates du permis***	Effective Date / Date d'entrée en vigueur (YYYY-MM-DD)	Expiry Date / Date d'expiration (YYYY-MM-DD)
	2016-09-15	2016-10-31

Licence conditions / ***Conditions du permis***: This licence is subject to the conditions contained in Schedule A if included. / Ce permis doit respecter les conditions de l'annexe A si celle-ci est jointe.

Yes/Oui	No/Non	
☒	☐	Schedule A included. / Annexe A ci-jointe

Issued by (please print) / Délivré par (veuillez écrire en caractères d'imprimerie): Matt Myers

Signature of issuer / Signature du délivreur: <Original signed by>

Date of Issue/Date de délivrance (YYYY-MM-DD): 2016-07-13

Signature of Licencee / Signature du titulaire du permis: <Original signed by>

Date (YYYY-MM-DD): 2016-07-13

Personal information contained on this form is collected under the authority of the Fish and Wildlife Conservation Act, 1997 and will be used for the purpose of licencing, identification, enforcement, resource management and customer service surveys. Please direct further inquiries to the District Manager of the MNR issuing district.

Les renseignements personnels dans ce formulaire sont recueillis conformément à la Loi sur la protection du poisson de la faune, 1997 , et ils seront utilisés aux fins de délivrance de permis, d'identification, d'application des règlements, de gestion des ressources et de sondage sur les services a la clientèle. Veuillez communiquer avec le chef du district du MRN qui délivré le permis si vous avez des questions.

FW0032 (04/00)

Ontario

Licence to Collect Fish for Scientific Purposes
Schedule A – Licence Conditions

Licence No.1084026
Local Reference No. 2016-1618
Issuer Account No. 10003073

This licence is subject to the conditions listed below.

1. Mandatory report forms documenting the sampling conducted under this licence must be submitted to the licence issuer within 30 days of the termination date, but in no case later than January 31 next following the year of issue. The digital Mandatory Report form (Part 1) must be completed for each Sampling Program and the digital Site Collection Reports (Part 2) must be completed for each collection site. A separate map clearly indicating the location of each collection site must be attached to the Site Collection Reports. Submit Mandatory Report forms to the Fort Frances District MNRF office. The submission of a satisfactory report is a prerequisite to any subsequent renewals.

2. Sampling locations must be reported using GPS location data using: Projection: Universal Transverse Mercator (UTM); Datum: North American 1983 (NAD83), Canadian Transformation (CNT); Zone: 15 N; Units: metres.

3. Before carrying out any operation under this licence, any person authorized under this licence is required to consult with the Fort Frances Ministry of Natural Resources District Manager at least one week prior to anticipated start of sampling and obtain approval from the respective Manager for the proposed sampling activity. Also, any person authorized under this licence must advise the respective Manager of the date, time and location of all sampling.

4. A copy of the signed original licence must be carried by the licenced person when working at the designated sites. An assistant of the licenced person who is carrying out activities under this licence during the absence of the licenced person shall carry the licence on his or her person.

5. All collection gear shall be clearly marked with the licenced person's and the organization's name.

6. This licence is not valid in Provincial Parks, park reserves, Conservation Authority property or National Parks without written permission from the authorized person in charge of the area concerned.
http://www.ontarioparks.com/email/research

7. Capture gear shall be inspected regularly and live holding traps must be inspected at least once daily.

8. This licence does not allow access to any property without permission of the landowner.

9. The licensee shall follow the best management practices for the collection, handling, transportation and holding of fish identified in **FPS Technical Bulletin (Dec. 15, 2011)** included with the licence in order to minimize the risk of spreading aquatic invasive species and diseases.

10. All field equipment must be de-contaminated prior to use on each water body in order to prevent the spread of exotic species and disease.

11. This licence does not authorize any activity that is prohibited under the federal ***Species at Risk Act*** or the provincial ***Endangered Species Act.***

12. All SAR fish and mussels must also be reported to the OMNR Natural Heritage Information Centre on the appropriate form at:
http://nhic.mnr.gov.on.ca/MNR/nhic/species/species_report.cfm

13. This licence does not authorize the possession of specially protected fish under the ***Ontario Fishery Regulations.***

14. This licence does not authorize the collection of any species of fish protected under the ***Species at Risk Act, Endangered Species Act, or Ontario Fishery Regulations***. If these species are accidentally captured they must be returned to the water immediately.

15. **This licence ONLY allows for the following capture gear to be used:**

    Hoop net (2" and 3" diameter), Gill net (3", 4", 5" mesh size), Angling gear

16. **Persons authorized under this licence include the following:**

    Jess Tester, Mike White, Tyrell Worrall, Olivia Butty

17. ***The following MNRF Class Animal Care Protocols will be adhered to as appropriate for the project activity:***
    - ***Capture Methods- Electrofishing***
    - ***Capture Methods- Seining***
    - ***Capture Methods- Impounding Gear***
    - ***Handling and Marking- Biological Sampling***
    - ***Containment- Short term Containment***

Signature of Licensee

<Original signed by>

X_____

Date

20 - July - 2016

APPENDIX C

Fish Tissue Quality

Fish Tissue Chemistry
Laboratory Analytical Data Report

Table C.1: Average dry weight (d.w.) metal concentrations in fish tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Northern Pike											
				Muscle				Liver				Ovary			
				Average (n=15)	SD	Minimum	Maximum	Average (n=15)	SD	Minimum	Maximum	Average (n=7)	SD	Minimum	Maximum
% Moisture		0.25	%	78.6	1.2	76.7	81.2	74.1	4.7	66.0	79.9	81.5	1.0	80.3	82.9
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	2.1	0.4	<2.0	3.4	3.9	1.8	<2.0	6.9	2.6	0.7	<2.0	3.1
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	0	<0.010	<0.010	0.010	0.001	<0.010	0.014	<0.010	0	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.405	0.176	0.099	0.683	0.158	0.047	0.048	0.207	0.122	0.065	0.026	0.244
	Barium (Ba)	0.050	mg/kg d.w.	0.128	0.080	0.050	0.324	0.050	0.002	<0.050	0.056	0.127	0.078	0.059	0.263
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	0	<0.010	<0.010	<0.010	0	<0.010	<0.010	<0.010	0	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	0.012	0.0029	<0.010	0.018	0.015	0.006	<0.010	0.030	<0.010	0	<0.010	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	0.0060	0.0037	<0.0050	0.0195	0.286	0.185	0.0709	0.677	0.0329	0.0148	0.0110	0.0553
	Calcium (Ca)	20	mg/kg d.w.	1,322	665	564	2,960	182	68	87	304	666	48	620	748
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0335	0.0140	0.0186	0.0682	0.0145	0.00796	0.00500	0.0351	0.0298	0.0077	0.0177	0.0413
	Chromium (Cr)	0.050	mg/kg d.w.	0.105	0.112	<0.050	0.363	0.082	0.062	<0.050	0.200	0.129	0.074	<0.050	0.204
	Cobalt (Co)	0.020	mg/kg d.w.	0.020	0.001	<0.020	0.024	0.201	0.0747	0.0780	0.326	0.309	0.1118	0.157	0.469
	Copper (Cu)	0.10	mg/kg d.w.	0.72	0.13	0.53	1.08	96.5	42.8	33.9	178	6.79	0.681	5.55	7.54
	Iron (Fe)	3.0	mg/kg d.w.	8.0	2.0	5.6	12.3	793	643	108	1,960	280	50.8	214	358
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	0.026	0.012	<0.020	0.050	<0.020	0	<0.020	<0.020
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	1,541	47	1,450	1,600	640	182	349	981	1,321	42	1,280	1,400
	Manganese (Mn)	0.050	mg/kg d.w.	1.70	0.99	0.666	4.73	4.63	1.89	1.54	8.2	183	42.6	118	260
	Mercury (Hg)	0.0050	mg/kg d.w.	1.68	0.628	0.767	2.92	0.508	0.308	0.199	1.26	0.159	0.074	0.093	0.299
	Molybdenum (Mo)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	0.702	0.188	0.284	1.100	0.286	0.0611	0.211	0.352
	Nickel (Ni)	0.20	mg/kg d.w.	<0.20	0	<0.20	<0.20	0.21	0.02	<0.20	0.29	0.24	0.035	<0.20	0.27
	Phosphorus (P)	10	mg/kg d.w.	10,900	501	10,200	11,800	11,283	3,540	5,360	17,000	16,529	464	15,900	17,200
	Potassium (K)	20	mg/kg d.w.	20,207	991	18,900	22,200	11,117	2,776	7,220	14,800	20,829	1,537	19,200	22,400
	Rubidium (Rb)	0.050	mg/kg d.w.	26.7	6.57	20.3	45.8	22.5	8.14	10.6	42.1	30.8	4.76	23.6	36.6
	Selenium (Se)	0.050	mg/kg d.w.	0.847	0.111	0.630	1.01	6.88	1.62	3.70	9.7	5.23	1.93	4.17	9.49
	Sodium (Na)	20	mg/kg d.w.	1,370	543	653	2,960	3,421	1,025	1,840	5,110	4,724	665	3,940	5,910
	Strontium (Sr)	0.050	mg/kg d.w.	0.610	0.380	0.183	1.43	0.149	0.052	0.063	0.240	0.398	0.094	0.306	0.556
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	<0.020	0.0000	<0.020	<0.020	0.020	0	<0.020	0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0134	0.0063	0.0083	0.0338	0.0117	0.0068	0.00350	0.0264	0.0203	0.0052	0.0148	0.0295
	Tin (Sn)	0.10	mg/kg d.w.	0.27	0.10	0.12	0.44	0.27	0.09	0.15	0.39	0.14	0.03	<0.10	0.17
	Uranium (U)	0.0020	mg/kg d.w.	0.0020	0	<0.0020	0.0022	0.0021	0.00054	<0.0020	0.0041	<0.0020	0	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	0	<0.10	<0.10	0.70	0.39	0.18	1.56	0.20	0.04	<0.10	0.24
	Zinc (Zn)	0.50	mg/kg d.w.	19.3	5.0	14.3	32.6	151	43.8	52	242	379	63.2	285	467
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	0	<0.20	<0.20	<0.20	0	<0.20	<0.20	<0.20	0	<0.20	<0.20

SD - Standard Deviation.

Table C.1: Average dry weight (d.w.) metal concentrations in fish tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Walleye											
				Muscle				Liver				Ovary			
				Average (n=15)	SD	Minimum	Maximum	Average (n=15)	SD	Minimum	Maximum	Average (n=8)	SD	Minimum	Maximum
% Moisture		0.25	%	78.8	0.9	77.5	80.2	75.8	2.6	69.7	80.6	70.2	2.2	67.7	73.1
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	2.3	0.8	<2.0	5.0	3.3	1.7	<2.0	7.0	<2.0	0	<2.0	<2.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	0.0000	<0.010	<0.010	<0.010	0	<0.010	<0.010	<0.010	0	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.176	0.051	0.115	0.318	0.286	0.072	0.150	0.438	0.145	0.025	0.112	0.193
	Barium (Ba)	0.050	mg/kg d.w.	0.050	0.001	<0.050	0.052	0.071	0.083	<0.050	0.371	0.076	0.025	<0.050	0.129
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	0	<0.010	<0.010	<0.010	0	<0.010	<0.010	<0.010	0	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	0.013	0.0033	<0.010	0.019	0.011	0.002	<0.010	0.015	<0.010	0	<0.010	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	<0.0050	0	<0.0050	<0.0050	0.445	0.495	0.170	2.04	0.0127	0.0047	<0.0050	0.0160
	Calcium (Ca)	20	mg/kg d.w.	555	161	434	1,030	759	1,427	212	5,860	724	185	463	1,040
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0558	0.0114	0.0456	0.0876	0.0331	0.0093	0.0223	0.0545	0.0335	0.0058	0.0268	0.0415
	Chromium (Cr)	0.050	mg/kg d.w.	0.067	0.046	<0.050	0.200	<0.110	0.076	<0.050	<0.20	<0.050	0	<0.050	<0.050
	Cobalt (Co)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	0.517	0.350	0.160	1.28	0.200	0.041	0.138	0.256
	Copper (Cu)	0.10	mg/kg d.w.	0.629	0.090	0.440	0.780	8.21	7.06	3.96	33.2	2.42	0.263	2.10	2.94
	Iron (Fe)	3.0	mg/kg d.w.	4.8	1.4	3.3	8.5	293	136	139	635	82.4	14.6	64.5	110
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	<0.032	0.015	<0.020	<0.050	<0.020	0	<0.020	<0.020
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	1,527	86	1,305	1,650	737	180	549	1,270	1,113	117	962	1,300
	Manganese (Mn)	0.050	mg/kg d.w.	0.42	0.07	0.27	0.50	6.15	2.26	3.59	11.7	14	6.4	4	22
	Mercury (Hg)	0.0050	mg/kg d.w.	1.63	0.455	0.902	2.15	0.374	0.125	0.221	0.610	0.083	0.018	0.053	0.101
	Molybdenum (Mo)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	0.500	0.154	0.230	0.725	0.042	0.011	0.021	0.054
	Nickel (Ni)	0.20	mg/kg d.w.	0.24	0.03	0.20	0.29	0.20	0.01	<0.20	0.22	<0.20	0	<0.20	<0.20
	Phosphorus (P)	10	mg/kg d.w.	10,817	788	8,250	11,500	11,443	2,532	8,130	18,200	9,139	509	8,490	10,100
	Potassium (K)	20	mg/kg d.w.	20,747	1,073	17,800	22,400	11,152	1,512	8,790	14,000	10,541	1,419	8,020	12,100
	Rubidium (Rb)	0.050	mg/kg d.w.	60.0	14.2	39.2	103.0	35.7	10.5	22.4	58	31.2	6.71	22.4	40.7
	Selenium (Se)	0.050	mg/kg d.w.	0.970	0.101	0.863	1.220	2.84	0.522	1.96	4.03	2.78	0.483	1.92	3.39
	Sodium (Na)	20	mg/kg d.w.	1,246	299	608	1,720	4,506	995	3,070	6,400	2,680	825	1,370	3,870
	Strontium (Sr)	0.050	mg/kg d.w.	0.089	0.048	<0.050	0.217	0.454	0.837	0.130	3.45	0.207	0.070	0.108	0.332
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	0	<0.020	<0.020	<0.020	0	<0.020	<0.020	<0.020	0	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0157	0.0036	0.0108	0.0206	0.0384	0.0127	0.0237	0.0658	0.0242	0.0058	0.0164	0.0337
	Tin (Sn)	0.10	mg/kg d.w.	0.11	0.01	<0.10	0.15	0.40	0.25	<0.10	1.11	0.16	0.04	<0.10	0.19
	Uranium (U)	0.0020	mg/kg d.w.	<0.0020	0	<0.0020	<0.0020	0.0023	0.0007	<0.0020	0.0044	<0.0020	0	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	0	<0.10	<0.10	0.14	0.14	<0.10	0.66	<0.10	0	<0.10	<0.10
	Zinc (Zn)	0.50	mg/kg d.w.	13.2	1.3	10.5	16.0	66.4	11.0	50.8	84.1	103	14.1	77	121
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	0	<0.20	<0.20	<0.20	0	<0.20	<0.20	<0.20	0	<0.20	<0.20

SD - Standard Deviation.

Table C.2: Dry weight (d.w.) metal concentrations in fish muscle tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Northern Pike														
				PINR-NP01-M	PINR-NP02-M	PINR-NP03-M	PINR-NP04-M	PINR-NP05-M	PINR-NP06-M	PINR-NP16-M	PINR-NP08-M	PINR-NP09-M	PINR-NP10-M	PINR-NP11-M	PINR-NP12-M	PINR-NP13-M	PINR-NP14-M	PINR-NP15-M
				21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016
% Moisture		0.25	%	77.3	77.9	78.1	79.7	76.7	78.4	79.0	79.2	79.1	79.3	79.8	77.2	81.2	78.9	77.4
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	2.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.4	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.099	0.362	0.380	0.666	0.277	0.432	0.683	0.269	0.274	0.359	0.666	0.392	0.239	0.371	0.603
	Barium (Ba)	0.050	mg/kg d.w.	0.279	0.117	0.080	0.201	0.053	0.324	0.120	0.084	0.106	0.106	0.118	<0.050	0.069	0.075	0.131
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	<0.010	0.013	0.015	<0.010	<0.010	<0.010	0.012	0.014	<0.010	0.011	0.018	<0.010	0.011	0.018	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0195	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)	20	mg/kg d.w.	2,400	1,270	1,130	1,680	880	2,960	1,010	1,350	1,790	639	1,230	564	628	959	1,340
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0512	0.0295	0.0218	0.0292	0.0218	0.0303	0.0448	0.0186	0.0203	0.0311	0.0341	0.0498	0.0682	0.0273	0.0248
	Chromium (Cr)	0.050	mg/kg d.w.	0.069	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.363	<0.050	<0.050	0.258	0.333	<0.050
	Cobalt (Co)	0.020	mg/kg d.w.	<0.020	<0.020	0.022	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.024	<0.020
	Copper (Cu)	0.10	mg/kg d.w.	0.86	0.61	0.67	0.73	0.73	0.70	0.53	0.67	0.84	1.08	0.55	0.69	0.66	0.71	0.74
	Iron (Fe)	3.0	mg/kg d.w.	8.5	5.6	5.7	8.8	7.7	8.1	7.9	6.2	6.2	12.3	7.9	6.0	11.8	9.0	7.9
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	1,510	1,550	1,580	1,570	1,460	1,520	1,540	1,570	1,450	1,580	1,590	1,490	1,580	1,600	1,520
	Manganese (Mn)	0.050	mg/kg d.w.	2.43	1.81	1.16	2.20	0.902	4.73	1.24	1.58	1.82	1.02	1.33	0.666	1.11	1.13	2.32
	Mercury (Hg)	0.0050	mg/kg d.w.	2.01	1.22	2.20	1.31	1.58	1.72	2.92	0.966	0.767	1.44	2.52	1.17	2.47	1.73	1.18
	Molybdenum (Mo)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)	10	mg/kg d.w.	11,800	11,100	10,500	10,600	10,800	11,500	10,700	11,600	11,000	10,200	10,300	11,200	10,500	10,400	11,300
	Potassium (K)	20	mg/kg d.w.	18,900	20,400	20,400	18,900	19,800	19,100	20,300	22,200	19,500	21,000	20,200	20,000	22,000	20,700	19,700
	Rubidium (Rb)	0.050	mg/kg d.w.	20.3	24.1	22.8	26.4	22.2	20.8	31.3	27.3	32.0	29.4	25.9	29.7	45.8	22.5	20.7
	Selenium (Se)	0.050	mg/kg d.w.	0.654	0.804	0.949	0.906	0.878	1.01	0.869	0.922	0.919	0.810	0.987	0.630	0.767	0.768	0.839
	Sodium (Na)	20	mg/kg d.w.	1,175	1,220	1,290	2,960	1,090	1,605	1,380	1,000	2,120	1,060	1,310	1,230	653	1,350	1,110
	Strontium (Sr)	0.050	mg/kg d.w.	1.43	0.577	0.478	0.923	0.312	1.373	0.559	0.568	0.727	0.205	0.538	0.183	0.205	0.416	0.661
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0127	0.0116	0.0086	0.0184	0.0108	0.0122	0.0100	0.0132	0.0121	0.0099	0.0103	0.0178	0.0118	0.0083	0.0338
	Tin (Sn)	0.10	mg/kg d.w.	0.40	0.12	0.16	0.19	0.38	0.44	0.28	0.22	0.24	0.25	0.22	0.21	0.38	0.21	0.39
	Uranium (U)	0.0020	mg/kg d.w.	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)	0.50	mg/kg d.w.	17.8	17.4	22.9	15.4	14.6	21.0	14.3	25.9	19.8	32.6	22.1	14.6	16.4	17.6	17.6
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table C.2: Dry weight (d.w.) metal concentrations in fish muscle tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Walleye														
				PINR-WA01-M	PINR-WA02-M	PINR-WA03-M	PINR-WA04-M	PINR-WA05-M	PINR-WA06-M	PINR-WA07-M	PINR-WA08-M	PINR-WA09-M	PINR-WA16-M	PINR-WA11-M	PINR-WA12-M	PINR-WA13-M	PINR-WA14-M	PINR-WA15-M
				21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016
% Moisture		0.25	%	78.6	80.0	79.7	79.0	80.2	77.5	79.3	77.5	79.4	78.3	78.2	78.0	77.9	78.0	79.9
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	2.7	2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.158	0.178	0.147	0.124	0.168	0.177	0.115	0.240	0.190	0.158	0.136	0.318	0.206	0.142	0.178
	Barium (Ba)	0.050	mg/kg d.w.	<0.050	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	0.012	0.015	<0.010	0.018	0.013	0.019	<0.010	0.011	0.015	<0.010	<0.010	0.018	<0.010	<0.010	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)	20	mg/kg d.w.	662	499	499	1,030	483	468	539	794	533	462	493	450	434	508	471
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0470	0.0470	0.0517	0.0600	0.0530	0.0462	0.0876	0.0489	0.0556	0.0512	0.0486	0.0696	0.0659	0.0456	0.0591
	Chromium (Cr)	0.050	mg/kg d.w.	<0.050	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.155	<0.050
	Cobalt (Co)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Copper (Cu)	0.10	mg/kg d.w.	0.76	0.64	0.74	0.62	0.44	0.59	0.69	0.63	0.78	0.63	0.59	0.67	0.57	0.53	0.56
	Iron (Fe)	3.0	mg/kg d.w.	3.6	3.6	3.3	4.7	4.1	6.3	6.6	8.5	5.2	4.1	4.1	3.7	5.0	3.6	5.3
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	1,515	1,530	1,540	1,580	1,520	1,305	1,610	1,600	1,650	1,510	1,600	1,550	1,430	1,440	1,520
	Manganese (Mn)	0.050	mg/kg d.w.	0.432	0.474	0.404	0.384	0.426	0.477	0.495	0.498	0.403	0.470	0.480	0.270	0.280	0.414	0.407
	Mercury (Hg)	0.0050	mg/kg d.w.	2.01	1.16	1.40	1.59	2.07	2.13	0.902	2.15	2.12	0.971	1.28	1.91	1.42	1.25	2.05
	Molybdenum (Mo)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)	0.20	mg/kg d.w.	0.25	0.23	0.22	0.22	0.26	<0.20	0.26	0.29	0.27	0.24	0.20	0.24	0.22	0.24	0.26
	Phosphorus (P)	10	mg/kg d.w.	10,605	10,800	11,200	10,700	10,800	8,250	11,500	11,500	11,400	10,700	11,500	11,100	10,600	10,700	10,900
	Potassium (K)	20	mg/kg d.w.	20,000	20,900	20,900	20,700	21,200	17,800	22,400	21,400	21,800	20,600	21,600	20,600	19,600	20,500	21,200
	Rubidium (Rb)	0.050	mg/kg d.w.	50.8	56.8	59.6	63.6	53.2	39.2	103	48.3	54.6	62.1	61.1	65.9	71.3	58.2	52.6
	Selenium (Se)	0.050	mg/kg d.w.	1.06	1.07	0.927	0.964	0.987	0.915	0.870	1.22	1.11	0.901	0.938	0.911	0.863	0.905	0.911
	Sodium (Na)	20	mg/kg d.w.	1,720	1,660	1,360	1,530	608	835	1,060	1,120	1,480	1,060	1,190	1,130	1,210	1,360	1,360
	Strontium (Sr)	0.050	mg/kg d.w.	0.131	0.056	0.065	0.217	<0.050	<0.10	0.098	0.162	0.073	<0.050	0.053	0.072	0.068	0.088	0.051
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0145	0.0180	0.0115	0.0206	0.0182	0.0193	0.0186	0.0164	0.0181	0.0111	0.0108	0.0141	0.0202	0.0118	0.0123
	Tin (Sn)	0.10	mg/kg d.w.	<0.10	<0.10	<0.10	<0.10	0.14	0.15	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Uranium (U)	0.0020	mg/kg d.w.	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)	0.50	mg/kg d.w.	12.9	13.6	13.2	16.0	12.4	10.5	14.0	13.8	13.2	12.1	12.5	14.8	12.0	13.1	14.3
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table C.3: Dry weight (d.w.) metal concentrations in fish liver tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Northern Pike														
				PINR-NP01-L	PINR-NP02-L	PINR-NP03-L	PINR-NP04-L	PINR-NP05-L	PINR-NP06-L	PINR-NP16-L	PINR-NP08-L	PINR-NP09-L	PINR-NP10-L	PINR-NP11-L	PINR-NP12-L	PINR-NP13-L	PINR-NP14-L	PINR-NP15-L
				21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016
% Moisture		0.25	%	79.0	76.9	72.9	74.6	66.0	67.5	79.9	78.3	73.7	71.5	74.0	78.4	74.2	79.1	66.1
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	2.7	2.7	<2.0	6.7	<2.0	<5.0	6.9	<2.0	4.7	<2.0	6.0	3.7	4.5	3.0	<5.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.048	0.190	0.113	0.204	0.095	0.138	0.159	0.169	0.207	0.195	0.173	0.185	0.191	0.189	0.107
	Barium (Ba)	0.050	mg/kg d.w.	<0.050	<0.050	<0.050	0.051	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.056	<0.050	<0.050
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	<0.010	0.019	0.014	0.019	<0.010	0.011	0.018	0.015	<0.010	0.011	0.020	<0.010	0.030	0.021	0.011
	Boron (B)	1.0	mg/kg d.w.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	0.071	0.178	0.169	0.503	0.128	0.560	0.677	0.193	0.102	0.118	0.368	0.182	0.356	0.408	0.280
	Calcium (Ca)	20	mg/kg d.w.	154	184	129	279	87	97	237	304	151	113	164	191	269	222	144
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0124	0.0097	0.0068	0.0215	<0.0050	0.0097	0.0167	0.0217	0.0141	0.0113	0.0097	0.0222	0.0351	0.0153	0.0065
	Chromium (Cr)	0.050	mg/kg d.w.	<0.050	<0.050	<0.050	<0.200	<0.050	<0.200	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.082	<0.050	<0.200
	Cobalt (Co)	0.020	mg/kg d.w.	0.120	0.239	0.228	0.290	0.078	0.151	0.250	0.173	0.142	0.126	0.288	0.170	0.275	0.326	0.159
	Copper (Cu)	0.10	mg/kg d.w.	59.5	148	103	130	33.9	72.9	39.6	97.0	66.1	80.1	151	87.6	178	131	69.7
	Iron (Fe)	3.0	mg/kg d.w.	502	1,090	287	1,960	108	452	335	624	160	350	1,840	392	1,920	886	987
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.050	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.024	<0.020	<0.050
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	748	716	620	663	349	454	828	981	563	458	503	799	697	813	404
	Manganese (Mn)	0.050	mg/kg d.w.	2.89	4.34	4.15	5.54	1.54	3.03	8.24	7.62	4.75	3.27	3.49	7.38	4.90	4.63	3.64
	Mercury (Hg)	0.0050	mg/kg d.w.	0.659	0.381	0.484	0.430	0.211	0.334	1.01	0.379	0.224	0.307	0.782	0.351	1.26	0.612	0.199
	Molybdenum (Mo)	0.020	mg/kg d.w.	0.501	0.828	0.585	1.10	0.284	0.706	0.713	0.737	0.629	0.611	0.782	0.621	0.931	0.814	0.690
	Nickel (Ni)	0.20	mg/kg d.w.	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.29	<0.20	<0.20
	Phosphorus (P)	10	mg/kg d.w.	13,750	13,600	11,600	10,400	5,360	7,350	15,200	17,000	9,610	8,200	8,910	14,800	11,500	15,100	6,860
	Potassium (K)	20	mg/kg d.w.	14,300	11,800	11,900	9,550	8,100	7,910	14,800	14,600	10,000	7,970	9,900	14,200	10,100	14,400	7,220
	Rubidium (Rb)	0.050	mg/kg d.w.	18.0	23.2	22.0	21.4	10.6	13.0	42.1	30.9	23.8	15.3	21.5	31.9	26.3	22.4	14.7
	Selenium (Se)	0.050	mg/kg d.w.	4.80	8.10	7.88	8.02	3.70	7.03	6.65	8.43	6.04	5.37	9.73	6.68	8.10	7.55	5.13
	Sodium (Na)	20	mg/kg d.w.	3,745	3,840	2,630	3,670	1,840	2,060	5,110	4,720	3,480	2,730	3,420	4,040	3,140	4,840	2,050
	Strontium (Sr)	0.050	mg/kg d.w.	0.149	0.172	0.101	0.240	0.063	<0.100	0.188	0.200	0.128	0.086	0.129	0.139	0.230	0.173	0.130
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0081	0.0109	0.0065	0.0237	0.0035	0.0090	0.0085	0.0140	0.0091	0.0059	0.0094	0.0195	0.0151	0.0060	0.0264
	Tin (Sn)	0.10	mg/kg d.w.	0.36	0.37	0.33	0.39	0.20	0.29	0.21	0.39	0.20	0.18	0.21	0.15	0.32	0.26	0.16
	Uranium (U)	0.0020	mg/kg d.w.	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0041	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	0.27	0.92	0.58	1.56	0.18	0.45	0.85	0.44	0.22	0.57	0.93	0.44	1.02	0.93	1.16
	Zinc (Zn)	0.50	mg/kg d.w.	111	181	147	168	51.5	116	135	242	160	132	160	174	195	170	118
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table C.3: Dry weight (d.w.) metal concentrations in fish liver tissue, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Walleye														
				PINR-WA01-L	PINR-WA02-L	PINR-WA03-L	PINR-WA04-L	PINR-WA05-L	PINR-WA06-L	PINR-WA07-L	PINR-WA08-L	PINR-WA09-L	PINR-WA16-L	PINR-WA11-L	PINR-WA12-L	PINR-WA13-L	PINR-WA14-L	PINR-WA15-L
				21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016
% Moisture		0.25	%	73.9	74.4	76.3	80.6	76.3	73.3	74.7	74.6	69.7	76.7	74.9	76.0	78.9	77.7	78.5
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	<5.0	<2.0	<2.0	2.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	2.2	<2.0	7.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.270	0.236	0.356	0.267	0.269	0.438	0.234	0.267	0.279	0.388	0.311	0.150	0.340	0.223	0.256
	Barium (Ba)	0.050	mg/kg d.w.	<0.050	<0.050	<0.050	<0.050	0.371	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	0.015	0.013	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	0.195	0.170	0.273	0.292	0.182	0.525	0.269	0.216	0.332	0.313	0.267	0.253	1.08	0.273	2.04
	Calcium (Ca)	20	mg/kg d.w.	326	350	360	626	5,860	285	1050	217	212	494	219	231	380	329	442
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0303	0.0248	0.0285	0.0470	0.0545	0.0223	0.0464	0.0348	0.0235	0.0310	0.0287	0.0266	0.0357	0.0316	0.0301
	Chromium (Cr)	0.050	mg/kg d.w.	<0.200	<0.050	<0.050	<0.050	<0.200	<0.200	<0.200	<0.050	<0.200	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200
	Cobalt (Co)	0.020	mg/kg d.w.	0.312	0.273	0.432	0.443	0.196	1.28	0.676	0.213	0.925	0.265	0.701	0.160	0.223	0.570	1.08
	Copper (Cu)	0.10	mg/kg d.w.	4.90	5.51	7.17	7.69	6.83	6.20	8.05	3.96	6.68	9.33	5.22	33.2	6.15	4.55	7.66
	Iron (Fe)	3.0	mg/kg d.w.	178	202	376	254	198	245	450	154	218	268	457	139	286	330	635
	Lead (Pb)	0.020	mg/kg d.w.	<0.050	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	742	700	741	884	1270	584	658	656	844	631	550	760	833	549	654
	Manganese (Mn)	0.050	mg/kg d.w.	7.42	5.37	5.30	9.16	11.7	5.19	6.09	5.51	8.92	4.38	3.98	3.97	6.16	3.59	5.56
	Mercury (Hg)	0.0050	mg/kg d.w.	0.303	0.264	0.346	0.473	0.507	0.610	0.279	0.396	0.508	0.231	0.230	0.347	0.369	0.221	0.527
	Molybdenum (Mo)	0.020	mg/kg d.w.	0.450	0.463	0.590	0.665	0.725	0.598	0.673	0.360	0.588	0.441	0.335	0.230	0.409	0.311	0.667
	Nickel (Ni)	0.20	mg/kg d.w.	<0.20	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)	10	mg/kg d.w.	10,750	12,300	12,200	13,900	18,200	9,710	10,600	10,000	13,500	9,620	8,130	11,300	12,500	8,240	10,700
	Potassium (K)	20	mg/kg d.w.	9,720	11,500	12,500	14,000	12,400	8,790	10,500	11,400	9,910	10,600	10,200	12,300	13,400	10,600	9,460
	Rubidium (Rb)	0.050	mg/kg d.w.	30.9	34.8	28.2	51.2	37.1	22.4	46.2	42.1	25.3	30.5	30.6	43.6	58.0	30.6	23.3
	Selenium (Se)	0.050	mg/kg d.w.	2.21	2.35	3.21	4.03	3.13	3.06	2.99	2.38	2.87	2.96	2.62	1.96	3.31	2.46	3.07
	Sodium (Na)	20	mg/kg d.w.	3,885	3,980	6,400	4,950	3,470	3,820	4,310	3,070	3,070	5,310	4,310	5,010	5,920	5,360	4,720
	Strontium (Sr)	0.050	mg/kg d.w.	0.210	0.194	0.221	0.382	3.45	0.180	0.600	0.151	0.130	0.292	0.153	0.174	0.240	0.214	0.220
	Tellurium (Te)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0261	0.0387	0.0335	0.0576	0.0371	0.0387	0.0658	0.0338	0.0485	0.0296	0.0286	0.0237	0.0552	0.0266	0.0318
	Tin (Sn)	0.10	mg/kg d.w.	0.41	0.41	0.36	0.67	0.49	0.49	0.45	0.33	0.25	1.11	0.27	<0.10	0.13	0.21	0.26
	Uranium (U)	0.0020	mg/kg d.w.	<0.0020	<0.0020	<0.0020	<0.0020	0.0033	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0021	<0.0020	0.0044
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	<0.10	<0.10	0.14	<0.10	0.12	<0.10	<0.10	0.15	<0.10	<0.10	<0.10	<0.10	<0.10	0.66
	Zinc (Zn)	0.50	mg/kg d.w.	53.2	58.6	76.5	80.3	78.2	50.8	68.9	52.6	62.7	70.4	61.4	77.6	84.1	58.1	62.0
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table C.4: Dry weight (d.w.) metal concentrations in fish ovaries, Rainy River Project Fish Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Northern Pike							Walleye							
				PINR-NP01-O	PINR-NP02-O	PINR-NP03-O	PINR-NP08-O	PINR-NP12-O	PINR-NP14-O	PINR-NP16-O	PINR-WA01-O	PINR-WA02-O	PINR-WA04-O	PINR-WA05-O	PINR-WA08-O	PINR-WA09-O	PINR-WA12-O	PINR-WA13-O
				21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016
	% Moisture	0.25	%	80.7	82.9	80.3	81.7	80.5	82.0	82.5	67.7	70.8	71.8	67.8	71.1	67.7	73.1	71.7
Total Metals	Aluminum (Al)	2.0	mg/kg d.w.	<2.0	3.1	<2.0	2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)	0.020	mg/kg d.w.	0.026	0.125	0.096	0.103	0.120	0.143	0.244	0.145	0.147	0.112	0.126	0.150	0.158	0.128	0.193
	Barium (Ba)	0.050	mg/kg d.w.	0.263	0.068	0.142	0.059	0.195	0.061	0.099	0.051	0.076	<0.050	0.062	0.071	0.062	0.129	0.081
	Beryllium (Be)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)	0.010	mg/kg d.w.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	Boron (B)	1.0	mg/kg d.w.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)	0.0050	mg/kg d.w.	0.0110	0.0292	0.0252	0.0349	0.0270	0.0478	0.0553	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0093	0.0160
	Calcium (Ca)	20	mg/kg d.w.	631	620	631	748	642	708	680	564	886	767	463	759	594	717	1,040
	Cesium (Cs)	0.0050	mg/kg d.w.	0.0349	0.0296	0.0177	0.0233	0.0413	0.0299	0.0320	0.0285	0.0320	0.0394	0.0268	0.0297	0.0301	0.0415	0.0400
	Chromium (Cr)	0.050	mg/kg d.w.	0.204	0.183	0.058	0.073	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Cobalt (Co)	0.020	mg/kg d.w.	0.157	0.469	0.346	0.255	0.278	0.428	0.227	0.188	0.256	0.256	0.194	0.210	0.198	0.138	0.160
	Copper (Cu)	0.10	mg/kg d.w.	6.71	7.08	6.41	7.54	6.81	7.46	5.55	2.17	2.50	2.33	2.29	2.50	2.10	2.53	2.94
	Iron (Fe)	3.0	mg/kg d.w.	214	358	262	324	286	285	228	84.8	90.2	110	66.2	75.5	80.3	64.5	87.8
	Lead (Pb)	0.020	mg/kg d.w.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)	0.50	mg/kg d.w.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)	2.0	mg/kg d.w.	1,305	1,290	1,280	1,400	1,350	1,300	1,320	1,160	1,080	962	1,300	1,260	1,040	1,060	1,040
	Manganese (Mn)	0.050	mg/kg d.w.	118	260	193	163	185	172	193	14.1	16.8	17.7	21.9	11.9	18.9	5.23	3.98
	Mercury (Hg)	0.0050	mg/kg d.w.	0.199	0.0991	0.153	0.0981	0.0929	0.173	0.299	0.0968	0.0780	0.101	0.0922	0.101	0.0798	0.0660	0.0528
	Molybdenum (Mo)	0.020	mg/kg d.w.	0.292	0.352	0.213	0.337	0.255	0.345	0.211	0.0460	0.0540	0.0520	0.0390	0.0370	0.0480	0.0360	0.0210
	Nickel (Ni)	0.20	mg/kg d.w.	0.21	<0.20	<0.20	<0.20	0.27	0.27	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)	10	mg/kg d.w.	16,500	16,500	16,000	16,700	15,900	17,200	16,900	9,120	9,460	9,280	8,870	10,100	8,490	9,170	8,620
	Potassium (K)	20	mg/kg d.w.	19,400	22,300	19,200	22,400	19,200	22,300	21,000	9,670	12,000	12,100	8,020	10,500	9,540	11,700	10,800
	Rubidium (Rb)	0.050	mg/kg d.w.	23.6	31.5	25.8	33.5	34.9	29.9	36.6	26.1	35.2	39.3	22.4	26.9	26.7	32.4	40.7
	Selenium (Se)	0.050	mg/kg d.w.	4.28	4.29	4.86	9.49	4.20	5.30	4.17	2.92	3.07	3.39	2.61	3.28	2.64	1.92	2.43
	Sodium (Na)	20	mg/kg d.w.	4,515	5,210	4,530	3,940	4,170	4,790	5,910	2,130	2,540	2,840	1,370	2,510	2,410	3,770	3,870
	Strontium (Sr)	0.050	mg/kg d.w.	0.556	0.328	0.392	0.306	0.500	0.355	0.349	0.160	0.332	0.193	0.108	0.223	0.160	0.206	0.274
	Tellurium (Te)	0.020	mg/kg d.w.	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)	0.0020	mg/kg d.w.	0.0233	0.0216	0.0155	0.0205	0.0295	0.0148	0.0167	0.0221	0.0306	0.0337	0.0193	0.0212	0.0268	0.0164	0.0231
	Tin (Sn)	0.10	mg/kg d.w.	0.17	0.17	0.11	0.13	<0.10	0.12	0.12	0.16	0.19	0.11	<0.10	0.19	<0.10	<0.10	<0.10
	Uranium (U)	0.0020	mg/kg d.w.	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)	0.10	mg/kg d.w.	<0.10	0.24	0.21	<0.10	<0.10	0.14	0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)	0.50	mg/kg d.w.	370	422	348	467	427	332	285	99.3	121	119	99.8	110	96.4	97.7	77.2
	Zirconium (Zr)	0.20	mg/kg d.w.	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table C.5: Wet weight (w.w.) metal concentrations in fish muscle tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Northern Pike														
					PINR-NP01-M	PINR-NP02-M	PINR-NP03-M	PINR-NP04-M	PINR-NP05-M	PINR-NP06-M	PINR-NP16-M	PINR-NP08-M	PINR-NP09-M	PINR-NP10-M	PINR-NP11-M	PINR-NP12-M	PINR-NP13-M	PINR-NP14-M	PINR-NP15-M
					21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016
% Moisture		0.25	%	-	77.3	77.9	78.1	79.7	76.7	78.4	79.0	79.2	79.1	79.3	79.8	77.2	81.2	78.9	77.4
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	0.6	<0.4	<0.4	<0.4	<0.5	<0.4	<0.4	<0.4	<0.4	0.7	<0.4	<0.5	<0.4	<0.4	<0.5
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.022	0.080	0.083	0.135	0.065	0.094	0.143	0.056	0.057	0.074	0.135	0.089	0.045	0.078	0.136
	Barium (Ba)	0.050	mg/kg w.w.	126	0.063	0.026	0.018	0.041	0.012	0.070	0.025	0.017	0.022	0.022	0.024	<0.011	0.013	0.016	0.030
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Bismuth (Bi)	0.010	mg/kg w.w.	-	<0.002	0.003	0.003	<0.002	<0.002	<0.002	0.003	0.003	<0.002	0.002	0.004	<0.002	0.002	0.004	<0.002
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	<0.0011	<0.0011	<0.0011	<0.0010	<0.0012	<0.0011	<0.0011	<0.0010	<0.0010	0.0040	<0.0010	<0.0011	<0.0009	<0.0011	<0.0011
	Calcium (Ca)	20	mg/kg w.w.	-	546	281	247	341	205	641	212	281	374	132	248	129	118	202	303
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0116	0.0065	0.0048	0.0059	0.0051	0.0065	0.0094	0.0039	0.0042	0.0064	0.0069	0.0114	0.0128	0.0058	0.0056
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	0.016	<0.011	<0.011	<0.010	<0.012	<0.011	<0.011	<0.010	<0.010	0.075	<0.010	<0.011	0.049	0.070	<0.011
	Cobalt (Co)	0.020	mg/kg w.w.	-	<0.005	<0.004	0.005	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.004	0.005	<0.005
	Copper (Cu)	0.10	mg/kg w.w.	57.4	0.20	0.13	0.15	0.15	0.17	0.15	0.11	0.14	0.18	0.22	0.11	0.16	0.12	0.15	0.17
	Iron (Fe)	3.0	mg/kg w.w.	-	1.9	1.2	1.2	1.8	1.8	1.8	1.7	1.3	1.3	2.5	1.6	1.4	2.2	1.9	1.8
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.005	<0.004	<0.004	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.004	<0.004	<0.005
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.11	<0.11	<0.11	<0.10	<0.12	<0.11	<0.11	<0.10	<0.10	<0.10	<0.10	<0.11	<0.09	<0.11	<0.11
	Magnesium (Mg)	2.0	mg/kg w.w.	-	344	343	346	319	340	329	323	327	303	327	321	340	297	338	344
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	0.55	0.40	0.25	0.45	0.21	1.02	0.26	0.33	0.38	0.21	0.27	0.152	0.21	0.24	0.52
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.456	0.270	0.482	0.266	0.368	0.372	0.613	0.201	0.160	0.298	0.509	0.267	0.464	0.365	0.267
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)	10	mg/kg w.w.	-	2,685	2,453	2,300	2,152	2,516	2,490	2,247	2,413	2,299	2,111	2,081	2,554	1,974	2,194	2,554
	Potassium (K)	20	mg/kg w.w.	-	4,300	4,508	4,468	3,837	4,613	4,135	4,263	4,618	4,076	4,347	4,080	4,560	4,136	4,368	4,452
	Rubidium (Rb)	0.050	mg/kg w.w.	-	4.6	5.3	5.0	5.4	5.2	4.5	6.6	5.7	6.7	6.1	5.2	6.8	8.6	4.7	4.7
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.149	0.178	0.208	0.184	0.205	0.22	0.182	0.192	0.192	0.168	0.199	0.144	0.144	0.162	0.190
	Sodium (Na)	20	mg/kg w.w.	-	267	270	283	601	254	347	290	208	443	219	265	280	123	285	251
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.32	0.13	0.10	0.19	0.073	0.30	0.12	0.12	0.15	0.042	0.11	0.042	0.039	0.088	0.149
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.005	<0.004	<0.004	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.004	<0.004	<0.005
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0029	0.0026	0.0019	0.0037	0.0025	0.0026	0.0021	0.0027	0.0025	0.0020	0.0021	0.0041	0.0022	0.0018	0.0076
	Tin (Sn)	0.10	mg/kg w.w.	-	0.09	0.03	0.04	0.04	0.09	0.10	0.06	0.05	0.05	0.05	0.04	0.05	0.07	0.04	0.09
	Uranium (U)	0.0020	mg/kg w.w.	0.4	0.0005	<0.0004	<0.0004	<0.0004	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0005	<0.0004	<0.0004	<0.0005
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Zinc (Zn)	0.50	mg/kg w.w.	189	4.0	3.8	5.0	3.1	3.4	4.5	3.0	5.4	4.1	6.7	4.5	3.3	3.1	3.7	4.0
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.05	<0.04	<0.04	<0.04	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.05	<0.04	<0.04	<0.05

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table C.5: Wet weight (w.w.) metal concentrations in fish muscle tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Walleye														
					PINR-WA01-M	PINR-WA02-M	PINR-WA03-M	PINR-WA04-M	PINR-WA05-M	PINR-WA06-M	PINR-WA07-M	PINR-WA08-M	PINR-WA09-M	PINR-WA16-M	PINR-WA11-M	PINR-WA12-M	PINR-WA13-M	PINR-WA14-M	PINR-WA15-M
					21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016
	% Moisture	0.25	%	-	78.6	80.0	79.7	79.0	80.2	77.5	79.3	77.5	79.4	78.3	78.2	78.0	77.9	78.0	79.9
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	<0.4	<0.4	<0.4	<0.4	<0.4	<1.1	0.6	0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.034	0.036	0.030	0.026	0.033	0.040	0.024	0.054	0.039	0.034	0.030	0.070	0.046	0.031	0.036
	Barium (Ba)	0.050	mg/kg w.w.	126	<0.011	<0.010	<0.010	<0.011	<0.010	0.012	<0.010	<0.011	<0.010	<0.011	<0.011	<0.011	<0.011	<0.011	<0.010
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Bismuth (Bi)	0.010	mg/kg w.w.	-	0.002	0.003	<0.002	0.004	0.003	0.004	<0.002	0.002	0.003	<0.002	<0.002	0.004	<0.002	<0.002	<0.002
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	<0.0011	<0.0010	<0.0010	<0.0011	<0.0010	<0.0023	<0.0010	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010
	Calcium (Ca)	20	mg/kg w.w.	-	142	100	101	216	96	105	112	179	110	100	107	99	96	112	95
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0101	0.0094	0.0105	0.0126	0.0105	0.0104	0.0181	0.0110	0.0115	0.0111	0.0106	0.0153	0.0146	0.0100	0.0119
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	<0.011	<0.010	<0.010	<0.011	<0.010	<0.045	<0.010	<0.011	<0.010	<0.011	<0.011	<0.011	<0.011	0.034	<0.010
	Cobalt (Co)	0.020	mg/kg w.w.	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	Copper (Cu)	0.10	mg/kg w.w.	57.4	0.16	0.13	0.15	0.13	0.09	0.13	0.14	0.14	0.16	0.14	0.13	0.15	0.13	0.12	0.11
	Iron (Fe)	3.0	mg/kg w.w.	-	0.8	0.7	0.7	1.0	0.8	1.4	1.4	1.9	1.1	0.9	0.9	0.8	1.1	0.8	1.1
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.004	<0.004	<0.004	<0.004	<0.004	<0.011	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.11	<0.10	<0.10	<0.11	<0.10	<0.11	<0.10	<0.11	<0.10	<0.11	<0.11	<0.11	<0.11	<0.11	<0.10
	Magnesium (Mg)	2.0	mg/kg w.w.	-	325	306	313	332	301	294	333	360	340	328	349	341	316	317	306
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	0.093	0.095	0.082	0.081	0.084	0.107	0.102	0.112	0.083	0.102	0.105	0.059	0.062	0.091	0.082
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.430	0.232	0.284	0.334	0.410	0.478	0.187	0.484	0.437	0.211	0.279	0.420	0.314	0.275	0.412
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	<0.020	<0.020	<0.020	<0.020	<0.020	<0.021	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	0.05	0.05	0.04	0.05	0.05	<0.20	0.05	0.07	0.06	0.05	0.04	0.05	0.05	0.05	0.05
	Phosphorus (P)	10	mg/kg w.w.	-	2,275	2,160	2,274	2,247	2,138	1,856	2,381	2,588	2,348	2,322	2,507	2,442	2,343	2,354	2,191
	Potassium (K)	20	mg/kg w.w.	-	4,290	4,180	4,243	4,347	4,198	4,005	4,637	4,815	4,491	4,470	4,709	4,532	4,332	4,510	4,261
	Rubidium (Rb)	0.050	mg/kg w.w.	-	11	11	12	13	11	8.8	21	11	11	13	13	14	16	13	11
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.226	0.214	0.188	0.202	0.195	0.206	0.180	0.275	0.229	0.196	0.204	0.200	0.191	0.199	0.183
	Sodium (Na)	20	mg/kg w.w.	-	369	332	276	321	120	188	219	252	305	230	259	249	267	299	273
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.028	0.011	0.013	0.046	<0.010	<0.023	0.020	0.036	0.015	<0.011	0.012	0.016	0.015	0.019	0.010
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.004	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0031	0.0036	0.0023	0.0043	0.0036	0.0043	0.0039	0.0037	0.0037	0.0024	0.0024	0.0031	0.0045	0.0026	0.0025
	Tin (Sn)	0.10	mg/kg w.w.	-	<0.02	<0.02	<0.02	<0.02	0.03	0.03	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Uranium (U)	0.0020	mg/kg w.w.	0.4	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0005	<0.0004	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Zinc (Zn)	0.50	mg/kg w.w.	189	2.8	2.7	2.7	3.4	2.5	2.4	2.9	3.1	2.7	2.6	2.7	3.3	2.7	2.9	2.9
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.05	<0.04	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table C.6: Wet weight (w.w.) metal concentrations in fish liver tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Northern Pike														
					PINR-NP01-L	PINR-NP02-L	PINR-NP03-L	PINR-NP04-L	PINR-NP05-L	PINR-NP06-L	PINR-NP16-L	PINR-NP08-L	PINR-NP09-L	PINR-NP10-L	PINR-NP11-L	PINR-NP12-L	PINR-NP13-L	PINR-NP14-L	PINR-NP15-L
					21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016
	% Moisture	0.25	%	-	79.0	76.9	72.9	74.6	66.0	67.5	79.9	78.3	73.7	71.5	74.0	78.4	74.2	79.1	66.1
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	0.6	0.6	<0.5	1.7	<0.7	<1.6	1.4	<0.4	1.2	<0.6	1.6	0.8	1.2	0.6	<1.7
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.003	<0.003	0.004	<0.002	<0.003	<0.002	<0.003
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.010	0.044	0.031	0.052	0.032	0.045	0.032	0.037	0.054	0.056	0.045	0.040	0.049	0.040	0.036
	Barium (Ba)	0.050	mg/kg w.w.	126	<0.011	<0.012	<0.014	0.013	<0.017	<0.016	<0.010	<0.011	<0.013	<0.014	<0.013	<0.011	0.014	<0.010	<0.017
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.003	<0.003	<0.003	<0.002	<0.003	<0.002	<0.003
	Bismuth (Bi)	0.010	mg/kg w.w.	-	<0.002	0.004	0.004	0.005	<0.003	0.004	0.004	0.003	<0.003	0.003	0.005	<0.002	0.008	0.004	0.004
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.2	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3	<0.2	<0.3
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	0.0149	0.041	0.046	0.128	0.044	0.182	0.136	0.042	0.027	0.034	0.096	0.039	0.092	0.085	0.095
	Calcium (Ca)	20	mg/kg w.w.	-	32	43	35	71	30	32	48	66	40	32	43	41	69	46	49
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0026	0.0022	0.0018	0.0055	<0.0017	0.0032	0.0034	0.0047	0.0037	0.0032	0.0025	0.0048	0.0091	0.0032	0.0022
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	<0.011	<0.012	<0.014	<0.051	<0.017	<0.065	<0.010	<0.011	<0.013	<0.014	<0.013	<0.011	0.021	<0.010	<0.068
	Cobalt (Co)	0.020	mg/kg w.w.	-	0.025	0.055	0.062	0.074	0.027	0.049	0.050	0.038	0.037	0.036	0.075	0.037	0.071	0.068	0.054
	Copper (Cu)	0.10	mg/kg w.w.	57.4	12.5	34	28	33	11.5	23.7	8.0	21.0	17.4	22.8	39	18.9	46	27	23.6
	Iron (Fe)	3.0	mg/kg w.w.	-	106	252	78	498	37	147	67	135	42	100	478	85	495	185	335
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.004	<0.005	<0.005	<0.013	<0.007	<0.016	<0.004	<0.004	<0.005	<0.006	<0.005	<0.004	0.006	<0.004	<0.017
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.11	<0.12	<0.14	<0.13	<0.17	<0.16	<0.10	<0.11	<0.13	<0.14	<0.13	<0.11	<0.13	<0.10	<0.17
	Magnesium (Mg)	2.0	mg/kg w.w.	-	157	165	168	168	119	148	166	213	148	131	131	173	180	170	137
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	0.61	1.00	1.12	1.41	0.52	0.98	1.66	1.65	1.25	0.93	0.91	1.59	1.26	0.97	1.23
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.139	0.088	0.131	0.109	0.072	0.109	0.203	0.082	0.059	0.087	0.203	0.076	0.325	0.128	0.067
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	0.105	0.191	0.159	0.28	0.097	0.229	0.143	0.160	0.165	0.174	0.203	0.134	0.240	0.170	0.234
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	0.04	<0.20	<0.21	<0.21	<0.21	<0.21	<0.20	<0.20	<0.21	<0.21	<0.21	<0.20	0.07	<0.20	<0.21
	Phosphorus (P)	10	mg/kg w.w.	-	2,894	3,142	3,144	2,642	1,822	2,389	3,055	3,689	2,527	2,337	2,317	3,197	2,967	3,156	2,326
	Potassium (K)	20	mg/kg w.w.	-	3,010	2,726	3,225	2,426	2,754	2,571	2,975	3,168	2,630	2,271	2,574	3,067	2,606	3,010	2,448
	Rubidium (Rb)	0.050	mg/kg w.w.	-	3.8	5.4	6.0	5.4	3.6	4.2	8.5	6.7	6.3	4.4	5.6	6.9	6.8	4.7	5.0
	Selenium (Se)	0.050	mg/kg w.w.	3.2	1.01	1.87	2.14	2.04	1.26	2.28	1.34	1.83	1.59	1.53	2.53	1.44	2.09	1.58	1.74
	Sodium (Na)	20	mg/kg w.w.	-	788	887	713	932	626	670	1,027	1,024	915	778	889	873	810	1,012	695
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.031	0.040	0.027	0.06	0.021	<0.033	0.038	0.043	0.034	0.025	0.034	0.030	0.059	0.036	0.04
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.004	<0.005	<0.005	<0.005	<0.007	<0.007	<0.004	<0.004	<0.005	<0.006	<0.005	<0.004	<0.005	<0.004	<0.007
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0017	0.0025	0.0018	0.0060	0.0012	0.0029	0.0017	0.0030	0.0024	0.0017	0.0024	0.0042	0.0039	0.0013	0.0089
	Tin (Sn)	0.10	mg/kg w.w.	-	0.07	0.09	0.09	0.10	0.07	0.09	0.04	0.08	0.05	0.05	0.05	0.03	0.08	0.05	0.05
	Uranium (U)	0.0020	mg/kg w.w.	0.4	<0.0004	<0.0005	<0.0005	<0.0005	<0.0007	<0.0007	0.0008	<0.0004	<0.0005	<0.0006	<0.0005	<0.0004	<0.0005	<0.0004	<0.0007
	Vanadium (V)	0.10	mg/kg w.w.	-	0.06	0.21	0.16	0.40	0.06	0.15	0.17	0.10	0.06	0.16	0.24	0.10	0.26	0.19	0.39
	Zinc (Zn)	0.50	mg/kg w.w.	189	23	42	40	43	17.5	38	27	53	42	38	42	38	50	36	40
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.04	<0.05	<0.05	<0.05	<0.07	<0.07	<0.04	<0.04	<0.05	<0.06	<0.05	<0.04	<0.05	<0.04	<0.07

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table C.6: Wet weight (w.w.) metal concentrations in fish liver tissue, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Walleye														
					PINR-WA01-L	PINR-WA02-L	PINR-WA03-L	PINR-WA04-L	PINR-WA05-L	PINR-WA06-L	PINR-WA07-L	PINR-WA08-L	PINR-WA09-L	PINR-WA16-L	PINR-WA11-L	PINR-WA12-L	PINR-WA13-L	PINR-WA14-L	PINR-WA15-L
					21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016	24-Sep-2016
% Moisture		0.25	%	-	73.9	74.4	76.3	80.6	76.3	73.3	74.7	74.6	69.7	76.7	74.9	76.0	78.9	77.7	78.5
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	<1.3	<0.5	<0.5	0.4	<1.2	<1.3	<1.3	<0.5	<1.5	<0.5	<0.5	<0.5	0.5	<0.4	1.5
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.003	<0.003	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.003	<0.002	<0.002	<0.002	<0.002
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.070	0.060	0.084	0.052	0.064	0.117	0.059	0.068	0.085	0.090	0.078	0.036	0.072	0.050	0.055
	Barium (Ba)	0.050	mg/kg w.w.	126	<0.013	<0.013	<0.012	<0.010	0.088	<0.013	<0.013	<0.013	<0.015	<0.012	<0.013	<0.012	<0.011	<0.011	<0.011
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.003	<0.003	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.003	<0.002	<0.002	<0.002	<0.002
	Bismuth (Bi)	0.010	mg/kg w.w.	-	<0.003	<0.003	<0.002	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.002	<0.003	<0.002	<0.002	<0.002	<0.002
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.3	<0.3	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	0.051	0.044	0.065	0.057	0.043	0.140	0.068	0.055	0.101	0.073	0.067	0.061	0.23	0.061	0.44
	Calcium (Ca)	20	mg/kg w.w.	-	85	90	85	121	1389	76	266	55	64	115	55	55	80	73	95
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0079	0.0063	0.0068	0.0091	0.0129	0.0060	0.0117	0.0088	0.0071	0.0072	0.0072	0.0064	0.0075	0.0070	0.0065
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	<0.052	<0.013	<0.012	<0.010	<0.047	<0.053	<0.051	<0.013	<0.061	<0.012	<0.013	<0.012	<0.011	<0.011	<0.043
	Cobalt (Co)	0.020	mg/kg w.w.	-	0.081	0.070	0.102	0.086	0.046	0.34	0.171	0.054	0.280	0.062	0.176	0.038	0.047	0.127	0.23
	Copper (Cu)	0.10	mg/kg w.w.	57.4	1.28	1.41	1.70	1.49	1.62	1.66	2.04	1.01	2.02	2.17	1.31	8.0	1.30	1.01	1.65
	Iron (Fe)	3.0	mg/kg w.w.	-	46	52	89	49	47	65	114	39	66	62	115	33	60	74	137
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.013	<0.005	<0.005	<0.004	<0.012	<0.013	<0.013	<0.005	<0.015	<0.005	<0.005	<0.005	<0.004	<0.004	<0.011
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.13	<0.13	<0.12	<0.10	<0.12	<0.13	<0.13	<0.13	<0.15	<0.12	<0.13	<0.12	<0.11	<0.11	<0.11
	Magnesium (Mg)	2.0	mg/kg w.w.	-	194	179	176	171	301	156	166	167	256	147	138	182	176	122	141
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	1.94	1.37	1.26	1.78	2.8	1.39	1.54	1.40	2.70	1.02	1.00	0.95	1.30	0.80	1.20
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.079	0.068	0.082	0.092	0.120	0.163	0.071	0.101	0.154	0.054	0.058	0.083	0.078	0.049	0.113
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	0.117	0.119	0.140	0.129	0.172	0.160	0.170	0.091	0.178	0.103	0.084	0.055	0.086	0.069	0.143
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	<0.21	0.06	<0.20	<0.20	<0.20	<0.21	<0.21	<0.21	<0.21	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)	10	mg/kg w.w.	-	2,806	3,149	2,891	2,697	4,313	2,593	2,682	2,540	4,091	2,241	2,041	2,712	2,638	1,838	2,301
	Potassium (K)	20	mg/kg w.w.	-	2,537	2,944	2,963	2,716	2,939	2,347	2,657	2,896	3,003	2,470	2,560	2,952	2,827	2,364	2,034
	Rubidium (Rb)	0.050	mg/kg w.w.	-	8.1	8.9	6.7	9.9	8.8	6.0	11.7	10.7	7.7	7.1	7.7	10.5	12.2	6.8	5.0
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.58	0.60	0.76	0.78	0.74	0.82	0.76	0.60	0.87	0.69	0.66	0.47	0.70	0.55	0.66
	Sodium (Na)	20	mg/kg w.w.	-	1,014	1,019	1,517	960	822	1,020	1,090	780	930	1,237	1,082	1,202	1,249	1,195	1,015
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.055	0.050	0.052	0.074	0.82	0.048	0.15	0.038	0.039	0.068	0.038	0.042	0.051	0.048	0.047
	Tellurium (Te)	0.020	mg/kg w.w.	-	<0.005	<0.005	<0.005	<0.004	<0.005	<0.005	<0.005	<0.005	<0.006	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0068	0.0099	0.0079	0.0112	0.0088	0.0103	0.0166	0.0086	0.0147	0.0069	0.0072	0.0057	0.0116	0.0059	0.0068
	Tin (Sn)	0.10	mg/kg w.w.	-	0.11	0.10	0.09	0.13	0.12	0.13	0.11	0.08	0.08	0.26	0.07	<0.02	0.03	0.05	0.06
	Uranium (U)	0.0020	mg/kg w.w.	0.4	<0.0005	<0.0005	<0.0005	<0.0004	0.0008	<0.0005	<0.0005	<0.0005	<0.0006	<0.0005	<0.0005	<0.0005	0.0004	<0.0004	0.0009
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.03	<0.03	<0.02	0.03	<0.02	0.03	<0.03	<0.03	0.05	<0.02	<0.03	<0.02	<0.02	<0.02	0.14
	Zinc (Zn)	0.50	mg/kg w.w.	189	13.9	15.0	18.1	15.6	18.5	13.6	17.4	13.4	19.0	16.4	15.4	18.6	17.7	13.0	13.3
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.05	<0.05	<0.05	<0.04	<0.05	<0.05	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	<0.04	<0.04	<0.04

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

Table C.7: Wet weight (w.w.) metal concentrations in fish ovaries, Rainy River Project Fish Tissue Monitoring, 2016.

Parameter		Lowest Detection Limit	Units	Benchmark[1,2]	Northern Pike							Walleye							
					PINR-NP01-O	PINR-NP02-O	PINR-NP03-O	PINR-NP08-O	PINR-NP12-O	PINR-NP14-O	PINR-NP16-O	PINR-WA01-O	PINR-WA02-O	PINR-WA04-O	PINR-WA05-O	PINR-WA08-O	PINR-WA09-O	PINR-WA12-O	PINR-WA13-O
					21-Sep-2016	21-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	22-Sep-2016	21-Sep-2016	21-Sep-2016	22-Sep-2016	22-Sep-2016	23-Sep-2016	23-Sep-2016	24-Sep-2016	24-Sep-2016
	% Moisture	0.25	%	-	80.7	82.9	80.3	81.7	80.5	82.0	82.5	67.7	70.8	71.8	67.8	71.1	67.7	73.1	71.7
Total Metals	Aluminum (Al)	2.0	mg/kg w.w.	-	<0.4	0.5	<0.4	0.4	<0.4	<0.4	<0.4	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.5	<0.6
	Antimony (Sb)	0.010	mg/kg w.w.	0.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Arsenic (As)	0.020	mg/kg w.w.	0.2	0.005	0.021	0.019	0.019	0.023	0.026	0.043	0.047	0.043	0.032	0.041	0.043	0.051	0.034	0.055
	Barium (Ba)	0.050	mg/kg w.w.	126	0.051	0.012	0.028	0.011	0.038	0.011	0.017	0.016	0.022	<0.014	0.020	0.021	0.020	0.035	0.023
	Beryllium (Be)	0.010	mg/kg w.w.	1.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Bismuth (Bi)	0.010	mg/kg w.w.	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Boron (B)	1.0	mg/kg w.w.	63.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Cadmium (Cd)	0.0050	mg/kg w.w.	0.6	0.0021	0.0050	0.0050	0.0064	0.0053	0.0086	0.0097	<0.0016	<0.0015	<0.0014	<0.0016	<0.0014	<0.0016	0.0025	0.0045
	Calcium (Ca)	20	mg/kg w.w.	-	122	106	124	137	125	127	119	182	259	216	149	219	192	193	294
	Cesium (Cs)	0.0050	mg/kg w.w.	-	0.0068	0.0051	0.0035	0.0043	0.0081	0.0054	0.0056	0.0092	0.0093	0.0111	0.0086	0.0086	0.0097	0.0112	0.0113
	Chromium (Cr)	0.050	mg/kg w.w.	0.6	0.039	0.031	0.011	0.013	<0.010	<0.009	<0.009	<0.016	<0.015	<0.014	<0.016	<0.014	<0.016	<0.013	<0.014
	Cobalt (Co)	0.020	mg/kg w.w.	-	0.030	0.080	0.068	0.047	0.054	0.077	0.040	0.061	0.075	0.072	0.062	0.061	0.064	0.037	0.045
	Copper (Cu)	0.10	mg/kg w.w.	57.4	1.30	1.21	1.26	1.38	1.33	1.34	0.97	0.70	0.73	0.66	0.74	0.72	0.68	0.68	0.83
	Iron (Fe)	3.0	mg/kg w.w.	-	41	61	52	59	56	51	40	27	26	31	21	22	26	17	25
	Lead (Pb)	0.020	mg/kg w.w.	2.3	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.005	<0.006
	Lithium (Li)	0.50	mg/kg w.w.	-	<0.10	<0.09	<0.10	<0.09	<0.10	<0.09	<0.09	<0.16	<0.15	<0.14	<0.16	<0.14	<0.16	<0.13	<0.14
	Magnesium (Mg)	2.0	mg/kg w.w.	-	253	221	252	256	263	234	231	375	315	271	419	364	336	285	294
	Manganese (Mn)	0.050	mg/kg w.w.	76.9	23	44	38	30	36	31	34	4.6	4.9	5.0	7.1	3.4	6.1	1.4	1.1
	Mercury (Hg)	0.0050	mg/kg w.w.	0.5	0.039	0.017	0.030	0.018	0.018	0.031	0.052	0.031	0.023	0.028	0.030	0.029	0.026	0.018	0.015
	Molybdenum (Mo)	0.020	mg/kg w.w.	3.2	0.057	0.060	0.042	0.062	0.050	0.062	0.037	0.015	0.016	0.015	0.013	0.011	0.016	0.010	0.006
	Nickel (Ni)	0.20	mg/kg w.w.	0.7	0.04	<0.20	<0.20	<0.20	0.05	0.05	0.04	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
	Phosphorus (P)	10	mg/kg w.w.	-	3,193	2,822	3,152	3,056	3,101	3,096	2,958	2,946	2,762	2,617	2,856	2,919	2,742	2,467	2,439
	Potassium (K)	20	mg/kg w.w.	-	3,754	3,813	3,782	4,099	3,744	4,014	3,675	3,123	3,504	3,412	2,582	3,035	3,081	3,147	3,056
	Rubidium (Rb)	0.050	mg/kg w.w.	-	4.6	5.4	5.1	6.1	6.8	5.4	6.4	8.4	10.3	11.1	7.2	7.8	8.6	8.7	11.5
	Selenium (Se)	0.050	mg/kg w.w.	3.2	0.83	0.73	0.96	1.74	0.82	0.95	0.73	0.94	0.90	0.96	0.84	0.95	0.85	0.52	0.69
	Sodium (Na)	20	mg/kg w.w.	-	874	891	892	721	813	862	1,034	688	742	801	441	725	778	1,014	1,095
	Strontium (Sr)	0.050	mg/kg w.w.	378	0.108	0.056	0.077	0.056	0.098	0.064	0.061	0.052	0.097	0.054	0.035	0.064	0.052	0.055	0.078
	Tellurium (Te)	0.020	mg/kg w.w.	-	0.00387	<0.003	<0.004	<0.004	<0.004	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.005	<0.006
	Thallium (Tl)	0.0020	mg/kg w.w.	-	0.0045	0.0037	0.0031	0.0038	0.0058	0.0027	0.0029	0.0071	0.0089	0.0095	0.0062	0.0061	0.0087	0.0044	0.0065
	Tin (Sn)	0.10	mg/kg w.w.	-	0.03	0.03	0.02	0.02	<0.02	0.02	0.02	0.05	0.06	0.03	<0.03	0.05	<0.03	<0.03	<0.03
	Uranium (U)	0.0020	mg/kg w.w.	0.4	<0.0004	<0.0003	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0005	<0.0006
	Vanadium (V)	0.10	mg/kg w.w.	-	<0.02	0.04	0.04	<0.02	<0.02	0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Zinc (Zn)	0.50	mg/kg w.w.	189	72	72	69	85	83	60	50	32.1	35	34	32.1	32	31.1	26.3	21.8
	Zirconium (Zr)	0.20	mg/kg w.w.	-	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.04	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06

Indicates value greater than benchmark.

[1] Mercury guideline for women of child-bearing age and children under 15 (see Table 2.1, MOECC 2015).

[2] See Table 2.2 for Consumption Benchmark References.

MINNOW ENVIRONMENTAL INC.
ATTN: Jess Tester
101 - 1025 Hillside Ave.
Victoria BC V8T 2A2

Date Received: 19-OCT-16
Report Date: 13-DEC-16 15:12 (MT)
Version: FINAL

Client Phone: 250-595-1627

Certificate of Analysis

Lab Work Order #: L1845628

Project P.O. #: NOT SUBMITTED
Job Reference: 167202.0067
C of C Numbers:
Legal Site Desc:

<Original signed by>

Selam Worku
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-1 Tissue 21-SEP-16 PINR-NP01-M	L1845628-2 Tissue 21-SEP-16 PINR-NP02-M	L1845628-3 Tissue 21-SEP-16 PINR-NP03-M	L1845628-4 Tissue 21-SEP-16 PINR-NP04-M	L1845628-5 Tissue 21-SEP-16 PINR-NP05-M
TISSUE						
Physical Tests	% Moisture (%)	77.2	77.9	78.1	79.7	76.7
Metals	Aluminum (Al)-Total (mg/kg)	2.3	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.090	0.362	0.380	0.666	0.277
	Barium (Ba)-Total (mg/kg)	0.291	0.117	0.080	0.201	0.053
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.013	0.015	<0.010	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)-Total (mg/kg)	2520	1270	1130	1680	880
	Cesium (Cs)-Total (mg/kg)	0.0524	0.0295	0.0218	0.0292	0.0218
	Chromium (Cr)-Total (mg/kg)	0.082	<0.050	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	0.022	<0.020	<0.020
	Copper (Cu)-Total (mg/kg)	0.86	0.61	0.67	0.73	0.73
	Iron (Fe)-Total (mg/kg)	9.0	5.6	5.7	8.8	7.7
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1540	1550	1580	1570	1460
	Manganese (Mn)-Total (mg/kg)	2.54	1.81	1.16	2.20	0.902
	Mercury (Hg)-Total (mg/kg)	2.01	1.22	2.20	1.31	1.58
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	12100	11100	10500	10600	10800
	Potassium (K)-Total (mg/kg)	19200	20400	20400	18900	19800
	Rubidium (Rb)-Total (mg/kg)	20.5	24.1	22.8	26.4	22.2
	Selenium (Se)-Total (mg/kg)	0.666	0.804	0.949	0.906	0.878
	Sodium (Na)-Total (mg/kg)	1170	1220	1290	2960	1090
	Strontium (Sr)-Total (mg/kg)	1.51	0.577	0.478	0.923	0.312
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0127	0.0116	0.0086	0.0184	0.0108
	Tin (Sn)-Total (mg/kg)	0.40	0.12	0.16	0.19	0.38
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	17.9	17.4	22.9	15.4	14.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-6 Tissue 21-SEP-16 PINR-NP06-M	L1845628-7 Tissue 22-SEP-16 PINR-NP16-M	L1845628-8 Tissue 21-SEP-16 PINR-NP08-M	L1845628-9 Tissue 21-SEP-16 PINR-NP09-M	L1845628-10 Tissue 22-SEP-16 PINR-NP10-M
TISSUE						
Physical Tests	% Moisture (%)	78.6	79.0	79.2	79.1	79.3
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	3.4
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.470	0.683	0.269	0.274	0.359
	Barium (Ba)-Total (mg/kg)	0.168	0.120	0.084	0.106	0.106
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.012	0.014	<0.010	0.011
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	0.0195
	Calcium (Ca)-Total (mg/kg)	1810	1010	1350	1790	639
	Cesium (Cs)-Total (mg/kg)	0.0224	0.0448	0.0186	0.0203	0.0311
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.363
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Copper (Cu)-Total (mg/kg)	0.78	0.53	0.67	0.84	1.08
	Iron (Fe)-Total (mg/kg)	8.1	7.9	6.2	6.2	12.3
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1600	1540	1570	1450	1580
	Manganese (Mn)-Total (mg/kg)	2.81	1.24	1.58	1.82	1.02
	Mercury (Hg)-Total (mg/kg)	1.80	2.92	0.966	0.767	1.44
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	11900	10700	11600	11000	10200
	Potassium (K)-Total (mg/kg)	20400	20300	22200	19500	21000
	Rubidium (Rb)-Total (mg/kg)	21.4	31.3	27.3	32.0	29.4
	Selenium (Se)-Total (mg/kg)	1.08	0.869	0.922	0.919	0.810
	Sodium (Na)-Total (mg/kg)	1930	1380	1000	2120	1060
	Strontium (Sr)-Total (mg/kg)	0.775	0.559	0.568	0.727	0.205
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0120	0.0100	0.0132	0.0121	0.0099
	Tin (Sn)-Total (mg/kg)	0.54	0.28	0.22	0.24	0.25
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	20.0	14.3	25.9	19.8	32.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-11 Tissue 22-SEP-16 PINR-NP11-M	L1845628-12 Tissue 22-SEP-16 PINR-NP12-M	L1845628-13 Tissue 22-SEP-16 PINR-NP13-M	L1845628-14 Tissue 22-SEP-16 PINR-NP14-M	L1845628-15 Tissue 22-SEP-16 PINR-NP15-M
TISSUE						
Physical Tests	% Moisture (%)	79.8	77.2	81.2	78.9	77.4
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.666	0.392	0.239	0.371	0.603
	Barium (Ba)-Total (mg/kg)	0.118	<0.050	0.069	0.075	0.131
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	0.018	<0.010	0.011	0.018	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)-Total (mg/kg)	1230	564	628	959	1340
	Cesium (Cs)-Total (mg/kg)	0.0341	0.0498	0.0682	0.0273	0.0248
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	0.258	0.333	<0.050
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	0.024	<0.020
	Copper (Cu)-Total (mg/kg)	0.55	0.69	0.66	0.71	0.74
	Iron (Fe)-Total (mg/kg)	7.9	6.0	11.8	9.0	7.9
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1590	1490	1580	1600	1520
	Manganese (Mn)-Total (mg/kg)	1.33	0.666	1.11	1.13	2.32
	Mercury (Hg)-Total (mg/kg)	2.52	1.17	2.47	1.73	1.18
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	10300	11200	10500	10400	11300
	Potassium (K)-Total (mg/kg)	20200	20000	22000	20700	19700
	Rubidium (Rb)-Total (mg/kg)	25.9	29.7	45.8	22.5	20.7
	Selenium (Se)-Total (mg/kg)	0.987	0.630	0.767	0.768	0.839
	Sodium (Na)-Total (mg/kg)	1310	1230	653	1350	1110
	Strontium (Sr)-Total (mg/kg)	0.538	0.183	0.205	0.416	0.661
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0103	0.0178	0.0118	0.0083	0.0338
	Tin (Sn)-Total (mg/kg)	0.22	0.21	0.38	0.21	0.39
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	22.1	14.6	16.4	17.6	17.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-16 Tissue 21-SEP-16 PINR-NPX-M	L1845628-17 Tissue 21-SEP-16 PINR-NPZ-M	L1845628-18 Tissue 21-SEP-16 PINR-NP01-L	L1845628-19 Tissue 21-SEP-16 PINR-NP02-L	L1845628-20 Tissue 21-SEP-16 PINR-NP03-L
TISSUE						
Physical Tests	% Moisture (%)	77.3	78.1	79.6	76.9	72.9
Metals	Aluminum (Al)-Total (mg/kg)	2.7	<5.0	2.6	2.7	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.107	0.394	0.040	0.190	0.113
	Barium (Ba)-Total (mg/kg)	0.266	0.480	<0.050	<0.050	<0.050
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	0.019	0.014
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.010	0.0706	0.178	0.169
	Calcium (Ca)-Total (mg/kg)	2280	4110	150	184	129
	Cesium (Cs)-Total (mg/kg)	0.0500	0.0381	0.0123	0.0097	0.0068
	Chromium (Cr)-Total (mg/kg)	0.056	<0.20	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	0.130	0.239	0.228
	Copper (Cu)-Total (mg/kg)	0.86	0.62	55.7	148	103
	Iron (Fe)-Total (mg/kg)	7.9	8.1	548	1090	287
	Lead (Pb)-Total (mg/kg)	0.028	<0.050	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1480	1440	754	716	620
	Manganese (Mn)-Total (mg/kg)	2.31	6.64	2.79	4.34	4.15
	Mercury (Hg)-Total (mg/kg)	2.00	1.64	0.630	0.381	0.484
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.040	0.521	0.828	0.585
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	11500	11100	13800	13600	11600
	Potassium (K)-Total (mg/kg)	18600	17800	14900	11800	11900
	Rubidium (Rb)-Total (mg/kg)	20.0	20.1	18.5	23.2	22.0
	Selenium (Se)-Total (mg/kg)	0.642	0.94	4.58	8.10	7.88
	Sodium (Na)-Total (mg/kg)	1180	1280	3980	3840	2630
	Strontium (Sr)-Total (mg/kg)	1.34	1.97	0.167	0.172	0.101
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0110	0.0123	0.0093	0.0109	0.0065
	Tin (Sn)-Total (mg/kg)	0.40	0.34	0.43	0.37	0.33
	Uranium (U)-Total (mg/kg)	0.0024	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	0.28	0.92	0.58
	Zinc (Zn)-Total (mg/kg)	17.6	21.9	111	181	147
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1845628-21	L1845628-22	L1845628-23	L1845628-24	L1845628-25
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	21-SEP-16	21-SEP-16	21-SEP-16	22-SEP-16	21-SEP-16
Sampled Time					
Client ID	PINR-NP04-L	PINR-NP05-L	PINR-NP06-L	PINR-NP16-L	PINR-NP08-L
Grouping **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	74.6	66.0	67.5	79.9	78.3
Metals Aluminum (Al)-Total (mg/kg)	6.7	<2.0	<5.0	6.9	<2.0
Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total (mg/kg)	0.204	0.095	0.138	0.159	0.169
Barium (Ba)-Total (mg/kg)	0.051	<0.050	<0.050	<0.050	<0.050
Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total (mg/kg)	0.019	<0.010	0.011	0.018	0.015
Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium (Cd)-Total (mg/kg)	0.503	0.128	0.560	0.677	0.193
Calcium (Ca)-Total (mg/kg)	279	87	97	237	304
Cesium (Cs)-Total (mg/kg)	0.0215	<0.0050	0.0097	0.0167	0.0217
Chromium (Cr)-Total (mg/kg)	<0.20	<0.050	<0.20	<0.050	<0.050
Cobalt (Co)-Total (mg/kg)	0.290	0.078	0.151	0.250	0.173
Copper (Cu)-Total (mg/kg)	130	33.9	72.9	39.6	97.0
Iron (Fe)-Total (mg/kg)	1960	108	452	335	624
Lead (Pb)-Total (mg/kg)	<0.050	<0.020	<0.050	<0.020	<0.020
Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium (Mg)-Total (mg/kg)	663	349	454	828	981
Manganese (Mn)-Total (mg/kg)	5.54	1.54	3.03	8.24	7.62
Mercury (Hg)-Total (mg/kg)	0.430	0.211	0.334	1.01	0.379
Molybdenum (Mo)-Total (mg/kg)	1.10	0.284	0.706	0.713	0.737
Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Phosphorus (P)-Total (mg/kg)	10400	5360	7350	15200	17000
Potassium (K)-Total (mg/kg)	9550	8100	7910	14800	14600
Rubidium (Rb)-Total (mg/kg)	21.4	10.6	13.0	42.1	30.9
Selenium (Se)-Total (mg/kg)	8.02	3.70	7.03	6.65	8.43
Sodium (Na)-Total (mg/kg)	3670	1840	2060	5110	4720
Strontium (Sr)-Total (mg/kg)	0.24	0.063	<0.10	0.188	0.200
Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total (mg/kg)	0.0237	0.0035	0.0090	0.0085	0.0140
Tin (Sn)-Total (mg/kg)	0.39	0.20	0.29	0.21	0.39
Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	0.0041	<0.0020
Vanadium (V)-Total (mg/kg)	1.56	0.18	0.45	0.85	0.44
Zinc (Zn)-Total (mg/kg)	168	51.5	116	135	242
Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-26 Tissue 21-SEP-16 PINR-NP09-L	L1845628-27 Tissue 22-SEP-16 PINR-NP10-L	L1845628-28 Tissue 22-SEP-16 PINR-NP11-L	L1845628-29 Tissue 22-SEP-16 PINR-NP12-L	L1845628-30 Tissue 22-SEP-16 PINR-NP13-L
TISSUE						
Physical Tests	% Moisture (%)	73.7	71.5	74.0	78.4	74.2
Metals	Aluminum (Al)-Total (mg/kg)	4.7	<2.0	6.0	3.7	4.5
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	0.014	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.207	0.195	0.173	0.185	0.191
	Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.056
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.011	0.020	<0.010	0.030
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	0.102	0.118	0.368	0.182	0.356
	Calcium (Ca)-Total (mg/kg)	151	113	164	191	269
	Cesium (Cs)-Total (mg/kg)	0.0141	0.0113	0.0097	0.0222	0.0351
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.082
	Cobalt (Co)-Total (mg/kg)	0.142	0.126	0.288	0.170	0.275
	Copper (Cu)-Total (mg/kg)	66.1	80.1	151	87.6	178
	Iron (Fe)-Total (mg/kg)	160	350	1840	392	1920
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	0.024
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	563	458	503	799	697
	Manganese (Mn)-Total (mg/kg)	4.75	3.27	3.49	7.38	4.90
	Mercury (Hg)-Total (mg/kg)	0.224	0.307	0.782	0.351	1.26
	Molybdenum (Mo)-Total (mg/kg)	0.629	0.611	0.782	0.621	0.931
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.29
	Phosphorus (P)-Total (mg/kg)	9610	8200	8910	14800	11500
	Potassium (K)-Total (mg/kg)	10000	7970	9900	14200	10100
	Rubidium (Rb)-Total (mg/kg)	23.8	15.3	21.5	31.9	26.3
	Selenium (Se)-Total (mg/kg)	6.04	5.37	9.73	6.68	8.10
	Sodium (Na)-Total (mg/kg)	3480	2730	3420	4040	3140
	Strontium (Sr)-Total (mg/kg)	0.128	0.086	0.129	0.139	0.230
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0091	0.0059	0.0094	0.0195	0.0151
	Tin (Sn)-Total (mg/kg)	0.20	0.18	0.21	0.15	0.32
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	0.22	0.57	0.93	0.44	1.02
	Zinc (Zn)-Total (mg/kg)	160	132	160	174	195
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-31 Tissue 22-SEP-16 PINR-NP14-L	L1845628-32 Tissue 22-SEP-16 PINR-NP15-L	L1845628-33 Tissue 21-SEP-16 PINR-NPX-L	L1845628-34 Tissue 21-SEP-16 PINR-NP01-O	L1845628-35 Tissue 21-SEP-16 PINR-NP02-O
TISSUE						
Physical Tests	% Moisture (%)	79.1	66.1	78.3	80.5	82.9
Metals	Aluminum (Al)-Total (mg/kg)	3.0	<5.0	2.7	<2.0	3.1
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.189	0.107	0.055	0.025	0.125
	Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	0.295	0.068
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	0.021	0.011	0.011	<0.010	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	0.408	0.280	0.0711	0.0099	0.0292
	Calcium (Ca)-Total (mg/kg)	222	144	157	660	620
	Cesium (Cs)-Total (mg/kg)	0.0153	0.0065	0.0125	0.0348	0.0296
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.20	<0.050	0.096	0.183
	Cobalt (Co)-Total (mg/kg)	0.326	0.159	0.109	0.154	0.469
	Copper (Cu)-Total (mg/kg)	131	69.7	63.3	6.64	7.08
	Iron (Fe)-Total (mg/kg)	886	987	455	211	358
	Lead (Pb)-Total (mg/kg)	<0.020	<0.050	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	813	404	742	1290	1290
	Manganese (Mn)-Total (mg/kg)	4.63	3.64	2.98	117	260
	Mercury (Hg)-Total (mg/kg)	0.612	0.199	0.688	0.188	0.0991
	Molybdenum (Mo)-Total (mg/kg)	0.814	0.690	0.480	0.276	0.352
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	0.20	0.22	<0.20
	Phosphorus (P)-Total (mg/kg)	15100	6860	13700	16400	16500
	Potassium (K)-Total (mg/kg)	14400	7220	13700	19000	22300
	Rubidium (Rb)-Total (mg/kg)	22.4	14.7	17.4	22.9	31.5
	Selenium (Se)-Total (mg/kg)	7.55	5.13	5.02	4.35	4.29
	Sodium (Na)-Total (mg/kg)	4840	2050	3510	4570	5210
	Strontium (Sr)-Total (mg/kg)	0.173	0.13	0.130	0.603	0.328
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0060	0.0264	0.0069	0.0224	0.0216
	Tin (Sn)-Total (mg/kg)	0.26	0.16	0.28	0.16	0.17
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	0.93	1.16	0.25	<0.10	0.24
	Zinc (Zn)-Total (mg/kg)	170	118	111	367	422
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1845628-36	L1845628-37	L1845628-38	L1845628-39	L1845628-40
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	21-SEP-16	21-SEP-16	22-SEP-16	22-SEP-16	22-SEP-16
Sampled Time					
Client ID	PINR-NP03-O	PINR-NP08-O	PINR-NP12-O	PINR-NP14-O	PINR-NP16-O
Grouping / **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	80.3	81.7	80.5	82.0	82.5
Metals Aluminum (Al)-Total (mg/kg)	<2.0	2.1	<2.0	<2.0	<2.0
Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total (mg/kg)	0.096	0.103	0.120	0.143	0.244
Barium (Ba)-Total (mg/kg)	0.142	0.059	0.195	0.061	0.099
Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium (Cd)-Total (mg/kg)	0.0252	0.0349	0.0270	0.0478	0.0553
Calcium (Ca)-Total (mg/kg)	631	748	642	708	680
Cesium (Cs)-Total (mg/kg)	0.0177	0.0233	0.0413	0.0299	0.0320
Chromium (Cr)-Total (mg/kg)	0.058	0.073	<0.050	<0.050	<0.050
Cobalt (Co)-Total (mg/kg)	0.346	0.255	0.278	0.428	0.227
Copper (Cu)-Total (mg/kg)	6.41	7.54	6.81	7.46	5.55
Iron (Fe)-Total (mg/kg)	262	324	286	285	228
Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium (Mg)-Total (mg/kg)	1280	1400	1350	1300	1320
Manganese (Mn)-Total (mg/kg)	193	163	185	172	193
Mercury (Hg)-Total (mg/kg)	0.153	0.0981	0.0929	0.173	0.299
Molybdenum (Mo)-Total (mg/kg)	0.213	0.337	0.255	0.345	0.211
Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	0.27	0.27	0.21
Phosphorus (P)-Total (mg/kg)	16000	16700	15900	17200	16900
Potassium (K)-Total (mg/kg)	19200	22400	19200	22300	21000
Rubidium (Rb)-Total (mg/kg)	25.8	33.5	34.9	29.9	36.6
Selenium (Se)-Total (mg/kg)	4.86	9.49	4.20	5.30	4.17
Sodium (Na)-Total (mg/kg)	4530	3940	4170	4790	5910
Strontium (Sr)-Total (mg/kg)	0.392	0.306	0.500	0.355	0.349
Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total (mg/kg)	0.0155	0.0205	0.0295	0.0148	0.0167
Tin (Sn)-Total (mg/kg)	0.11	0.13	<0.10	0.12	0.12
Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Vanadium (V)-Total (mg/kg)	0.21	<0.10	<0.10	0.14	0.20
Zinc (Zn)-Total (mg/kg)	348	467	427	332	285
Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-41 Tissue 21-SEP-16 PINR-NPX-O	L1845628-42 Tissue 21-SEP-16 PINR-WA01-M	L1845628-43 Tissue 21-SEP-16 PINR-WA02-M	L1845628-44 Tissue 22-SEP-16 PINR-WA03-M	L1845628-45 Tissue 22-SEP-16 PINR-WA04-M
TISSUE						
Physical Tests	% Moisture (%)	80.8	79.0	80.0	79.7	79.0
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.026	0.174	0.178	0.147	0.124
	Barium (Ba)-Total (mg/kg)	0.231	<0.050	<0.050	<0.050	<0.050
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.011	0.015	<0.010	0.018
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	0.0120	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)-Total (mg/kg)	601	793	499	499	1030
	Cesium (Cs)-Total (mg/kg)	0.0350	0.0499	0.0470	0.0517	0.0600
	Chromium (Cr)-Total (mg/kg)	0.311	<0.050	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	0.159	<0.020	<0.020	<0.020	<0.020
	Copper (Cu)-Total (mg/kg)	6.77	0.77	0.64	0.74	0.62
	Iron (Fe)-Total (mg/kg)	217	3.8	3.6	3.3	4.7
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1320	1580	1530	1540	1580
	Manganese (Mn)-Total (mg/kg)	119	0.494	0.474	0.404	0.384
	Mercury (Hg)-Total (mg/kg)	0.210	2.04	1.16	1.40	1.59
	Molybdenum (Mo)-Total (mg/kg)	0.308	<0.020	<0.020	<0.020	<0.020
	Nickel (Ni)-Total (mg/kg)	<0.20	0.21	0.23	0.22	0.22
	Phosphorus (P)-Total (mg/kg)	16600	11500	10800	11200	10700
	Potassium (K)-Total (mg/kg)	19800	21400	20900	20900	20700
	Rubidium (Rb)-Total (mg/kg)	24.3	53.3	56.8	59.6	63.6
	Selenium (Se)-Total (mg/kg)	4.20	1.07	1.07	0.927	0.964
	Sodium (Na)-Total (mg/kg)	4460	1660	1660	1360	1530
	Strontium (Sr)-Total (mg/kg)	0.509	0.181	0.056	0.065	0.217
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0241	0.0153	0.0180	0.0115	0.0206
	Tin (Sn)-Total (mg/kg)	0.17	<0.10	<0.10	<0.10	<0.10
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	373	13.7	13.6	13.2	16.0
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-46 Tissue 22-SEP-16 PINR-WA05-M	L1845628-47 Tissue 23-SEP-16 PINR-WA06-M	L1845628-48 Tissue 23-SEP-16 PINR-WA07-M	L1845628-49 Tissue 23-SEP-16 PINR-WA08-M	L1845628-50 Tissue 23-SEP-16 PINR-WA09-M
TISSUE						
Physical Tests	% Moisture (%)	80.2	77.5	79.3	77.5	79.4
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<5.0	2.7	2.1	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.168	0.166	0.115	0.240	0.190
	Barium (Ba)-Total (mg/kg)	<0.050	0.054	<0.050	<0.050	<0.050
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	0.013	0.019	<0.010	0.011	0.015
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	Calcium (Ca)-Total (mg/kg)	483	489	539	794	533
	Cesium (Cs)-Total (mg/kg)	0.0530	0.0483	0.0876	0.0489	0.0556
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.20	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Copper (Cu)-Total (mg/kg)	0.44	0.77	0.69	0.63	0.78
	Iron (Fe)-Total (mg/kg)	4.1	7.5	6.6	8.5	5.2
	Lead (Pb)-Total (mg/kg)	<0.020	<0.050	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1520	1390	1610	1600	1650
	Manganese (Mn)-Total (mg/kg)	0.426	0.530	0.495	0.498	0.403
	Mercury (Hg)-Total (mg/kg)	2.07	2.17	0.902	2.15	2.12
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.040	<0.020	<0.020	<0.020
	Nickel (Ni)-Total (mg/kg)	0.26	<0.20	0.26	0.29	0.27
	Phosphorus (P)-Total (mg/kg)	10800	8410	11500	11500	11400
	Potassium (K)-Total (mg/kg)	21200	17600	22400	21400	21800
	Rubidium (Rb)-Total (mg/kg)	53.2	40.1	103	48.3	54.6
	Selenium (Se)-Total (mg/kg)	0.987	0.93	0.870	1.22	1.11
	Sodium (Na)-Total (mg/kg)	608	901	1060	1120	1480
	Strontium (Sr)-Total (mg/kg)	<0.050	<0.10	0.098	0.162	0.073
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0182	0.0193	0.0186	0.0164	0.0181
	Tin (Sn)-Total (mg/kg)	0.14	0.13	<0.10	<0.10	0.10
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	12.4	10.8	14.0	13.8	13.2
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1845628-51	L1845628-52	L1845628-53	L1845628-54	L1845628-55
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	24-SEP-16	23-SEP-16	24-SEP-16	24-SEP-16	24-SEP-16
Sampled Time					
Client ID	PINR-WA16-M	PINR-WA11-M	PINR-WA12-M	PINR-WA13-M	PINR-WA14-M
Grouping / **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	78.3	78.2	78.0	77.9	78.0
Metals Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total (mg/kg)	0.158	0.136	0.318	0.206	0.142
Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	0.018	<0.010	<0.010
Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Calcium (Ca)-Total (mg/kg)	462	493	450	434	508
Cesium (Cs)-Total (mg/kg)	0.0512	0.0486	0.0696	0.0659	0.0456
Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.155
Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Copper (Cu)-Total (mg/kg)	0.63	0.59	0.67	0.57	0.53
Iron (Fe)-Total (mg/kg)	4.1	4.1	3.7	5.0	3.6
Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium (Mg)-Total (mg/kg)	1510	1600	1550	1430	1440
Manganese (Mn)-Total (mg/kg)	0.470	0.480	0.270	0.280	0.414
Mercury (Hg)-Total (mg/kg)	0.971	1.28	1.91	1.42	1.25
Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Nickel (Ni)-Total (mg/kg)	0.24	0.20	0.24	0.22	0.24
Phosphorus (P)-Total (mg/kg)	10700	11500	11100	10600	10700
Potassium (K)-Total (mg/kg)	20600	21600	20600	19600	20500
Rubidium (Rb)-Total (mg/kg)	62.1	61.1	65.9	71.3	58.2
Selenium (Se)-Total (mg/kg)	0.901	0.938	0.911	0.863	0.905
Sodium (Na)-Total (mg/kg)	1060	1190	1130	1210	1360
Strontium (Sr)-Total (mg/kg)	<0.050	0.053	0.072	0.068	0.088
Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total (mg/kg)	0.0111	0.0108	0.0141	0.0202	0.0118
Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc (Zn)-Total (mg/kg)	12.1	12.5	14.8	12.0	13.1
Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-56 Tissue 24-SEP-16 PINR-WA15-M	L1845628-57 Tissue 21-SEP-16 PINR-WAX-M	L1845628-58 Tissue 23-SEP-16 PINR-WAZ-M	L1845628-59 Tissue 21-SEP-16 PINR-WA01-L	L1845628-60 Tissue 21-SEP-16 PINR-WA02-L
TISSUE						
Physical Tests	% Moisture (%)	79.9	78.1	77.5	73.9	74.4
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<5.0	<5.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.178	0.141	0.188	0.259	0.236
	Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.012	0.018	<0.010	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.010	0.187	0.170
	Calcium (Ca)-Total (mg/kg)	471	531	446	377	350
	Cesium (Cs)-Total (mg/kg)	0.0591	0.0441	0.0441	0.0283	0.0248
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.20	<0.20	<0.050
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	0.273	0.273
	Copper (Cu)-Total (mg/kg)	0.56	0.74	0.41	4.84	5.51
	Iron (Fe)-Total (mg/kg)	5.3	3.4	5.1	184	202
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.050	<0.050	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1520	1450	1220	707	700
	Manganese (Mn)-Total (mg/kg)	0.407	0.370	0.424	7.09	5.37
	Mercury (Hg)-Total (mg/kg)	2.05	1.97	2.08	0.301	0.264
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.040	0.406	0.463
	Nickel (Ni)-Total (mg/kg)	0.26	0.28	<0.20	<0.20	0.22
	Phosphorus (P)-Total (mg/kg)	10900	9710	8090	10300	12300
	Potassium (K)-Total (mg/kg)	21200	18600	18000	8940	11500
	Rubidium (Rb)-Total (mg/kg)	52.6	48.3	38.2	29.1	34.8
	Selenium (Se)-Total (mg/kg)	0.911	1.04	0.90	2.23	2.35
	Sodium (Na)-Total (mg/kg)	1360	1780	769	3690	3980
	Strontium (Sr)-Total (mg/kg)	0.051	0.080	<0.10	0.24	0.194
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0123	0.0136	0.0192	0.0244	0.0387
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	0.16	0.37	0.41
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	14.3	12.0	10.2	50.4	58.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1845628-61	L1845628-62	L1845628-63	L1845628-64	L1845628-65
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	22-SEP-16	22-SEP-16	22-SEP-16	23-SEP-16	23-SEP-16
Sampled Time					
Client ID	PINR-WA03-L	PINR-WA04-L	PINR-WA05-L	PINR-WA06-L	PINR-WA07-L
Grouping **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	76.3	80.6	76.3	73.3	74.7
Metals Aluminum (Al)-Total (mg/kg)	<2.0	2.0	<5.0	<5.0	<5.0
Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total (mg/kg)	0.356	0.267	0.269	0.438	0.234
Barium (Ba)-Total (mg/kg)	<0.050	<0.050	0.371	<0.050	<0.050
Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total (mg/kg)	<0.010	0.015	0.013	0.013	<0.010
Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium (Cd)-Total (mg/kg)	0.273	0.292	0.182	0.525	0.269
Calcium (Ca)-Total (mg/kg)	360	626	5860	285	1050
Cesium (Cs)-Total (mg/kg)	0.0285	0.0470	0.0545	0.0223	0.0464
Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.20	<0.20	<0.20
Cobalt (Co)-Total (mg/kg)	0.432	0.443	0.196	1.28	0.676
Copper (Cu)-Total (mg/kg)	7.17	7.69	6.83	6.20	8.05
Iron (Fe)-Total (mg/kg)	376	254	198	245	450
Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.050	<0.050	<0.050
Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium (Mg)-Total (mg/kg)	741	884	1270	584	658
Manganese (Mn)-Total (mg/kg)	5.30	9.16	11.7	5.19	6.09
Mercury (Hg)-Total (mg/kg)	0.346	0.473	0.507	0.610	0.279
Molybdenum (Mo)-Total (mg/kg)	0.590	0.665	0.725	0.598	0.673
Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Phosphorus (P)-Total (mg/kg)	12200	13900	18200	9710	10600
Potassium (K)-Total (mg/kg)	12500	14000	12400	8790	10500
Rubidium (Rb)-Total (mg/kg)	28.2	51.2	37.1	22.4	46.2
Selenium (Se)-Total (mg/kg)	3.21	4.03	3.13	3.06	2.99
Sodium (Na)-Total (mg/kg)	6400	4950	3470	3820	4310
Strontium (Sr)-Total (mg/kg)	0.221	0.382	3.45	0.18	0.60
Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total (mg/kg)	0.0335	0.0576	0.0371	0.0387	0.0658
Tin (Sn)-Total (mg/kg)	0.36	0.67	0.49	0.49	0.45
Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	0.0033	<0.0020	<0.0020
Vanadium (V)-Total (mg/kg)	<0.10	0.14	<0.10	0.12	<0.10
Zinc (Zn)-Total (mg/kg)	76.5	80.3	78.2	50.8	68.9
Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-66 Tissue 23-SEP-16 PINR-WA08-L	L1845628-67 Tissue 23-SEP-16 PINR-WA09-L	L1845628-68 Tissue 24-SEP-16 PINR-WA16-L	L1845628-69 Tissue 23-SEP-16 PINR-WA11-L	L1845628-70 Tissue 24-SEP-16 PINR-WA12-L
TISSUE						
Physical Tests	% Moisture (%)	74.6	69.7	76.7	74.9	76.0
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<5.0	<2.0	<2.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.267	0.279	0.388	0.311	0.150
	Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	0.216	0.332	0.313	0.267	0.253
	Calcium (Ca)-Total (mg/kg)	217	212	494	219	231
	Cesium (Cs)-Total (mg/kg)	0.0348	0.0235	0.0310	0.0287	0.0266
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.20	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	0.213	0.925	0.265	0.701	0.160
	Copper (Cu)-Total (mg/kg)	3.96	6.68	9.33	5.22	33.2
	Iron (Fe)-Total (mg/kg)	154	218	268	457	139
	Lead (Pb)-Total (mg/kg)	<0.020	<0.050	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	656	844	631	550	760
	Manganese (Mn)-Total (mg/kg)	5.51	8.92	4.38	3.98	3.97
	Mercury (Hg)-Total (mg/kg)	0.396	0.508	0.231	0.230	0.347
	Molybdenum (Mo)-Total (mg/kg)	0.360	0.588	0.441	0.335	0.230
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	10000	13500	9620	8130	11300
	Potassium (K)-Total (mg/kg)	11400	9910	10600	10200	12300
	Rubidium (Rb)-Total (mg/kg)	42.1	25.3	30.5	30.6	43.6
	Selenium (Se)-Total (mg/kg)	2.38	2.87	2.96	2.62	1.96
	Sodium (Na)-Total (mg/kg)	3070	3070	5310	4310	5010
	Strontium (Sr)-Total (mg/kg)	0.151	0.13	0.292	0.153	0.174
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0338	0.0485	0.0296	0.0286	0.0237
	Tin (Sn)-Total (mg/kg)	0.33	0.25	1.11	0.27	<0.10
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	0.15	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	52.6	62.7	70.4	61.4	77.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1845628-71	L1845628-72	L1845628-73	L1845628-74	L1845628-75
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	24-SEP-16	24-SEP-16	24-SEP-16	21-SEP-16	21-SEP-16
Sampled Time					
Client ID	PINR-WA13-L	PINR-WA14-L	PINR-WA15-L	PINR-WAX-L	PINR-WA01-O
Grouping **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	78.9	77.7	78.5	76.0	67.7
Metals Aluminum (Al)-Total (mg/kg)	2.2	<2.0	7.0	<5.0	<2.0
Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total (mg/kg)	0.340	0.223	0.256	0.280	0.145
Barium (Ba)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.051
Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium (Cd)-Total (mg/kg)	1.08	0.273	2.04	0.203	<0.0050
Calcium (Ca)-Total (mg/kg)	380	329	442	275	564
Cesium (Cs)-Total (mg/kg)	0.0357	0.0316	0.0301	0.0322	0.0285
Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.20	<0.20	<0.050
Cobalt (Co)-Total (mg/kg)	0.223	0.570	1.08	0.351	0.188
Copper (Cu)-Total (mg/kg)	6.15	4.55	7.66	4.96	2.17
Iron (Fe)-Total (mg/kg)	286	330	635	172	84.8
Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.050	<0.050	<0.020
Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium (Mg)-Total (mg/kg)	833	549	654	777	1160
Manganese (Mn)-Total (mg/kg)	6.16	3.59	5.56	7.74	14.1
Mercury (Hg)-Total (mg/kg)	0.369	0.221	0.527	0.305	0.0968
Molybdenum (Mo)-Total (mg/kg)	0.409	0.311	0.667	0.493	0.046
Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Phosphorus (P)-Total (mg/kg)	12500	8240	10700	11200	9120
Potassium (K)-Total (mg/kg)	13400	10600	9460	10500	9670
Rubidium (Rb)-Total (mg/kg)	58.0	30.6	23.3	32.6	26.1
Selenium (Se)-Total (mg/kg)	3.31	2.46	3.07	2.19	2.92
Sodium (Na)-Total (mg/kg)	5920	5360	4720	4080	2130
Strontium (Sr)-Total (mg/kg)	0.240	0.214	0.22	0.18	0.160
Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total (mg/kg)	0.0552	0.0266	0.0318	0.0278	0.0221
Tin (Sn)-Total (mg/kg)	0.13	0.21	0.26	0.45	0.16
Uranium (U)-Total (mg/kg)	0.0021	<0.0020	0.0044	<0.0020	<0.0020
Vanadium (V)-Total (mg/kg)	<0.10	<0.10	0.66	<0.10	<0.10
Zinc (Zn)-Total (mg/kg)	84.1	58.1	62.0	55.9	99.3
Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1845628-76 Tissue 21-SEP-16 PINR-WA02-O	L1845628-77 Tissue 22-SEP-16 PINR-WA04-O	L1845628-78 Tissue 22-SEP-16 PINR-WA05-O	L1845628-79 Tissue 23-SEP-16 PINR-WA08-O	L1845628-80 Tissue 23-SEP-16 PINR-WA09-O
TISSUE						
Physical Tests	% Moisture (%)	70.8	71.8	67.8	71.1	67.7
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg/kg)	0.147	0.112	0.126	0.150	0.158
	Barium (Ba)-Total (mg/kg)	0.076	<0.050	0.062	0.071	0.062
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium (Ca)-Total (mg/kg)	886	767	463	759	594
	Cesium (Cs)-Total (mg/kg)	0.0320	0.0394	0.0268	0.0297	0.0301
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Cobalt (Co)-Total (mg/kg)	0.256	0.256	0.194	0.210	0.198
	Copper (Cu)-Total (mg/kg)	2.50	2.33	2.29	2.50	2.10
	Iron (Fe)-Total (mg/kg)	90.2	110	66.2	75.5	80.3
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Magnesium (Mg)-Total (mg/kg)	1080	962	1300	1260	1040
	Manganese (Mn)-Total (mg/kg)	16.8	17.7	21.9	11.9	18.9
	Mercury (Hg)-Total (mg/kg)	0.0780	0.101	0.0922	0.101	0.0798
	Molybdenum (Mo)-Total (mg/kg)	0.054	0.052	0.039	0.037	0.048
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phosphorus (P)-Total (mg/kg)	9460	9280	8870	10100	8490
	Potassium (K)-Total (mg/kg)	12000	12100	8020	10500	9540
	Rubidium (Rb)-Total (mg/kg)	35.2	39.3	22.4	26.9	26.7
	Selenium (Se)-Total (mg/kg)	3.07	3.39	2.61	3.28	2.64
	Sodium (Na)-Total (mg/kg)	2540	2840	1370	2510	2410
	Strontium (Sr)-Total (mg/kg)	0.332	0.193	0.108	0.223	0.160
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Thallium (Tl)-Total (mg/kg)	0.0306	0.0337	0.0193	0.0212	0.0268
	Tin (Sn)-Total (mg/kg)	0.19	0.11	<0.10	0.19	<0.10
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Zinc (Zn)-Total (mg/kg)	121	119	99.8	110	96.4
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1845628-81	L1845628-82			
	Description	Tissue	Tissue			
	Sampled Date	24-SEP-16	24-SEP-16			
	Sampled Time					
	Client ID	PINR-WA12-O	PINR-WA13-O			
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	73.1	71.7			
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0			
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010			
	Arsenic (As)-Total (mg/kg)	0.128	0.193			
	Barium (Ba)-Total (mg/kg)	0.129	0.081			
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010			
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010			
	Boron (B)-Total (mg/kg)	<1.0	<1.0			
	Cadmium (Cd)-Total (mg/kg)	0.0093	0.0160			
	Calcium (Ca)-Total (mg/kg)	717	1040			
	Cesium (Cs)-Total (mg/kg)	0.0415	0.0400			
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050			
	Cobalt (Co)-Total (mg/kg)	0.138	0.160			
	Copper (Cu)-Total (mg/kg)	2.53	2.94			
	Iron (Fe)-Total (mg/kg)	64.5	87.8			
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020			
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50			
	Magnesium (Mg)-Total (mg/kg)	1060	1040			
	Manganese (Mn)-Total (mg/kg)	5.23	3.98			
	Mercury (Hg)-Total (mg/kg)	0.0660	0.0528			
	Molybdenum (Mo)-Total (mg/kg)	0.036	0.021			
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20			
	Phosphorus (P)-Total (mg/kg)	9170	8620			
	Potassium (K)-Total (mg/kg)	11700	10800			
	Rubidium (Rb)-Total (mg/kg)	32.4	40.7			
	Selenium (Se)-Total (mg/kg)	1.92	2.43			
	Sodium (Na)-Total (mg/kg)	3770	3870			
	Strontium (Sr)-Total (mg/kg)	0.206	0.274			
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020			
	Thallium (Tl)-Total (mg/kg)	0.0164	0.0231			
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10			
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020			
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10			
	Zinc (Zn)-Total (mg/kg)	97.7	77.2			
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Manganese (Mn)-Total	MB-LOR	L1845628-1, -10, -11, -12, -13, -14, -15, -16, -18, -19, -2, -20, -22, -3, -4, -5, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-DRY-CVAFS-N-VA	Tissue	Mercury in Tissue by CVAFS (DRY)	EPA 200.3, EPA 245.7

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-DRY-MICR-CVAF-VA Tissue Mercury in Tissue by CVAFS Micro (DRY) EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

MET-DRY-CCMS-N-VA Tissue Metals in Tissue by CRC ICPMS (DRY) EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-DRY-MICR-HRMS-VA Tissue Metals in Tissue by HR-ICPMS Micro (DRY) EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis.

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MOISTURE-TISS-VA Tissue % Moisture in Tissues ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

Page 1 of 8

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Minnow Environmental Inc.	Select Report Format: ☑PDF ☑EXCEL ☐EDD (DIGITAL)	R ☑Regular (Standard TAT if received by 3 pm - business days)
Contact:	Jess Tester	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2 Lamb Street Georgetown, ON, L7G 3M9	☐Criteria on Report - provide details below if box checked Select Distribution: ☑EMAIL ☐MAIL ☐FAX	E ☐Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	905-873-3371 x227	Email 1 or Fax jtester@minnow.ca Email 2	Specify Date Required for E2,E or P:

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☐ Yes ☑ No	Select Invoice Distribution: ☑EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ Yes ☑ No		
Company:	New Gold, Robyn Gaebel, (807) 482-0900 ext 8239	Email 1 or Fax Robyn.Gaebel@newgold.com Email 2	
Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0		
Project Information		**Oil and Gas Required Fields (client use)**	
ALS Quote #:	Q56734	Approver ID: [redacted] Cost Center: [redacted]	
Job #:	167202.0067	GL Account: [redacted] Routing Code: [redacted]	
PO / AFE:		Activity Code: [redacted]	
LSD:		Location: [redacted]	
ALS Lab Work Order # (lab use only)	[redacted]	ALS Contact: Selam Worku Sampler: JT/KMc	

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
[redacted]	PINR-NP01-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP02-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP03-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP04-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP05-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP06-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP16-M ✓	22-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP08-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP09-M ✓	21-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP10-M ✓	22-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP11-M ✓	22-Sep-16	-	Tissue	R	R	R	1
[redacted]	PINR-NP12-M ✓	22-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed	Date: Oct 18, 2016	Time:	Received by: <Original signed	Date: Oct.19	Time: 920	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0206a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

Page 2 of 8

Report To		Report Format / Distribution	Turnaround Time (TAT) is not available for all tests)
Company:	Minnow Environmental Inc.	Select Report Format: ☑PDF ☑EXCEL ☐EDD (DIGITAL)	R ☑Regular (Standard TAT if received by 3 pm - business days)
Contact:	Jess Tester	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2 Lamb Street Georgetown, ON, L7G 3M9	☐Criteria on Report - provide details below if box checked Select Distribution: ☑EMAIL ☐MAIL ☐FAX	E ☐Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	905-873-3371 x227	Email 1 or Fax jtester@minnow.ca	Specify Date Required for E2,E or P:
		Email 2	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☐ Yes ☑ No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ Yes ☑ No		
Company:	New Gold, Robyn Gaebel, (807) 482-0900 ext 8239	Email 1 or Fax Robyn.Gaebel@newgold.com	
Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q56734	Approver ID:	Cost Center:
Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Selam Worku | Sampler: JT/KMc

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
	PINR-NP13-M ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP14-M ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP15-M ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NPX-M ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NPZ-M ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP01-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP02-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP03-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP04-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP05-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP06-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP16-L ✓	22-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐		SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐ No ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: 18-Oct-16	Time:	Received by: <Original signed by>	Date: Oct 19	Time: 920	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Minnow Environmental Inc.	Select Report Format: ☑PDF ☑EXCEL ☐EDD (DIGITAL)	R ☑Regular (Standard TAT if received by 3 pm - business days)
Contact:	Jess Tester	Quality Control (QC) Report with Report ☑Yes ☐No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2 Lamb Street Georgetown, ON, L7G 3M9	☐Criteria on Report - provide details below if box checked Select Distribution: ☑EMAIL ☐MAIL ☐FAX	E ☐Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	905-873-3371 x227	Email 1 or Fax jtester@minnow.ca	Specify Date Required for E2,E or P:
		Email 2	Analysis Request

Invoice To		Invoice Distribution	
	Same as Report To ☐Yes ☑No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐Yes ☑No		
Company:	New Gold, Robyn Gaebel, (807) 482-0900 ext 8239	Email 1 or Fax Robyn.Gaebel@newgold.com	
Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0	Email 2	
Project Information		**Oil and Gas Required Fields (client use)**	
ALS Quote #:	Q56734	Approver ID:	Cost Center:
Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)

ALS Contact: Selam Worku | Sampler: JT/KMc

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
	PINR-NP08-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP09-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP10-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP11-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP12-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP13-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP14-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP15-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NPX-L ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP01-O ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP02-O ✓	21-Sep-16	-	Tissue	R	R	R	1
	PINR-NP03-O ✓	21-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐Yes ☐No Are samples for human drinking water use? ☐Yes ☐No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: 18-Oct-16	Time:	Received by: <Original signed by>	Date: Oct.19	Time: 920	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS FM-0325e v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

Page 4 of 8

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Minnow Environmental Inc.	Select Report Format: ☑PDF ☑EXCEL ☐EDD (DIGITAL)	R ☑Regular (Standard TAT if received by 3 pm - business days)
Contact:	Jess Tester	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2 Lamb Street Georgetown, ON, L7G 3M9	☐Criteria on Report - provide details below if box checked	E ☐Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution: ☑EMAIL ☐MAIL ☐FAX	E2 ☐Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	905-873-3371 x227	Email 1 or Fax jtester@minnow.ca	Specify Date Required for E2,E or P:
		Email 2	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☐ Yes ☑ No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ Yes ☑ No		
Company:	New Gold, Robyn Gaebel, (807) 482-0900 ext 8239	Email 1 or Fax Robyn.Gaebel@newgold.com	
Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q56734	Approver ID:	Cost Center:
Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	ALS Contact: Selam Worku	Sampler: JT/KMc

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
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	PINR-NP12-O ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP14-O ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NP16-O ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-NPX-O ✓	21-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations Yes ☐ No ☐
Ice packs Yes ☐ No ☐	Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐	

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: Oct 18, 2016	Time:	Received by: <Original signed by>	Date: Oct 19	Time: 920	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

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	Copy of Invoice with Report ☐ Yes ☑ No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
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Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Selam Worku | Sampler: JT/KMc

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	PINR-Wa04-M ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa05-M ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa06-M ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa07-M ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa08-M ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa09-M ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa10-M ✓	24-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa11-M ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa12-M ✓	24-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: Oct 18, 2016	Time:	Received by: <Original signed by>	Date: Oct.19	Time: 920	Received by:	Date:	Time:

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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1845628-COFC

COC Number:

Page 6 of 8

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Minnow Environmental Inc.	Select Report Format: ☑PDF ☑EXCEL ☐EDD (DIGITAL)	R ☑Regular (Standard TAT if received by 3 pm - business days)
Contact:	Jess Tester	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
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		Email 2	

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	Same as Report To ☐ Yes ☑ No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
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Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q56734	Approver ID:	Cost Center:
Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)

ALS Contact: Selam Worku **Sampler:** JT/KMc

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
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	PINR-Wa15-M ✓	24-Sep-16	-	Tissue	R	R	R	1
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	PINR-Wa05-L ✓	22-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa06-L ✓	23-Sep-16	-	Tissue	R	R	R	1
	PINR-Wa07-L ✓	23-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

○ *Rush Processing*

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: Oct 18, 2016	Time:	Received by: <Original signed by>	Date: Oct 19	Time: 920	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATIC

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-6326e v09 Front/04 January 2014

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1845628-COFC

OC Number:

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
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Contact:	Jess Tester	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2 Lamb Street Georgetown, ON, L7G 3M9	☐Criteria on Report - provide details below if box checked	E ☐Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
Phone:	905-873-3371 x227	Select Distribution: ☑EMAIL ☐MAIL ☐FAX	E2 ☐Same day or weekend emergency - contact ALS to confirm TAT and surcharge
		Email 1 or Fax jtester@minnow.ca	Specify Date Required for E2,E or P:
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Invoice To	Same as Report To ☐ Yes ☑ No	Invoice Distribution
	Copy of Invoice with Report ☐ Yes ☑ No	Select Invoice Distribution: ☐EMAIL ☐MAIL ☐FAX
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Contact:	5967 Highway 11/71, P.O. Box 5, Emo, Ontario, P0W IE0	Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q56734	Approver ID:	Cost Center:
Job #:	167202.0067	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Selam Worku | Sampler: JT/KMc

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ICPMS Metals (Dry)	Total Mercury (Dry)	Moisture Content	Number of Containers
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Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations Yes ☐ No ☐
Ice packs Yes ☐ No ☐	Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐	

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)		
<Original signed by>	Date: Oct 6, 2016	Time:	<Original signed by>	Date: Oct 19	Time: 920

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

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ALS Lab Work Order # (lab use only)

ALS Contact: Selam Worku | Sampler: JT/KMc

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	PINR-Wa13-O ✓	24-Sep-16	-	Tissue	R	R	R	1

Short Holding Time

O Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <Original signed by>	Date: Sep 16,16	Time:	Received by: <Original signed by>	Date: Oct.19	Time: 920	Received by:	Date:	Time:

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NA-FM-0328e v08 Front/04 January 2014

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APPENDIX D

Communications

Provided by Shannon King
Pwi-Di-Goo-Zing Ne-Yaa-Zhing Advisory Services – First Nations Coordinator

Thursday, August 25th,. 2016 Vaughan Wilson & Stan Vlotaros Barrwick and Emo Residents

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   Mostly only at the mouth and a km upstream, no known fishers of the river so far.

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   The mouth.

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**
   (Got 2 different answers for this one)
   A More fishing in the mouth of the Pinewood in the spring than downstream.
   B Pinewood has maybe 1/10th of the fishing than Sleeman river.

4. **To what extent does fishing frequency vary with season?**
   Spring is the main fishing season for the Pinewood (sparse through other seasons).

5. **Which fish species are caught and consumed?**
   Northern, walleye, sturgeon, sucker, bass, shiners.

6. **What is considered to be an edible size?**
   12-14 inches for walleye/northern and typically 48-60 inches for sturgeon.

7. **What is the typical consumption rate of the Pinewood River fish?**
   Maybe %5 compared to the Rainy.

8. **Which fish tissue are consumed?**
   Fillet, side flanks, 2 dorsal fins on a walleye. For canned northern can use %80 of the fish, and %80 of the sturgeon.

Suggestions for things to look at for our baseline study:

-average growth rate
-arsynic levels
-color of fillets
-tissue and fillet (based on same sizes and species of fish)
-grinding entire fish when testing
-slot sized fish testing
-resident vs non-resident walleye

Tuesday, August 30th, 2016 Jeff Brown Rainy River First Nations

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   Mr. Brown doesn't fish for consumption in the Pinewood but knows of locals (non-first Nation) who do

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   Mr. Brown fishes mostly at the mouth

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**

4. **To what extent does fishing frequency vary with season?**
   Spring time is the best for catching walleye. They head to the Pinewood to spawn.

5. **Which fish species are caught and consumed?**
   Northern, walleye, croppies

6. **What is considered to be an edible size?**
   13-18 inches (walleye)

7. **What is the typical consumption rate of the Pinewood River fish?**

8. **Which fish tissue are consumed?**
   Fillets and cheeks

Mr. Brown expressed concern about the questions only being directed to the Pinewood.

Tuesday, August 30th, 2016 Trisha Bombay - Rainy River First Nations

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   Yes

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   Fishes in both upstream and the mouth, favours the mouth.

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**
   There is a lot of fishing downstream of the pinewood. Mostly locals fish in the Pinewood

4. **To what extent does fishing frequency vary with season?**
   Spring is most popular for fishing for walleye

5. **Which fish species are caught and consumed?**
   Northern, walleye

6. **What is considered to be an edible size?**
   Under slot 14-16 inches (walleye)

7. **What is the typical consumption rate of the Pinewood River fish?**
   Depends on the season, walleye has been increasing in the river, also muskies are coming back and they haven't been around in a long time.

8. **Which fish tissue are consumed?**
   Fillets and cheeks

Trish expressed that she wasn't aware of too many people from her community that fish in the Pinewood. Mostly the locals (non-native) fish in the Pinewood.

Tuesday August 30th, 2016 Karen Bombay Rainy River First Nations

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   Yes

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   Both are used

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**
   Depends on the person. The mouth is popular at spring but all the river is used.

4. **To what extent does fishing frequency vary with season?**
   Spring time is most popular at the mouth. The fish from the lake come into the river to spawn.

5. **Which fish species are caught and consumed?**
   It depends of the water levels

6. **What is considered to be an edible size?**
   12-16 inches

7. **What is the typical consumption rate of the Pinewood River fish?**

8. **Which fish tissue are consumed?**
   Fillets and cheeks. Traditional the community members used to smoke the sturgeons from the pinewood and the eggs.

Tuesday, August 30th, 2016 Rick Christianson

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   He only knows of people recreational fishing in the Pinewood.

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   Both upstream and the mouth are used.

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**
   Mostly the mouth and in the Rainy River are used.

4. **To what extent does fishing frequency vary with season?**
   Everyone knows it's better in the spring. He has never fished in the winter but knows of people who have.

5. **Which fish species are caught and consumed?**
   Northern Pike, Walleye and sogeye

6. **What is considered to be an edible size?**
   Walleye 14-17
   Northern Pike 25 inches

7. **What is the typical consumption rate of the Pinewood River fish?**

8. **Which fish tissue are consumed?**
   Filets and cheeks of a walleye
   Filets and the backs of Northern Pike

Wednesday, August 31st, 2016 Brian Major – Big Grassy First Nation

1. **Is the Pinewood river routinely used for the collection of fish for consumption?**
   Not to his knowledge

2. **Is use limited to the area near the mouth of the Pinewood (at the Rainy River) or are upstream areas used also?**
   Mouth is the main area. Heard of locals fishing upstream.

3. **How does such use compare to use of Rainy River downstream of the Pinewood?**
   The mouth of the Pinewood is where a lot of fish are caught.

4. **To what extent does fishing frequency vary with season?**
   Fishing is best in the spring and fall. Has seen the odd ice shack in the winter.

5. **Which fish species are caught and consumed?**
   Walleye, Northern, Sturgeon, Suckers

6. **What is considered to be an edible size?**
   14”-17” Walleye, 36”-40” Northern, 48”-56” Sturgeon, 24”-30” sucker

7. **What is the typical consumption rate of the Pinewood River fish?**
   Spring & Fall

8. **Which fish tissue are consumed?**
   Filets and cheeks mostly. Remembers when all of the fish was used, including the guts.

Brian expressed concern for the Grassy Rivers. He said Grassy Rivers have, Bass, Walleye, Muskie, Northern, Tulibi, Suckers, Ling, Perch, Crapi. He feels that testing all sizes and the complete fish would give better results. The big one are the biggest reproducers, its part of why they toss them back. Testing the ROE will give a better understanding too.

newgold™ Rainy River Project

Federal Condition 6: Current Use of Lands and Resources for Traditional Purposes

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Condition 6.1

The Proponent shall provide access to private lands to Aboriginal groups for their current use of land, including hunting and plant harvesting.

Status: Ongoing

Supporting Analysis:

New Gold RRP provides access to private lands where it is safe to do so. On a regular basis, New Gold RRP also provides site tours to community members so they are familiar with the lands. For the 2016 deer tissue monitoring program, Aboriginal people were provided access to participate in the program.

Condition 6.2

The Proponent shall avoid use of herbicides along the transmission line corridor unless required to prevent fire hazards. The Proponent shall minimize the removal of non-woody vegetation within the transmission line corridor.

Status: Complete

Supporting Analysis:

Construction completion of the hydro line occurred in April 2016. All construction was completed during the winter season using pre-existing access to the corridor. Grubbing and removal of non-woody vegetation did not occur and some areas that were observed in the summer of 2016 showed excellent vegetation growth. Over the life of the project the line will be regularly inspected and if necessary vegetation that would impact the line may need to managed.

At this time there is no need to manage vegetation along the line nor is it the intent of New Gold RRP's to use herbicide.

Condition 6.3

The Proponent shall, throughout all phases of the Designated Project, undertake progressive habitat restoration as per any requirements set by Ontario in the Mine Closure Plan for the Designated Project. Habitat restoration shall include:

Status: Ongoing

Supporting Analysis:

Refer to supporting analysis in conditions 6.3.1 to 6.3.2

Condition 6.3.1

A consideration of habitat types that support a diversity of wildlife species and traditional uses by Aboriginal peoples, including ungulates and furbearers, as well as native plant species previously collected at the Project Site for food and medicinal purposes; and

Status: Ongoing

Supporting Analysis:

During 2016 the project was in its second year of construction, and although some restoration has occurred it has been limited to planting of native grasses, cedar trees, white spruce, dogwood and willow. These species were chosen primarily to assist in stabilization and erosion control for the construction of the Clark, in Figure 1, and West Creek, in Figure 2, Diversion systems and are native species to the project site. As the project wraps up construction in 2017 there will a requirement for further restoration and an opportunity to incorporate plant species used for traditional uses by Aboriginal peoples.

Figure 1: Lower Clark Diversion Revegetation Growth, August 2016

Figure 2: Upper West Creek Diversion at Coir Log Revegetation Growth, August 2016

Condition 6.3.2

Separating and stockpiling removed organic rich material during construction (of open pit and during tailings dam stripping) for use to support revegetation and other reclamation activities.

Status: Ongoing

Supporting Analysis:

During the construction phase topsoil is stripped and salvaged to be used for future reclamation where topsoil is present and of sufficient quality. In 2016 the project advanced efforts on salvaging topsoil at the Water Management Pond, developed a strategy for salvaging topsoil from the Tailings Management Pond and Open Pit. During 2016 RRP coordinated a topsoil sampling program at future construction locations to assess the quality and quantity of topsoil. This information will be used for future reclamation planning.

Condition 6.4

The Proponent shall monitor habitat restoration to verify the success of revegetation efforts. Monitoring starts with construction and ends once habitat has been restored and proven effective.

Status: Ongoing

Supporting Analysis:

Habitat restoration efforts in 2016 primarily focused on the Clark and West Creek Diversion Systems, and localized disturbances used to support construction and sediment and erosion control.

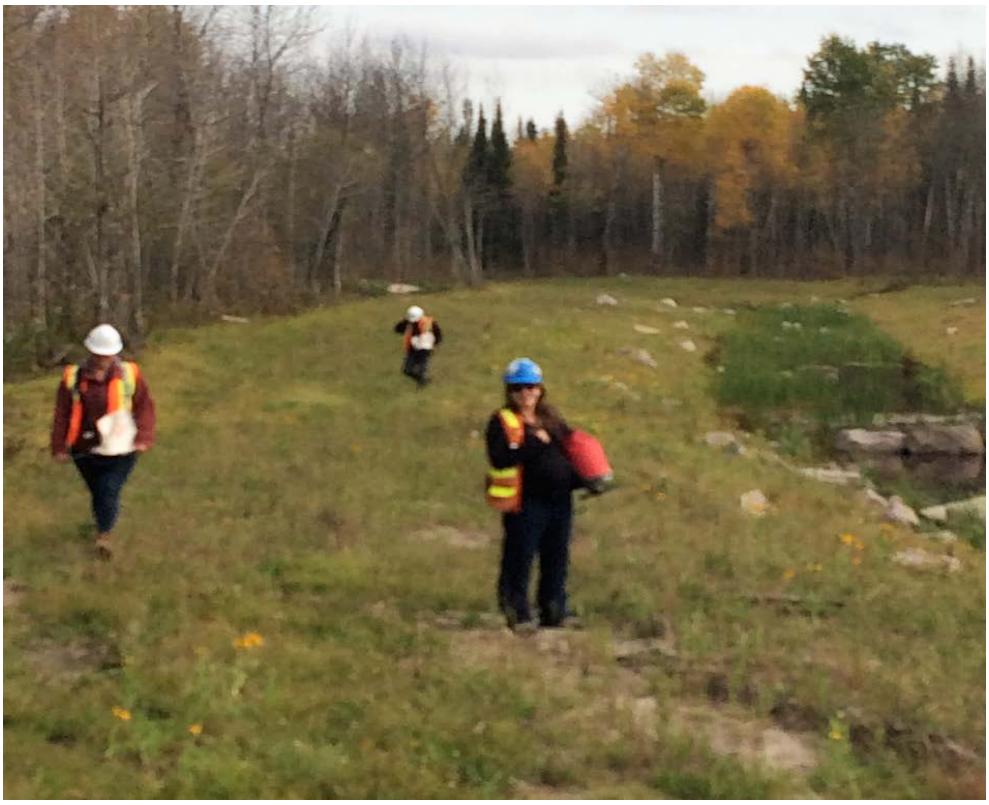

Figure 3: Reseeding efforts, October 2016

Application of native seed mixes and planting of shrub species (willows and dogwood) commenced in spring during the optimal window and was ongoing into the fall. Ongoing monitoring was conducted through the growing season in 2016 to evaluate the success of revegetation efforts and natural recolonization by local vegetation species.

Information from this monitoring program was used to inform and establish reseeding priorities for the fall seeding program in 2016.

During the fall of 2016, the Stewardship Youth Rangers came onsite to relocate water plants, specifically cattails, from construction areas to the Stockpile Diversion system. The program was successful and approximately 300 cattails were relocated and planted.

Figure 4: Cattail relocation and planting, July 2016

Ongoing efforts to monitor habitat restoration are planned to be initiated in spring 2017, and continue throughout the growing season, to demonstrate success and overall effectiveness of these restored areas.

Condition 6.5

The Proponent shall restore access to the Project Site for the Aboriginal groups during the decommissioning phase, to the extent that such access is safe, for their traditional purposes.

Status: Not applicable at this time.

Supporting Analysis:

This condition is not relevant to the Construction Phase.

Condition 6.6

The proponent shall consult with the Aboriginal groups on the implementation of conditions 6.1, 6.4 and 6.5.

Status: Ongoing

Supporting Analysis:

Condition 6.1: Through negotiated agreements and in the Rainy River Project Aboriginal Consultation Plan (Version 2, February 2015), New Gold RRP has engaged Aboriginal groups on accessing New Gold RRP property.

Condition 6.4: Updates on habitat restoration and the success of revegetation efforts are provided during site tours, at Environmental Monitoring Board meetings, and at Impact Benefit and Participation Agreement communication meetings.

Condition 6.5: Not applicable during the construction phase.

Figures

Figure 1: Lower Clark Diversion Revegetation Growth, August 2016 2
Figure 2: Upper West Creek Diversion at Coir Log Revegetation Growth, August 2016 3
Figure 3: Reseeding efforts, October 2016 4
Figure 4: Cattail relocation and planting, July 2016 5

Supporting Documentation

Reference made to other conditions however no supporting documentation is required for this condition.

newgold™ Rainy River Project

Federal Condition 7: Aboriginal Archaeological, Heritage and Cultural Resources

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Condition 7.1.1

The Proponent shall, for all phases of the Designated Project avoid known culturally significant sites;

Status: Completed

Supporting Analysis:

Culturally significant sites were avoided in 2016.

Condition 7.1.2

Assess additional culturally significant sites, if discovered;

Status: Completed

Supporting Analysis:

No culturally significant sites were identified in 2016.

Condition 7.1.3

Establish a procedure for Aboriginal groups to safely access the Project Site for cultural and ceremonial purposes;

Status: Completed

Supporting Analysis:

A formal procedure was identified in Section 4.0 of the Aboriginal Aboriginal Consultation Plan (Provincial Environmental Assessment, Notice of Approval Condition 9).

Condition 7.1.4

Preserve any discovered burial sites;

Status: Not applicable at this time.

Supporting Analysis:

No burial sites were discovered in 2016.

Condition 7.1.5

Salvage and preserve any artifacts that cannot be maintained in-situ; and

Status: Completed

Supporting Analysis:

New Gold RRP had archaeologists on site to excavate archaeological sites as per Provincial Standards and Guidelines. The archaeologists currently hold the artifacts and will make arrangements to transfer the artifacts to appropriate facilities upon consultation with Aboriginal people.

Condition 7.1.6

Transfer artifacts in condition 7.1.5 to a facility identified by Aboriginal groups, in consultation with the Ontario Ministry of Tourism, Culture and Sport.

Status: Ongoing

Supporting Analysis:

Artifacts will be transferred from the archaeologist once the reports for MTCS are complete and consultation with Aboriginal groups regarding the artifacts is complete.

Condition 7.2

The proponent shall consult with the Aboriginal groups on the implementation of condition 7.1.

Status: Ongoing

Supporting Analysis:

No additional cultural sites were identified in 2016. Throughout the EA process, New Gold RRP had engaged Aboriginal groups on previously identified cultural sites.

Supporting Documentation

Reference is made to Aboriginal Archaeological, Heritage and Cultural Resources in other documents that may be associated with other conditions. No supporting documentation is required for this condition at this time.

newgold™ Rainy River Project

Federal Condition 8: Subsection 5(2) effects related to components of the Designated Project that may be associated with federal authorizations

Project Name:

Rainy River Project

Proponent:

New Gold Inc.

Decision Statement Issued:

Jan 12th 2015

CEARIS Ref Number:

80007

Reporting Period:

2016

Condition 8.1.1

"[The proponent shall, in implementing condition 3.7, take measures to avoid or lessen adverse effects on migratory birds and their habitats;"

Status: Ongoing

Supporting Analysis:

Completed to date. Establishment of compensation-related habitat and a monitoring and maintenance plan has been initiated. New Gold RRP is aware and has taken extra care during the construction phase with regards to the potential for effects on migratory birds during nesting periods. In accordance with the nesting timing directed by the local MNRF office, 233 bird sweeps occurred some bird deterrent cannons were deployed and netting was used were feasible as mitigation efforts.

No tree clearing occurred during this time.

Figure 1: Overall Benefit Land ESA Sign near Dearlock, November 2016

Condition 8.1.2

On terrestrial species, including amphibians and reptiles, and their habitats;

Status: Ongoing

Supporting Analysis:

Completed to date. Establishment of compensation-related habitat has been initiated. New Gold RRP is aware and has taken care during the construction phase with regards to the potential for effects on terrestrial species and their habitats, consistent with the proposed mitigation measures described in the EIS. The occurrence of road related mortally for all terrestrial species can be found within this report as Table 1.

Table 1: 2016 Road Mortality

Date	Location Description	Wildlife Sighted
28-Jun-16	Roen Road near Batch Plant	Garter snake
27-Aug-16	Roen Road	Skunk
29-Aug-16	Korpi Road	Fox
30-Aug-16	East Access Road	Otter
2-Sep-16	Highway 600	Deer
7-Sep-16	Roen Road near Marr Site	Skunk
11-Sep-16	Teeple Road	Skunk
1-Nov-16	Pit Haul Road 8	Beaver
23-Nov-16	Near Pumphouse on Highway 617	Deer
19-Dec-16	East Access road 750m from Powerline	Deer

Figure 2: Snapping Turtle at Pinewood River, June 2016

Members of the New Gold RRP Environmental Team hold authorization licenses to collect and relocate reptiles and amphibians. One Snapping turtle was found on the plant site and successfully relocated.

For more information on relocation efforts see SD 8.1.2 Wildlife Scientific Collector's Report. For information regarding terrestrial wildlife monitoring, please review previous Condition 4.

Condition 8.1.3

On species at risk and their habitats;

Status: Ongoing

Supporting Analysis:

Completed to date. Establishment of compensation-related habitat has been initiated. New Gold RRP has taken extra care during the construction phase with regards to the potential for effects Species at Risk and their habitats, including completing activities in compliance with the Provincial Endangered Species Act permit. More information can be found in Condition 4.

Condition 8.1.4

On current use of lands and resources for traditional purposes by Aboriginal peoples;

Status: Ongoing

Supporting Analysis:

The construction which occurred during 2016 related to compensation-related habitat was consistent with the EIS and detailed project designs, which fully considered available Traditional Knowledge and New Gold RRP's understanding of traditional uses of local lands by local Aboriginal peoples.

Condition 8.1.5

On sites of cultural significance to Aboriginal peoples; and

Status: Ongoing

Supporting Analysis:

Establishment of compensation-related habitat initiated during 2016 did not impinge on any identified sites of cultural significance to Aboriginal peoples.

Figure 3: Deer at West Creek Diversion, October 2016

Condition 8.1.6

From potential sources of contamination (e.g. mercury, arsenic, cadmium and lead).

Status: Ongoing

Supporting Analysis:

Completed to date.

Establishment of compensation-related habitat is ongoing. There is no expectation that the compensation-related habitat will result in a potential source of contamination. A deer tissue monitoring program was initiated to gather baseline data for contaminate levels in the local deer population. This program will be repeated in 2017 and again in 2020 and every third year or as deemed necessary for life of mine. The results of the 2016 report will be available in 2017.

Condition 8.2

The Proponent shall, in implementing condition 6.3, take into consideration the habitat needs of species at risk consistent with final recovery strategies or action plans, or alternatively, rely on best available information where recovery plans or action plans for the species are not yet completed for the species at risk.

Status: Ongoing

Supporting Analysis:

No progressive habitat restoration has been completed to date as no areas were yet available to begin habitat restoration. New Gold RRP considered Species at Risk and the potential for habitat creation in site restoration activities to date, including in accordance with their Provincial Endangered Species Act permit.

As part of the 2016 Species at Risk Monitoring Program, AMEC Foster Wheeler reviewed the areas of sightings of Bobolink and Eastern-whip-poor-will to conduct a desk top study on soil conditions and vegetation types in preferred habitats. In 2016 a field study was conducted of the same areas. This information as well as information collected in future years will be used to assist in planning appropriate rehabilitation for Species at Risk bird species. For additional information related to this study refer to the 2016 Species at Risk Monitoring Report (Condition 4).

Condition 8.3

The Proponent shall provide about 1400 hectares of private land as habitat for Eastern Whip-poor-will (Antrostomus vociferous) and Bobolink (Dolichonyx oryzivorus).

Status: Completed

Supporting Analysis

Prior to project development the Ministry of Natural Resources and Forestry (MNRF) determined that 18 identified Eastern Whip-poor-will breeding territories could potentially be affected by the projects development and that 348 ha of Bobolink habitat had the potentially to be impacted by the project. Based on this information to offset the loss of habitat New Gold obtained 1468.3 ha of lands to provide Eastern Whip-poor-will breeding territories and 348 ha of field habitat suitable for Bobolink breeding habitat.

Condition 8.4

The Proponent shall monitor the effectiveness of the habitat in condition 8.3.

Status: Ongoing

Supporting Analysis:

Monitoring the success of these areas and potential impacts to the bird species is conducted through three phases; visual monitoring, monitoring of habitat use in the offset benefit lands (OB Lands) and monitoring or rehabilitation plans during mine closure.

In 2016 monitoring of phase 1 and 2 were completed. Based on field research conducted it was determined that thirty-nine Whip-Poor-Wills were utilizing the OB lands in 2016. Ninety-four Bobolink were observed in the OB lands and they were observed in all but seven of the OB lands. For detailed information related to the 2016 study refer to the 2016 Species at Risk Monitoring Report (Condition 4).

Condition 8.5.1

"[The Proponent shall:

> *“maintain a fence around the tailings management area to prevent access by wildlife"*

Status: Not applicable at this time.

Supporting Analysis:

This condition is not relevant to 2016 as the intent of this condition based on other communications, was to avoid potential wildlife interactions with the tailings and supernatant liquid, as no tailings have been produced or stored to date. There was no fence in place during 2016.

During the construction phase of the Tailings Management Facility in 2017 advancements will be made regarding the installation of fencing around the perimeter of the facility in preparation for tailings storage in late 2017.

Figure 4: Fox along Closed Portion of Hwy 600, October 2016

Condition 8.5.2

"implement measures to prevent Snapping Turtles (Chelydra serpentine) from entering the following components of the Designated Project:

- *tailings management area;*
- *water management pond;*
- *water discharge pond;*
- *constructed wetland;*
- *overburden pile;*
- *west mine rock pile; and*
- *sediment ponds 1 & 2."*

Status: Not applicable at this time.

Supporting Analysis:

Tailings Management Area: This condition is not relevant to the Construction Phase as the intent of this conditions based on other communications, was to avoid potential Snapping Turtle interactions with the tailings and supernatant liquid, as no tailings have been produced or stored to date. Similarly, no contact water has been discharged to the area. No mitigation measures were in place during 2016.Construction is scheduled for 2017.

Water Management Pond: This condition is not relevant for 2016 as the Water Management Pond has not as yet been constructed. No contact water has been discharged to the area. Construction completion is scheduled for 2017.

Water Discharge Pond: This condition is not relevant for 2016 as the Water Discharge Pond has not as yet been constructed. No contact water has been discharged to the area. Construction is scheduled for 2017.

Constructed Wetland: This condition is not relevant for 2016 as the Constructed Wetland has not as yet been constructed. No contact water has been discharged to the area. Construction is scheduled for 2017.

Overburden Pile: This condition is not relevant for 2016 as the Overburden Stockpile has not encroached on suitable habitat for Snapping turtles during their nesting or migration periods.

West Mine Rock Pond: This condition is not relevant for 2016 as the West Mine Rock Stockpile has not encroached on suitable habitat for Snapping turtles during their nesting or migration periods.

Sediment Ponds 1 and 2: This condition is not relevant for 2016 as Sediment Ponds 1 and 2 will not be constructed until 2017.

Figure 5: Beaver Dam and Beaver at West Creek Pond, October 2016

Figures

Figure 1: Overall Benefit Land ESA Sign near Dearlock, November 2016 1
Figure 2: Snapping Turtle at Pinewood River, June 2016 2
Figure 3: Deer at West Creek Diversion, October 2016 3
Figure 4: Fox along Closed Portion of Hwy 600, October 2016 6
Figure 5: Beaver Dam and Beaver at West Creek Pond, October 2016 7

Tables

Table 1: 2016 Road Mortality 2

Supporting Documentation

SD 8.1.2: 2016 Wildlife Scientific Collector's Report 2017.01.14

newgold™ Rainy River Project

Annual Reporting Wildlife Scientific Collector's Authorization

Licence No. 1081168 Local Reference Number 2015-1289

Version 1

Originator; Cailey Anderson Environmental Specialist New Gold
January 5, 2017

newgold™ Rainy River Project

Principal Contact: Darrell Martindale

Site Environmental Manager
Rainy River Project
5967 Highway 11/71 P.O. Box 5
Emo, Ontario, Canada P0W IE0
Telephone: (807) 707-3497
Facsimile: (807) 482-2834

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1.0 Objective 1

2.0 Methodology 1

3.0 Species and Data Information 1

4.0 Additional Information 2

5.0 Outcome vs Objective 2

6.0 Closing 2

List of Appendices

Appendix A Methodology for Relocation

Appendix B Species at Risk Encounter Form and Turtle Relocation Data Sheet

Appendix C Collection and Relocation Map

Annual Reporting Wildlife Scientific Collector's Authorization Licence No. 1081168

1.0 Objective

In 2016 the New Gold Rainy River Project Environmental Department obtained a Wildlife Scientific Collector's Authorization Licence No. 1081168, Local Reference No. 2015-1289 to permit for the relocation of snapping and painted turtles, gartersnakes, red-sided gartersnakes and red-bellied snakes on the project site. The intent of obtaining the authorization was to relocated species that could be impacted by construction and operational activities.

2.0 Methodology

Methodology for relocation was discussed and agreed upon between the MNRF and New Gold in 2015 following the approval of Local Reference No. 2015-708. During 2016 no painted turtles or snakes required relocation on site.

The following summarizes the methodologies used for the relocation of snapping turtles that was implemented in 2016. A full summary can be found in attached Appendix A.

- In May 2016 Cailey Anderson (Wildlife Authorization Licence Holder) presented to those individuals outlined on the approved Wildlife Authorization the required methodologies for relocating snakes and turtles, the requirements of the permit and data collection requirements. Kits containing appropriate relocation materials and labels were then developed.
- During the relocation of snapping turtles the following items were used; one clear plastic tote with lid and ventilation holes used for safe and secure transportation, a thermometer to track internal temperature of the tote, one paint marker to label the shell of the turtle and one broom used to guide the turtle into the tote.
- At the release site the tote was placed gently on its side in a grassy area along the bank of the river and the lid was removed. The turtle was then left to exit the tote on its own.

3.0 Species and Data Information

On September 4, 2016 one snapping turtle was found on the Processing Plant Site. The turtle was walking along Roen Road near the West Creek Pond. The shell of the turtle was covered in mud which leads us to believe that it may have been living in the pond. Due to construction activities occurring on Roen Road and around the West Creek Pond a decision was made to relocate the turtle to a safer environment. Turtle Relocation Area 1 as outlined on the attached map (Appendix C) and permitted under the authorization was chosen. However upon arrival to this location access was not achievable and it was found that there was no water.

At this point the turtle had been in captivity for approximately 25 minutes so a decision to move the turtle to the Pinewood River on Heatwole Road was made. This decision was based on the following;

- Health of the turtle. To travel to the other locations outlined in the authorization would have taken an additional 30 minutes (approximate)
- Water availability and appropriate habitat due to low rainfall season
- Previous observations of snapping turtles in the Pinewood River indicate that the area is suitable habitat
- Reduced vehicle traffic – 'No Travel Zone' for New Gold employees and contractors

The turtle was released successfully to a grassy area along the bank of the Pinewood River. Follow up monitoring was completed over a two day window however the turtle was not observed again

4.0 Additional Information

Please refer to Appendix B Relocation Data Sheet and Appendix C Collection and Relocation Map for further information.

5.0 Outcome vs Objective

New Gold feels that the relocation of the one snapping turtle discovered within a construction work zone in September 2016 was a success as the relocation was conducted in a timely manner with limited stress to the turtle. New Gold intends on re-applying for the authorization in 2017. As the project advances into the operational stage there are defined areas within the Environmental Compliance Approval where reptiles and amphibians are not permitted to take up residence (ie; the Tailings Management Area) and the company may find that the number of annual relocations will increase.

During the application phase of the 2017 authorization request New Gold would like to review the relocation areas with MNR. These decisions are based on; distance and access to current relocation areas. New Gold hopes that some of the fish habitat compensation ponds and rehabilitated lands on the East side of the project may provide suitable and adequate habitat allowing for a reduction in the time that the species are in captivity.

6.0 Closing

New Gold believes that this report provides the required detail as requested in Wildlife Authorization No. 1081168 Schedule A Conditions 1 and 2. If you require further information please contact Darrell Martindale at (807) 707-3497.

APPENDIX A

Memo – Draft for Discussion

Date: August 5, 2015

To: Nigel Fisher, New Gold

From: Matt Evans, Amec Foster Wheeler

CC: Sheila Daniel, Dave Simms, Dan Russell, Amec Foster Wheeler

Re: Application for a Wildlife Scientific Collector's Authorization, Rainy River Project

1.0 Introduction

This memo provides further information pertinent to the application to the Ministry of Natural Resources and Forestry (MNRF) for a *Wildlife Scientific Collector's Authorization* (*WSCA*) for the purposes of relocating turtles and snakes found within the Rainy River Project (RRP) footprint that are perceived to be in potential harm. This memo provides the following:

- A species list for reptile species that have the potential to occur within the Project footprint;
- An updated figure showing proposed reptile release sites (to be reviewed by the MNRF) and the criteria used to select these sites;
- Information on the proper and safe handling of turtles and snakes, taken directly from the *Ontario's Species at Risk Handling Manual: For Endangered Species Act Authorization Holders* (MNRF 2015);
- Information regarding marking relocated turtles for future identification; and
- Reference to the *Reptile and Amphibian Exclusion Fencing: Best Practices* (MNRF 2013) that provides guidelines should localized exclusion fencing be deemed necessary.

2.0 Reptile Species List

Listed below are reptile species that are thought to occur in the RRP area

Turtles

- Snapping Turtle (*Chelydra serpentina*); and

- Western Painted Turtle (*Chrysemys picta bellii*)

Snakes

- Eastern Gartersnake (*Thamnophis sirtalis sirtalis*);
- Red-sided Gartersnake (*Thamnophis sirtalis parietalis*); and
- Red-bellied Snake (*Storeria occipitomaculata*)

Both species of turtle were recorded during the RRP baseline studies (2009 to 2013). No snakes were observed during these studies. The majority of the Project site is considered to be coniferous swamp, and therefore, is not considered to be high quality snake habitat. Amec Foster Wheeler suspect the Eastern Gartersnake to be common in the drier, upland rocky areas.

3.0 Proposed Reptile Release Sites

Turtles

Figure 1 shows several proposed release sites for turtles. Criteria for selecting turtle release sites included the following:

- Streams, ponds, wetlands located downstream from the Project footprint;
- Crown land or lands owned by New Gold; and
- Easily accessible from the road (for ease of transporting and releasing larger, heavier adult Snapping Turtles, and for minimizing handling time and related stress on the animals).

Snakes

Figure 1 also shows several proposed release sites for snakes. Criteria for selecting turtle release sites included the following:

- Dry, upland habitat with nearby rocky outcrops or exposed rock;
- Crown land or lands owned by New Gold that are not located near residences; and
- Easily accessible from the road (for ease of transporting and releasing, and for minimizing handling time and related stress on the animals).

4.0 Animal Care and Handling Procedures

Animal care, handling procedures, and other safety considerations will follow those outlined in the *Ontario's Species at Risk Handling Manual: For Endangered Species Act Authorization Holders* (MNRF 2015) which are summarized in Appendix 1.

5.0 Marking Turtles for Future Identification

In order to identify individual turtles and to see if previously relocated individuals return to site, a green or black permanent marker will be used to place a small number on the back of the turtle shell (carapace) near the tail. The same number with also be placed on the belly (plastron) of the turtle.

Turtles shells are known to have unique markings such as color splotches, scars, nicks and malformed scutes that can also be used to identify individuals. Therefore, photographs will also be taken of the back (carapace) and belly (plastron) of each relocated turtle and will be kept on file for future comparisons. This photo-identification program will serve as a back-up in case the individual numbers wear off.

6.0 Exclusion Fencing

If reptiles are found to be common to a certain area of the RRP footprint, then localized fencing will be constructed, following guidelines outlined in the *Reptile and Amphibian Exclusion Fencing: Best Practices* (MNRF 2013), in order to keep these animals from entering the Project site. Weekly monitoring of these fenced sites will be conducted during the active turtle and/or snake season (April to October), with removal of individuals if needed.

7.0 References

Ministry of Natural Resources and Forestry (MNRF). 2013. Reptile and Amphibian Exclusion Fencing: Best Practices, Version 1.0. Species at Risk Branch Technical Note. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. 11 pp.

Ministry of Natural Resources and Forestry (MNRF). 2015. Ontario's Species at Risk Handling Manual: For Endangered Species Act Authorization Holders. Accessed at http://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_tx_sar_hnd_mnl_en.pdf

8.0 Closing

Please do not hesitate to contact me if you have any questions or concerns regarding the information presented herein.

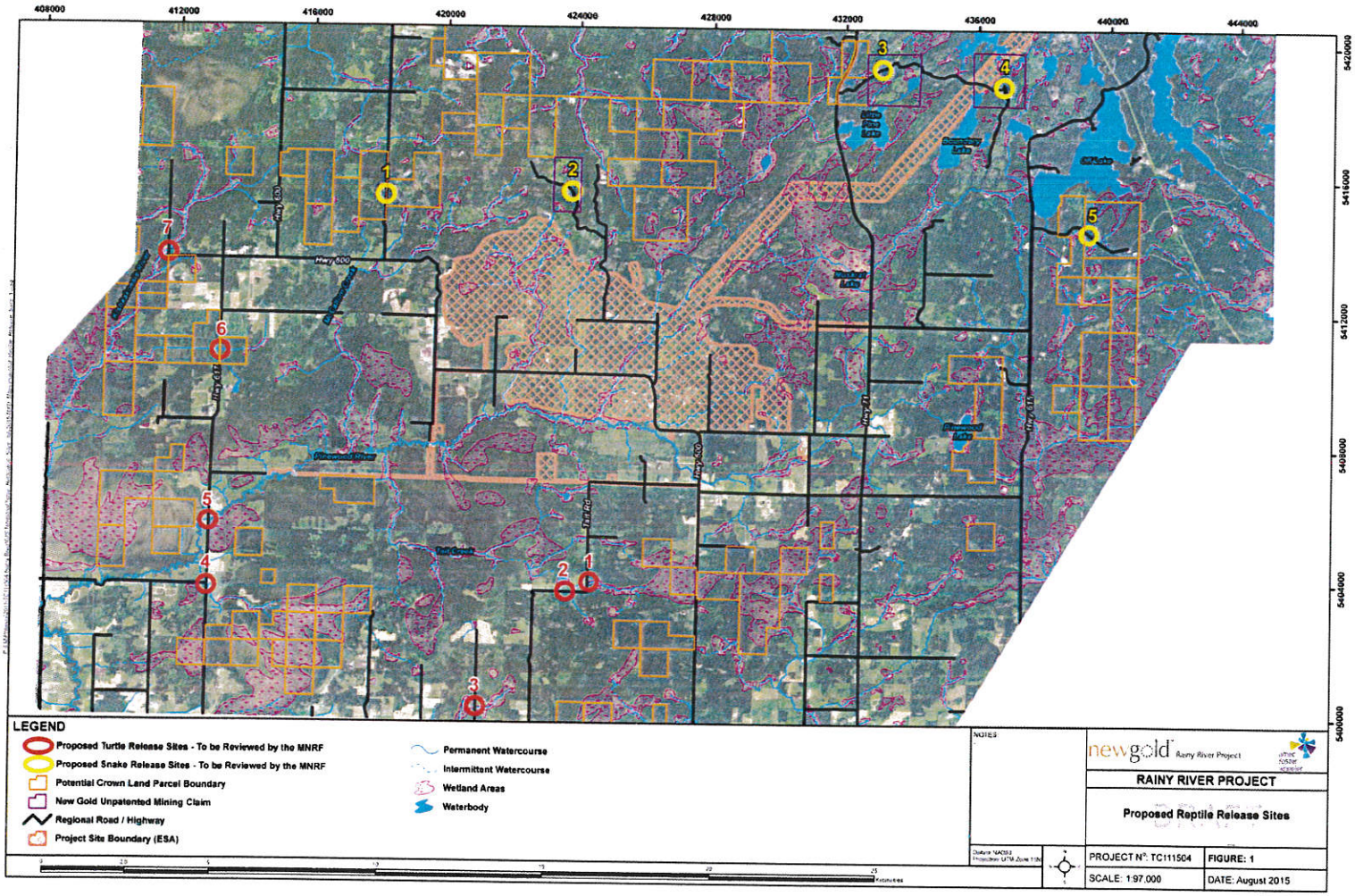
Sincerely,

<Original signed by>

Matthew Evans, Ph.D.
Senior Ecologist / Wildlife Biologist
Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd, Suite 110, Mississauga, Ontario,
Canada L4Z 3K7
Office: (905) 568 2929
Cell: (416) 574 7399
Email: matt.evans@amecfw.com

FIGURE 1

PROPOSED REPTILE RELEASE SITES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412000
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424000
428000
432000
436000
440000
444000
5420000
5416000
5412000
5408000
5404000
5400000
Hwy 600
Hwy 17
Rainy River
Manitou Rapids
Rainy Lake
Namakan Lake
Sand Point
Stratton
Emo
Fort Frances
LEGEND
Proposed Turtle Release Sites - To be Reviewed by the MNRF
Proposed Snake Release Sites - To be Reviewed by the MNRF
Potential Crown Land Parcel Boundary
New Gold Unpatented Mining Claim
Regional Road / Highway
Project Site Boundary (ESA)
Permanent Watercourse
Intermittant Watercourse
Wetland Areas
Waterbody
NOTES
newgold Rainy River Project
RAINY RIVER PROJECT
Proposed Reptile Release Sites
PROJECT N°: TC111504
FIGURE: 1
SCALE: 1:97,000
DATE: August 2015

APPENDIX 1

Summary of Turtle and Snake Handling Procedures and other Safety Considerations

(Taken from the MNRF's *Ontario's Species at Risk Handling Manual: For Endangered Species Act Authorization Holders*; MNRF 2015)

1. Safe Handling of Turtles

1.1 Materials

a) The following materials are required for the handling, capture, temporary safe keeping and transport of turtles:

» Large plastic bin and lid with air holes, a large bucket or a cloth/burlap bag. Ensure both sides of the container/bag and the lid are well marked with "live animal". See section 1.5 to determine when it is appropriate to use a specific type of container.

» Thick work gloves

» Thermometer

» SAR Notification/Contact Schedule

» SAR Encounter Reporting Form

» Broom or broom handle with small paint brush roller attached to end.

b) Equipment must be maintained on each job site.

1.2 Safety considerations

a) Generally, there is little risk associated with handling turtles. However, all turtles can scratch and bite, and work gloves should be worn to help avoid minor injuries.

b) Snapping, Spiny Softshell and Eastern Musk Turtles cannot completely retract into their shell and are more likely to bite in defence. These species should be handled more cautiously and as follows:

I. **Always keep your hands as close to the back of the turtle's shell as possible, and always behind the midpoint of the shell**. These species have a considerable reach above their shells. Snapping Turtles can reach the midpoint of the shell, and in some cases Spiny Softshell Turtles and Eastern Musk Turtles can almost reach the back of their shell.

II. Always maintain a safe distance between the front of the turtle and other people.

c) Snapping and Spiny Softshell Turtles have a powerful and painful bite that is likely to bruise and may break the skin. However, it will almost never break bone. The damage inflicted by a Snapping Turtle bite is greatly exaggerated (such as being able to bite a boat oar or golf club in half). Forcing a Snapping Turtle to bite hard implements may result in an injury to the turtle. Wearing gloves will significantly reduce the risk of injury from these turtles.

d) If bitten by a turtle, remain calm and allow the turtle to relax and let go on its own. Pulling away from the turtle may cause further injury to you or the turtle.

e) Always wash your hands after handling a turtle. Turtles (and many other animals, including humans) carry potentially harmful bacteria in their gut. Although it is possible to contract salmonella from handling turtles, there are few reported cases of contracting these bacteria from wild turtles. Cases of salmonella poisoning from turtles are almost always limited to pet turtles, since these captive turtles are forced to live in the same small space that they defecate in.

1.3 Capture and handling of turtles

Safely handle, move or capture a turtle by following these steps:

a) Always handle turtles carefully and slowly, yet firmly. Rough handling may cause injury or stress to the turtle and/or the developing eggs and may cause the turtle to be more defensive (increased biting and scratching).

b) With the exception of very small individuals, always handle turtles with both hands. Turtles are good at freeing themselves with a bit of wiggling, kicking, clawing and biting, and a good grip is essential to ensure no harm comes to you or the turtle.

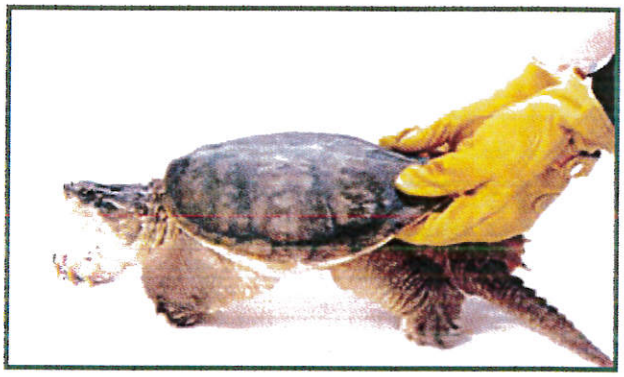
c) Never pick up a turtle by the tail. This can dislocate bones throughout the tail and is extremely painful for the turtle. For larger, heavier turtles this may result in dislocation of bones in the spinal cord as well.

d) Wear gloves when handling turtles to minimize risk from scratches and bites. If gloves are not available, handle turtles with clean hands that are free of insect repellent, antibacterial hand sanitizer, sunscreen, etc.

e) **Painted, Map, Wood, Blanding's and Spotted Turtles**: Pick up these species using both of your hands, one on each side of the shell, between the front and back legs.

f) **Snapping Turtle:** Always wear gloves when handling a Snapping Turtle and always keep your hands behind the midpoint of the top or sides of the turtle's shell. To pick up a Snapping Turtle:

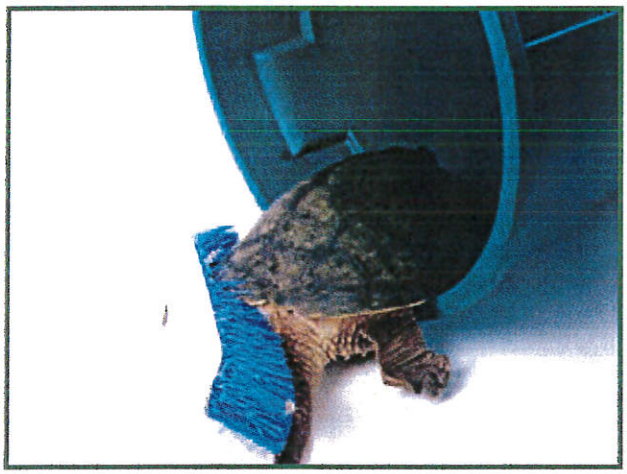
I. Hold it by the back of the shell, placing your thumbs on the top of the shell and your fingers in the hind leg pockets (the space between the upper shell and the hind legs). Your hands will be at approximately 5 and 7 o'clock.



II. Or use one hand to hold the base of the tail near the shell and slide your second hand under the turtle to support its weight. Lift the turtle using the hand underneath the turtle. Never pick up a turtle by the tail.

Turtles

III. Or you can move it by guiding it into a pail or garbage can with a broom.



IV. It is important to get a good, strong hold on the turtle's shell as the force that is exerted by the turtle snapping may result in an unexpected release. A good grip will ensure that both the turtle and the handler remain safe and uninjured.

g) **Eastern Musk Turtle:** Pick up Eastern Musk Turtles by the back of the shell. This turtle species can be held with one hand, as long as you ensure that you have a good grip.

h) **Spiny Softshell:** Always wear gloves when handling a Spiny Softshell, and always keep your hands well behind the midpoint of the top or sides of the turtle's shell. To pick up a Spiny Softshell turtle:

I. Use both hands, one on each side of the shell, as close as possible to the back legs.

II. Or place one hand under the turtle between its back legs (in the middle to balance its weight) and the other hand, also from behind, on the top of the turtle's shell (close to the back).

i) Turtles can be difficult to capture. If a turtle escapes or heads for cover, let it disperse on its own, ensuring it is safe from harm before allowing activities to continue. If continuing activities poses a threat to the turtle, postpone activities for up to 24 hours to allow the turtle to disperse. If it is not possible to leave the area for 24 hours, have a Qualified Member relocate the individual. Do not disturb any natural cover under which the turtle has retreated. If necessary, contact MNR for further direction using the SAR Notification/ Contact Schedule.

1.4 Moving turtles out of harm's way (distances under 50 metres)

a) If it is necessary to move a turtle more than 50 metres, refer to section 1.6 on turtle relocation.

b) Turtles should only be moved when they are in imminent, unavoidable danger.

c) If possible, allow the turtle to move on its own by walking toward the turtle in the direction that you want it to move. This will not work for Snapping Turtles, as they often turn to face a potential threat head-on rather than running away. If the turtle does not move on its own, you may have to pick it up and move it (see section 1.3).

d) When moving a turtle a short distance, such as across a road, move the turtle in the direction that it was heading, regardless of what the habitat looks like. These animals often make intentional movements to specific areas, and if you put them back where they started they may simply turn around and start their journey again. If it is not clear which direction the turtle was headed, move the turtle to the closest suitable habitat that will not be disturbed. In this case, suitable habitat includes a water body or the vegetation/forest at the edge of the road allowance, disturbed area or clearing.

e) If possible, release the turtle near a retreat site (somewhere the animal can seek shelter from the elements and avoid predators, such as water or dense vegetation) to allow it to take cover. Do not release it in the open where it could be exposed to inclement weather, extreme sunlight or predators.

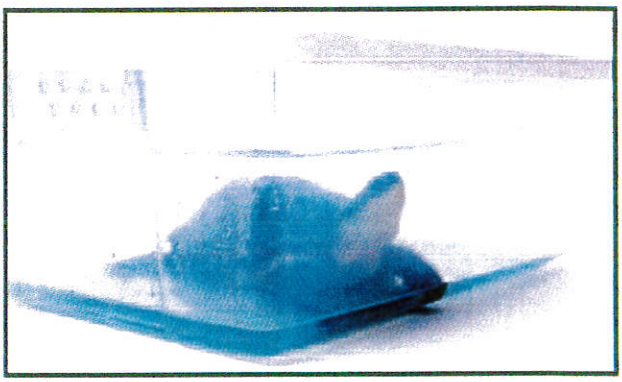
1.5 Temporary safe keeping and transportation of turtles

a) You are responsible for this animal. Remember, once you have put it in a container, it depends on you to keep it safe and at the right temperature.

b) Always create air holes in the lid of a container prior to placing an animal in the container.

c) If the turtle will be in captivity for **less than one hour**, place the turtle in a cloth or burlap bag, a large bucket or a large plastic bin with a lid that has adequate air holes. Cloth or mesh bags should not be used for snapping turtles as they can become tangled and strangle themselves. Always use large plastic bins or large buckets for snapping turtles.

d) If the turtle will be in captivity for **more than one hour**, avoid the use of cloth or burlap bags. For adults, use a large plastic bin or bucket with a lid that has adequate air holes and a small amount of water (no more than an inch deep). Ensure that the turtle is not fully submerged, as it will drown if it cannot breathe. For hatchlings and juveniles, use an appropriately sized container with a lid that has air holes and line the bottom of the container with wet towels or paper towels. Never transport small juveniles or hatchlings in water.



e) It is extremely important to monitor the air temperature regularly in the container to ensure it **never exceeds 30°C or drops below 5°C**. Never leave the container in direct sunlight or in a closed vehicle parked in the sun, as this will cause the turtle to overheat and could be fatal.

f) Never put more than one turtle in a container or bag at a time, especially in the case of Snapping Turtles. This will help to minimize stress and prevent injury to the turtles.

g) Once the turtle is in the container or bag, ensure that the lid is secure or that the bag is tied tightly.

h) **Never leave the container or bag unattended** in an unsecured location (e.g., side of road).

i) If using a bag, ensure that it is in a secure location where it cannot fall if the turtle moves the bag. The movement of a turtle within a bag can easily cause the bag to fall off of a table.

j) Do not offer the turtle any food. Turtles do not have to eat as often as mammals, and it is no problem for a turtle in temporary captivity to go a few days without food.

k) Turtles should be checked periodically (every hour should suffice). Hatchlings are especially susceptible to dehydration and must be carefully monitored during transport.

1.6 Relocation of turtles

a) A turtle should only be relocated if the destruction of its habitat is unavoidable or if it is not possible to release it at the capture location.

b) Transport and release the turtle within one hour of capture in order to minimize stress on the animal.

c) Turtles should not be relocated during their over-wintering season. This varies depending on the species and location, but is generally from October to May. If you are unsure whether you should relocate the turtle or take it to a wildlife custodian, contact MNR for further direction using the SAR Notification/ Contact Schedule.

d) If it is not possible to relocate the turtle due to the time of year (October to May) or other conditions, transport the turtle to a wildlife custodian per the SAR Notification/Contact Schedule.

e) **Turtles should never be moved more than 250 metres** from the location where they were found. Only move a turtle as far as necessary to avoid potential harm to the turtle, and avoid moving turtles more than 125 metres unless absolutely necessary. If it is not possible to relocate the turtle within 250 metres of the capture location, contact MNR for further direction using the SAR Notification/Contact Schedule.

f) If hatchlings are found and must be relocated, move them to the nearest permanent body of water. Never place hatchlings directly into water. Release the turtle at the shoreline of the appropriate habitat (see below). The turtle may or may not choose to enter the water; do not force it.

g) Whenever possible, release the turtle in the same water body where it was found and in the same type of natural habitat as the capture site. To determine if the habitat is of the same type, consider the water depth, water current, substrate type (mud, rock, etc.) and vegetation type (cattails vs. lily pads vs. aquatic vegetation).

h) If possible, release the turtle near a retreat site (somewhere the animal can seek shelter from the elements and avoid predators, such as water or dense vegetation) to allow it to take cover. Do not release it in the open where it could be exposed to inclement weather, extreme sunlight or predators.

i) To release the turtle, gently pick up the turtle (per section 1.3) from the container and set it down in the new location. To release a Snapping Turtle or Spiny Softshell Turtle, you may wish to tip the container on its side and allow the turtle to move out on its own. Allow the turtle to disperse on its own at this new location.

1.7 Injured turtles

a) Use the methods outlined in section 1.3 to handle injured turtles whenever possible. If those methods are not applicable due to the turtle's injuries, use a shovel or other flat object to pick up the turtle. Ensure that any injured areas are supported.

b) Place the turtle in a large plastic bin or large bucket with a lid that has air holes. Darkness helps to reduce stress to the turtle. Do not place anything else in the container with the turtle, including water or other turtles.

c) Thoroughly wash your hands after handling injured turtles.

d) Immediately transport the turtle to a veterinarian or wildlife custodian per the SAR Notification/Contact Schedule, in order to increase its chances of survival.

2. Safe Handling of Snakes

2.1 Materials

a) The following personal protective equipment should be worn when working with Massasauga rattlesnakes:

» High-ankle hiking or rubber boots

» Thick pants (jeans) or baggy pants

» Leather work gloves

b) The following materials are required for the handling, capture, temporary safe keeping and transport of snakes:

» Pail, large garbage can or bucket (1 metre deep) with air holes in the lid. Ensure both the side of the container and the lid are well marked "live animal" or "caution rattlesnake".

» A snake bag (for non-venomous species only). A snake bag must be cloth. (A pillowcase works well.) Plastic and non-breathable materials are not appropriate. Ensure the bag is well marked "live animal".

» Broom or broom handle with small paint brush roller holder attached to end. Never use "snake pinchers".

» Thermometer

» SAR Notification/Contact Schedule

» SAR Encounter Reporting Form

c) Equipment must be maintained on each job site.

2.2 Safety considerations

a) **The Massasauga is the only venomous snake in Ontario.**

The venom is an adaptation for hunting and is used to kill prey (primarily small rodents).

As a defence mechanism, Massasaugas may also bite when threatened, at which time they may or may not release venom. Camouflage, rattling and retreating are their primary defensive strategies, and they generally bite as a last resort.

Their maximum striking distance is about half of their body length. Generally, your safety zone is yourheight plus 50 centimetres away from the snake. (This accounts for the snake's striking distance to you if you fall.)

A Massasauga bite is generally not deadly. Only two people have ever died from a Massasauga bite in Ontario. Neither person received medical attention, and both cases were almost 50 years ago.

If you are bitten by a Massasauga, remain calm and seek medical attention immediately. Do not apply a tourniquet or try to suck out the venom. Never try to capture the snake to take it to the hospital; if you were bitten by a venomous snake in Ontario, we know it was a Massasauga. Have someone else drive you safely.

b) **Never under any circumstances pick up a Massasauga rattlesnake**. Massasaugas occur in very specific regions of the province, and if you are well outside of those regions it should be safe to handle any native snake you find. If you are working within a region where Massasaugas may occur, never pick up a snake unless you are absolutely certain that it is not a Massasauga.

c) All other Ontario snakes are non-venomous and harmless. Despite being harmless, many of Ontario's snakes will put on defensive displays to intimidate potential predators. These include:

I. Rearing up, hissing and striking.

II. Eastern Hog-nosed Snakes will flatten out their necks like cobras, hiss loudly and pretend to strike (although their mouths remain closed).

III. Eastern Foxsnakes, Milksnakes, Gray Ratsnakes and Eastern Hog-nosed Snakes sometimes vibrate their tails to imitate a rattlesnake. If their tails come into contact with rocks, dry leaves, or some other medium, they can produce a buzzing sound like that of a rattlesnake. Combined with their blotchy pattern, this mimicry is often very effective at fooling humans.

d) Holding the snake properly (see section 2.4) will significantly reduce stress to the snake and the likelihood that it will try to bite in self-defence.

2.3 Capture and handling of the Massasauga rattlesnake

Safely move a Massasauga by following these steps:

a) Put on personal protective equipment (per section 2.1).

b) Clear the area of unnecessary bystanders to lessen the stress on the animal.

c) Determine your plan for capture to anticipate where the snake may move or retreat as well as any potential hazards you may encounter.

d) If capturing injured snakes, avoid touching or manipulating injured areas.

e) Tip the 1-metre-deep pail on its side.

f) Use the broom to position the snake near the pail.

g) Gently and slowly guide the snake into the pail, being careful not to push the snake too hard or lift if off the ground. Never pin a Massasauga or use tools that constrict or pinch the snake. Quick, abrupt movements are threatening to the snake and may also cause it to make quick movements in an attempt to escape.

h) Be patient and gentle with the snake. Gravid (pregnant) females are carrying live young, and rough handling may cause damage to the developing snakes.

i) Once the snake is in the pail, slowly tip the pail upright and secure the lid.

j) Snakes can be difficult to capture. If a snake escapes or heads for cover, let it disperse on its own, ensuring it is safe from harm before allowing activities to continue. If allowing activities to continue is not safe for the snake, postpone activities for up

to 24 hours to allow the snake to disperse. If it is not possible to leave the area for 24 hours, have a Qualified Member relocate the individual. Do not disturb any natural cover under which the snake has retreated. If necessary, contact MNR for further direction using the SAR Notification/Contact Schedule.

2.4 Capture and handling of non-venomous snakes

a) If you are uncomfortable handling large, non-venomous snakes with your hands, you can use the above method for capturing venomous snakes (section 2.3). However, it is much easier to capture most non-venomous snakes using your hands. Some of the smaller species, such as the Butler's Gartersnake, are almost impossible to capture with a stick and a pail.

b) If you elect to use thick gloves, be very careful not to squeeze the snake too hard, as you can crush internal organs and kill it. Do not use gloves to capture small snakes, as the risk of accidentally crushing them is too high.

c) Clear the area of unnecessary bystanders to lessen the stress on the animal.

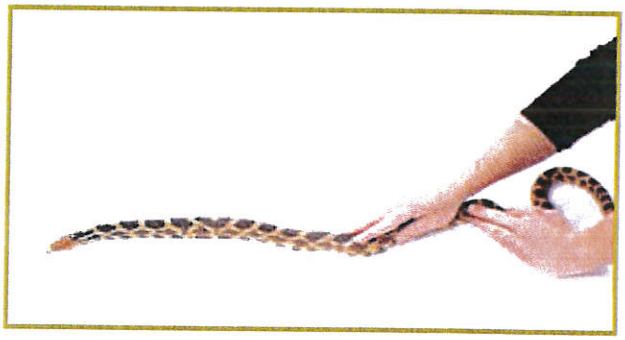
d) Determine your plan for capture to anticipate where the snake may move or retreat and to anticipate any potential hazards you may encounter.

e) Never grab the snake behind the head or grip the snake tightly in order to restrain it. This may injure or scare the snake, cause it to struggle and encourage it to bite in self-defence.

f) Always support the snake's body with both hands and never pick up a snake only by the tail. Holding a snake only by the tail can result in dislocated bones or other serious injury to the snake.

g) To capture a large snake (more than 30 centimetres in length):

I. Gently grab it by the back of the body to prevent it from getting away.



II. Holding the snake by the back end while it is still on the ground, slide your other hand underneath the snake to support its weight and lift it up. Do not lift if off the ground by the tail.

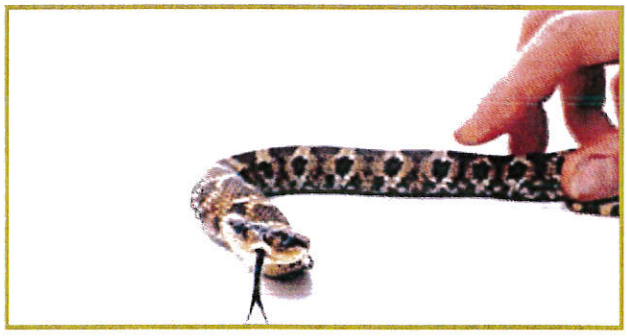
III. As soon as the snake is off the ground, continue to support its weight by keeping both hands under the snake, with one hand about a third of the way back and one hand about two thirds of the way back along the snake's body.

IV. As the snake tries to move forward, reposition the hand from the back of the snake to the front of the snake, and continue to rotate your hands between the front and back of the snake to allow it to continue to crawl through your hands. Calm and slow movements will help the snake relax and make it move more slowly.

V. Often a snake will stop moving once it no longer feels threatened. If the snake continues to move rapidly after a minute or so, you can try holding the back end of the snake more firmly to prevent it from continuing to move forward. Continue to support the unrestricted front half of the snake with your other hand.

h) To capture a small snake (less than 30 centimetres in length):

I. Grasp the snake gently but firmly with one or both hands. It may be necessary to gently restrain it against the ground with your hands initially to prevent it from escaping. Never use a stick, snake hook or any other object to pin a snake.



II. Hold the back end of the snake in one hand and support the front of the snake with your fingers or your second hand. Allowing the snake's front end to remain free helps the snake remain calm.

III. For very small snakes, hold the snake in the palm of your hand using your thumb or fingers to gently apply only enough pressure to prevent the snake from wiggling free.

i) Snakes can be difficult to capture. If a snake escapes or heads for cover, let it disperse on its own, ensuring it is safe from harm before allowing activities to continue. If continuing activities poses a threat to the snake, postpone activities for up to 24 hours to allow the snake to disperse. If it is not possible to leave the area for 24 hours, have a Qualified Member relocate the individual. Do not disturb any natural cover under which the snake has retreated. If necessary, contact MNR for further direction using the SAR Notification/ Contact Schedule.

2.5 Moving a snake out of harm's way (distances under 50 metres)

a) If it is necessary to move a snake more than 50 metres, refer to section 2.7 on snake relocation.

b) Snakes should only be moved when they are in imminent, unavoidable danger.

c) If possible, allow the snake to move on its own by walking toward the snake in the direction that you want it to move. If the snake does not move on its own, you will have to pick it up and move it (see section 2.4). Unlike most snake species, Massasaugas may not

move away when you walk toward them. Rather, they often adopt a defensive position (coiled), hold their ground and rattle (asking you to go the other way). To encourage a Massasauga to move away on its own, give it lots of space and observe it from a distance (ideally so the snake cannot see you).

d) When moving a snake out of harm's way, such as across a road, move the snake in the direction that it was heading, regardless of what the habitat looks like. These animals often make intentional movements to specific areas, and if you put them back where they started they will simply turn around and start their journey again. If it is not clear which direction the snake was headed, move it to the closest habitat that will not be disturbed. In this case, suitable habitat includes a rock pile or other cover that the snake can retreat under, or the vegetation at the edge of the road allowance, disturbed area or clearing.

e) If possible, release the snake near a retreat site (somewhere the animal can seek shelter from the elements and avoid predators: loose rocks, logs, rock crevices or dense vegetation) to allow it to take cover upon release. Do not release the snake in the open where it could be exposed to inclement weather, extreme sunlight or predators.

2.6 Temporary safe keeping and transportation of snakes

a) You are responsible for this animal. Remember, once you have put it in a container, it depends on you to keep it safe and at the right temperature.

b) Always use a pail, large garbage can or bucket (at least 1 metre deep) with adequate air holes in the lid for Massasaugas. Ensure the lid is properly secured, and always create the air holes before putting the snake in the container.

c) If using a snake bag:

I. **Make sure it is properly closed**. To close the snake bag, gather the material at the opening together in one hand and run your other hand down the bag to ensure that the snake is in the bottom. Twist the neck of the bag and tie it into a tight knot. Never rely on a drawstring, as snakes can wiggle out of tight holes. When tying a snake bag, make sure the snake remains in the bottom of the bag so it does not get tangled in the part you are tying.

II. **Make sure it is in a secure location** where it cannot fall if the snake moves the bag. The movement of a snake within a bag can easily cause the bag to fall off of a table.

III. If transporting the snake or holding it for a longer time (over an hour), the closed snake bag should be placed in a well-ventilated hard container (such as plastic tub) for added protection.

d) It is extremely important to monitor the air temperature regularly in the container or around the snake bag to ensure it **never exceeds 30°C or drops below 5°C**. Never leave the container or snake bag in direct sunlight or in a closed vehicle parked in the sun, as this will cause the snake to overheat and could be fatal.

e) **Never leave the container or snake bag unattended** in an unsecured location (e.g., side of road).

f) Do not offer the snake any food. Snakes do not have to eat as often as mammals, and it is no problem for a snake in temporary captivity to go a few days without food.

2.7 Relocation of snakes

a) A snake should only be relocated if the destruction of its habitat is unavoidable or if it is not possible to release it at the capture location.

b) Snakes should not be relocated during their over-wintering season. This varies depending on the species and location, but is generally from October to May. If you are unsure whether you should relocate the snake or take it to a wildlife custodian, contact MNR for further direction using the SAR Notification/Contact Schedule.

c) If it is not possible to relocate the snake due to the time of year (October to May) or other conditions, transport the snake to a wildlife custodian per the SAR Notification/Contact Schedule.

d) Transport and release the snake within one hour of capture in order to minimize stress on the animal.

e) **Snakes should never be moved more than 250 metres** from the location where they were found. Only move a snake as far as necessary to avoid potential harm to the snake, and avoid moving snakes more than 125 metres unless absolutely necessary. If it is not possible to relocate the snake within 250 metres of the capture location, contact MNR for further direction using the SAR Notification/Contact Schedule.

f) Release the snake in the same type of natural habitat as the capture site. If this is not possible, contact MNR for further direction using the SAR Notification/Contact Schedule.

g) If possible, release the snake near a retreat site (somewhere the animal can seek shelter from the elements and avoid predators: loose rocks, logs, rock crevices or dense vegetation) to allow it to take cover upon release. Do not release the snake in the open where it could be exposed to inclement weather, extreme sunlight or predators.

h) To release the snake from a pail, gently tip the pail onto its side, remove the lid, back away from the pail and allow the snake to leave on its own. If necessary, use the broom to gently guide the snake out of the pail or gently tip the pail on an angle to slide the snake out of the pail.

i) To release a non-venomous snake from a bag, untie the bag, gently tip the bag by holding one of the bottom corners (make sure you are not holding the snake) and gently slide the snake onto the ground.

2.8 Injured snakes

a) If dealing with an injured Massasauga, ensure compliance with all instructions and safety considerations provided in sections 2.1-2.3.

b) If the methods of handling snakes that are outlined in section 2.3 or 2.4 are not applicable due to the snake's injuries, use a shovel or other flat object to pick up the snake. Ensure that any injured areas are supported.

c) Place the snake in a large plastic bin or bucket with a lid that has air holes (the darkness helps to reduce stress to the snake). You can place newspaper in the container to provide cover for the snake and help to reduce its stress. Do not place anything else in the container with the snake or offer it any food.

d) Thoroughly wash your hands after handling injured snakes.

e) Immediately transport the snake to a veterinarian or wildlife custodian per the SAR Notification/Contact Schedule, in order to increase its chances of survival.

APPENDIX B

newgold™ Rainy River Project

SPECIES AT RISK ENCOUNTER REPORTING FORM

Name and position of observer:	CAILEY ANDERSON ENVIRONMENTAL SPECIALIST - NEW GOLD
Phone number:	807-707-3058
Date and time of observation:	2016-09-04 13:15
Location of observation (UTM coordinate and description):	ROEN RD 15U 426381 : 5461650
General description of observation (ie. Nest, individual, behavior etc):	SNAPPING TURTLE WALKING DOWN ROEN RD TOWARD PLANT SITE.
Actions taken to minimize/mitigate adverse impacts (if required):	RELOCATED USING APPROVED EQUIPMENT IN MNRF LICENCE #1081168 TO PINEWOOD RIVER @ HEATWOLE RD 15U 430987 : 5407634

* ADDITIONAL INFORMATION SEE ATTACHED WILDLIFE INCIDENT FORM *.

newgold™ Rainy River Project

Wildlife Incident Form

Date (yyyy-mm-dd): 2016-09-04	Time: 13:15
Environmental Team Member: C. ANDERSON	Weather: Cloudy +24°

1. Incident Type (circle one)

Vehicle/Equipment Mortality | Mortality Cause Unknown | (Species Relocation) | Injury

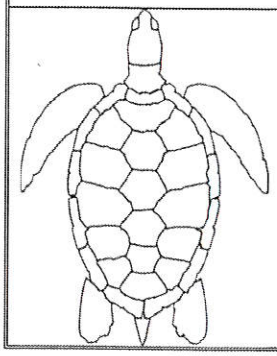
Note; dead animals found within the project footprint, which are not a direct result of road mortality shall be provided to the Fort Frances MNRF for further inspection (Contact Alex Hyatt). If dead animals are a result of road mortalities, a morphological assessment is to be conducted and the animal disposed of (Schedule A No. 5 Authorization No. 1081168). Species that are being relocated please follow AMEC E&I Guidance document in Wildlife Relocation Kit and complete this form). All records and photographs to be kept for annual report due to MNRF December 2016. If an animal is injured contact the MNRF office for direction.

2. Incident Summary

2.1. Location	ROEN RD	15U	E 426381	N 5411650
2.2. Relocated to	PINEWOOD RIVER @ HEATHCOLE RD	15U	E 430987	N 5407634
2.3. Description of Incident and Outcome	SNAPPING TURTLE DISCOVERED BY C. ANDERSON WALKING DOWN ROEN RD TOWARD PLANT SITE. SEE ADDITIONAL COMMENTS BELOW.			
2.4. Could the Incident Have Been Avoided? (If yes, describe how)	No.			

3. Assessment for Reptilian Species (Mortality / Relocation)

Turtle: (Snapping Turtle) Painted Turtle	Comments:
Carapace length (mm):	± 355mm (14")
Pre-cloacal length (mm):	
Post-cloacal length (mm):	
Front claw length (mm):	± 25.4mm (1")
Weight(kg):	NOT TAKEN
Visible markings:	NONE
Recapture: Yes / (No)	
Sex: (Female) / Male *(See section 7)*	
Relative Health:	NO INJURIES / AGGRESSIVE
Photos Provided: (Yes) / No	
New Mark: (Yes) / No # 1	*Mark with black or green permanent marker on the top of the turtles shell near the tail*
Diagram	*Show and distinctive features, and where you marked species* NONE



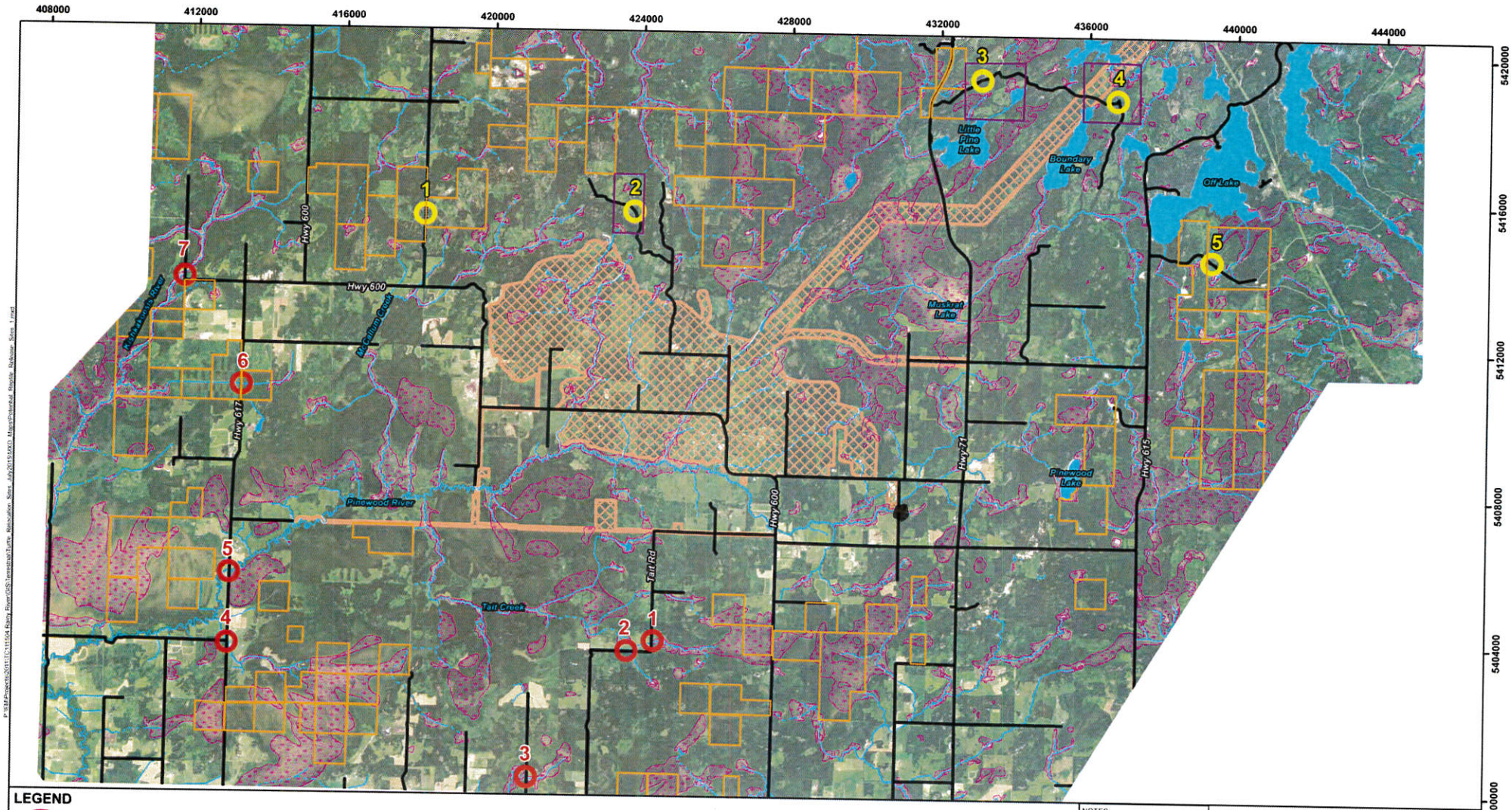
ADDITIONAL COMMENTS

TRIED TO RELOCATE TURTLE TO TAIT CREEK AS PER LICENCE HOWEVER RD ACCESS ISSUES AND LACK OF WATER. DUE TO LENGTH OF TIME TO TRAVEL TO OTHER APPROVED AREAS & TIME TURTLE HAD BEEN IN TRANSPORTATION CONTAINER WE DECIDED TO RELOCATE TO PINEWOOD RIVER @ HEATHCOLE RD. HEATHCOLE IS A 'NO TRAVEL' ZONE FOR THE PROJECT (Excluding ENVIRO DEPT). ∴ SHOULD BE NO ISSUES.

All collected species encounters, including mortalities, must follow permit and Wildlife Scientific Collector's Authorization Number 1081168; Expires December 2016

Snake: E. Gartersnake Red Sided Snake Red Bellied Snake	Comments:
Length(mm):	
Photos Provided: Yes / No	
4. Assessment for Mammals	**Comments:**
Species:	
Species at risk: Yes / No	
Number of Animals:	
Sex: (Male / Female)	
Photos Provided: Yes / No	
Delivered to MNRF: Yes / No	
5. Assessment for Birds	**Comments:**
Species:	
Species at Risk: Yes / No	
Number of animal:	
Photos provided: Yes / No	
6. Assessment for fish	**Comments:**
Species:	
Number of fish:	
Length of fish	
Relative behavior:	
Has pumping stopped: Yes / No	
7. Sexing a Turtle	
Male	**Female** ✓
Convex plastron	Flat or convex plastron
Shorter shell	Longer shell ✓
Notch on the carapace	Star shape cloaca base of her tail often hidden under her shell
Longer nails	
Longer slit like cloaca in the middle of tail	
Longer and thicker tail	

APPENDIX C



NOTES:
-

Datum: NAD83
Projection: UTM Zone 15N

newgold Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Proposed Reptile Release Sites

DRAFT

PROJECT N°: TC111504	**FIGURE: 1**
SCALE: 1:97,000	DATE: August 2015

Appendix B

Provincial EA

Notice of Approval Registry

EA 05-09-02 EAIMS No. 13102

2016 Rainy River Project Annual Report

Condition / Tracking #	Description	Status	Date Completed (where applicable)
3.1.	Where a document, plan or report is required to be submitted to the Ministry, the Proponent shall provide two copies of the final document, plan or report to the Director: a copy for filing in the specific public record file maintained for the Undertaking, and a copy for use by Ministry staff.	Completed to date. Two copies of the Annual Compliance Report were sent to the Environmental Approvals Branch Director via Purolator. Digital copies were provided to EAB as well.	March 31, 2017
3.2.a	The Proponent shall provide additional copies of the documents required for the public record file to the following for access by the public: Regional Director.	Completed to date. Two copies of the Annual Compliance Report were sent to the Regional and District Offices via Purolator. Digital copies were provided to Regional and District Offices as well.	March 31, 2017
3.2.b	The Proponent shall provide additional copies of the documents required for the public record file to the following for access by the public: District Manager.	Completed to date. Two copies of the Annual Compliance Report were sent to the Regional and District Offices via Purolator. Digital copies were provided to Regional and District Offices as well.	March 31, 2017
3.2.c	The Proponent shall provide additional copies of the documents required for the public record file to the following for access by the public: NG Inc. office in Emo, Ontario.	Completed to date.	Copies of the Annual Compliance Report have been made available for public access at the Emo Office on March 31, 2017.

Condition / Tracking #	Description	Status	Date Completed (where applicable)
3.3.	The EAB file number EA 05-09-02 and EAIMS file number 13102 shall be quoted on all documents submitted by the Proponent pursuant to condition 3.1 of this Notice of Approval.	Completed to date.	Complete
3.4.	Without detracting from the foregoing Public Record conditions, the proponent may also provide these documents through other means, as considered appropriate by the Proponent.	Completed to date.	Ongoing
4.1.	The Proponent shall post the Errata document dated December 15, 2014 on the Proponent's project website. The Proponent shall update the Summary of the Environmental Assessment Report to reflect the addition of the Errata and to itemize what sections of the Environmental Assessment Report have been impacted by it, and shall post the updated Summary on the website. The Proponent shall update the Table of Contents of the Environmental Assessment Report to reflect that the Errata is included as part of Volume 2 of the Environmental Assessment Report, and shall post the updated Table of Contents on the website.	Completed.	November 12, 2015
5.1	The Proponent shall prepare and submit to the Director, for the public record, an Environmental Assessment Compliance Monitoring Plan (CMP).	Completed.	February 9, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
5.2	The CMP shall be submitted 30 days before the Start of Construction or such other date as agreed to in writing by the Director.	Completed.	February 9, 2015
5.3	The CMP shall describe how the Proponent will monitor its fulfilment of: 1) the provisions of the Environmental Assessment pertaining to mitigation measures, public consultation, and additional studies and work to be carried out; 2) all other commitments made by the Proponent during the Environmental Assessment process including the Commitments Registry as contained in the Errata dated December 15, 2014; and 3) the conditions included in this Notice of Approval.	Completed.	February 9, 2015
5.4	The CMP must contain an implementation schedule for construction, operations and closure, as well as monitoring during construction, operations and closure.	Completed.	February 9, 2015
5.5	When the Proponent submits the CMP to the Director, the Proponent shall append a statement indicating that the CMP is intended to fulfil condition 5 of this Notice of Approval.	Completed.	February 9, 2015
5.6	The Director may require the Proponent to amend the CMP at any time. Should an amendment be required, the Director will notify the Proponent, in writing, of the required amendment and the date by which the Proponent must complete the amendment and submit it to the Director.	Not applicable to date.	N/A
5.7	The Proponent shall carry out the CMP, as it may be amended by the Director.	Completed to date.	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
5.8	The Proponent shall make the documentation pertaining to the CMP available to the Ministry or designate upon request, in a timely manner, when so requested by the Ministry during an on-site inspection, audit, response to a pollution incident report or when information concerning compliance is requested by the Ministry.	Information is available either on site or through a New Gold RRP consultant and can be made easily available.	Complete
6.1	The Proponent shall prepare an annual Compliance Report which describes its compliance with the conditions of approval set out in this Notice of Approval, and which describes the results of the Proponent's Environmental Assessment CMP required by Condition 5 of this Notice of Approval.	This table forms part of the Annual Compliance Report for 2016.	Complete
6.2	The first annual Compliance Report shall be submitted to the Director, for the public record, within one year from the Start of Construction and shall cover all activities of the previous 12 month period.	The First Annual Compliance Report covered the period from the start of construction to December 31, 2015 and was submitted prior to March 31, 2016. The 2016 Compliance Report covers the period from January 1, 2016 to December 31, 2016. These dates coincide with the Federal Annual Reporting Requirements.	2015 Compliance Report Submitted:31 March 2016 2016 Compliance Report Submitted: 31 March 2017
6.3	Subsequent Compliance Reports shall be submitted to the Director, for the public record, on or before the anniversary of the Start of Construction each year thereafter. Each Compliance Report shall cover all activities of the previous 12-month period.	The reporting period for 2016 will be from January 1, 2016 to December 31, 2016 and submitted on March 31, 2017.	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
6.4	Once all conditions in this Notice of Approval have been satisfied, or have been incorporated into any other provincial approval, the Proponent shall indicate in its annual Compliance Report that the Compliance Report is its final Compliance Report, and that all conditions in this Notice of Approval have been satisfied. The Director may also vary the time at which the Proponent is to provide its final Compliance Report, and state this in writing to the Proponent.	Agreed.	Complete
6.5	The Proponent shall retain either on site or in another location approved by the Director, a copy of each of the annual Compliance Reports and any associated documentation of compliance monitoring activities.	The 2016 report will be retained at the local New Gold (NG) office in Emo, Ontario and posted on the New Gold website: http://www.newgold.com/projects/rainyriver/rainyriver-project/default.aspx Compliance documents are also available on site from the Environment Department.	March 31, 2017
6.6	The Proponent shall make the Compliance Reports, and associated documentation, available to the Ministry or designate in a timely manner when requested to do so by the Ministry.	Agreed.	Complete
7.1	The Proponent shall prepare and implement a Complaint Protocol that sets out how it will deal with and respond to inquiries and complaints received during the design, construction and operation of the Undertaking.	A complaint protocol was implemented in 2015 at the start of construction and remains in effect.	February 2, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
7.2	The Proponent shall submit the Complaint Protocol to the Director, for the public record, 30 days before the Start of Construction or such other date as agreed to in writing by the Director.	Completed.	February 2, 2015
7.3	The Director may require the Proponent to amend the Complaint Protocol at any time. If an amendment is required, the Director will notify the Proponent in writing of the required amendment and the date by which the Proponent must complete the amendment and submit it to the Director.	Not applicable to date.	N/A
7.4	The Proponent shall carry out the Complaint Protocol, as it may be amended by the Director.	Completed to date. There were 56 complaints reported in 2016. The majority of these complaints (38) were due to the conditions of roads and driving and the impact of construction activities on private property. Other complaints were related to noise, vibration, light and safety.	Complete
8.1.a	The Proponent shall prepare and implement a Community Communications Plan that sets forth: • How the Proponent plans to disseminate information to interested persons.	Completed.	February 9, 2015
8.1.b	The Proponent shall prepare and implement a Community Communications Plan that sets forth: • How interested persons will be notified and kept informed about site operations.	Completed.	February 9, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
8.1.c	The Proponent shall prepare and implement a Community Communications Plan that sets forth: • The procedures for keeping interested persons apprised of information about documents related to the Undertaking, and when and how the updated information and/or documents will be made available.	Completed.	February 9, 2015
8.2	The Proponent shall submit a Community Communications Plan to the Director 30 days before the Start of Construction or such other date as agreed to in writing by the Director.	Completed.	February 9, 2015
8.3	The Proponent shall implement the Community Communications Plan during construction, operations and closure of the Undertaking.	Completed to date.	Complete
9.1.a	The Proponent shall prepare and implement an Aboriginal Consultation Plan that sets forth: • How, during the detailed design and implementation of the Undertaking, the Proponent will consult with the Aboriginal communities that were notified of the Undertaking during the Environmental Assessment process.	Completed. A draft plan was submitted on January 21, 2015. Following up on the communication on February 13 2015, New Gold RRP noted that the MOECC had no additional comments on the Aboriginal Consultation Plan stipulated in Condition 9 of the Provincial EA decision for the RRP. A copy of the plan was provided.	February 9, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
9.1.b	The Proponent shall prepare and implement an Aboriginal Consultation Plan that sets forth: • How the Proponent will fulfill all commitments made to Aboriginal communities during the Environmental Assessment process, including ongoing consultation during the design and implementation of the Undertaking.	Completed.	February 9, 2015
9.1.c	The Proponent shall prepare and implement an Aboriginal Consultation Plan that sets forth: • A Notification Protocol for how the Proponent will inform Aboriginal communities if archaeological resources or Aboriginal remains are encountered during construction.	Completed.	February 9, 2015
9.1.d	The Proponent shall prepare and implement an Aboriginal Consultation Plan that sets forth: • How the Proponent will issue notices and updates on key steps in the design and implementation of the Undertaking.	Completed.	February 9, 2015
9.2	The Proponent shall submit the Aboriginal Consultation Plan to the Director and the Aboriginal communities that were notified of the Undertaking during the Environmental Assessment process 30 days before the Start of Construction or by such other date as agreed to in writing by the Director.	Completed.	February 9, 2015
9.3	The Proponent shall implement the Aboriginal Consultation Plan during construction, operations and closure of the Undertaking.	Completed to date.	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
9.4	The Proponent shall continue to consult with the following Aboriginal communities: Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Naotkamegwanning (Whitefish Bay) First Nation, Anishinaabeg of Naongashiing (Big Island) First Nation, Ojibways of Onigaming First Nation, and the Sunset Country Métis community (represented by Métis Nation of Ontario Region 1 Consultation Committee), to inform them of when impacting activities will occur. Before impacting activities occur, the Proponent shall provide interested Aboriginal communities with reasonable opportunity to carry out specific cultural practices, as those communities consider appropriate.	Completed to date.	Complete
10.1	The Proponent shall complete Stage 2 Archaeological Assessment Studies for the project, as necessary. The stage 2 archaeological assessments must be submitted to the Ministry of Tourism, Culture and Sport (MTCS) for review and accepted into MTCS's report register prior to the start of in-ground work.	A Stage 2 overall property report was submitted in 2015. New Gold RRP received clearance from MTCS on January 8, 2015. Additional archaeological work was completed during 2015 at the Pinewood River Pumphouse, Tait Quarry and a section of the Highway 600 Re-alignment. NG received clearance from MTCS on August 6, 2015.	Review and entry into the Public Register of the Archaeological Reports was received on January 8, 2015
10.2	If during construction any archaeological resources are discovered, all construction activities within 100 meters of the archaeological resources will cease immediately and a licensed archaeologist will be retained to carry out the necessary fieldwork in compliance with Section 48(1) of the Ontario Heritage Act.	Agreed. There were no findings during the additional archaeological work completed during 2015 (see 10.1). No archaeological resources were uncovered during 2016.	Completed to date.

Condition / Tracking #	Description	Status	Date Completed (where applicable)
10.3	Archaeological resources that require removal will be transferred to a public institution selected through consultation with local First Nations and Métis represented by the Métis Nation of Ontario Region 1 Consultation Committee, in consultation with MTCS. An MTCS collection transfer form will be completed by the surrendering licensee and the institution accepting the materials. Collection shall be curated to current standards.	No transfers of artifacts occurred during 2016. The artifacts remain with Woodland Heritage Services and will be transferred upon completion of Stage 4 activities.	Ongoing
11.1	Prior to the construction of the proposed demolition landfill (or any other landfill) within the Site's property boundary, the Proponent shall obtain any necessary Environmental Assessment Act approvals and Environmental Protection Act approvals. In addition, prior to construction of the proposed demolition landfill (or any other landfill), the Proponent shall provide appropriate financial assurance to the Ministry's satisfaction, unless by then the appropriate cost has already been accounted for and provided to the MNDM as part of Closure Plan requirements under the Mining Act.	The Rainy River Project does not have a landfill within the project boundary therefore this condition does not apply.	N/A

Condition / Tracking #	Description	Status	Date Completed (where applicable)
12.1	As a minimum, the Proponent shall meet all requirements and commitments related to mine water discharges to the Pinewood River as agreed to by the Ministry during the EA process, or as revised through approvals by the Ministry. These requirements and commitments are found throughout the EA and include, but are not limited to, those set out in the July 17, 2014 memo by the Ministry's surface water specialist regarding the "Rainy River Gold Project: Effluent Criteria Discussion and Water Taking Thresholds" which appears in Appendix B of the Ministry Review of the EA. Further, as part of its application for the Environmental Compliance Approval(s) (ECA) required for the Undertaking, the proponent shall identify, through memo or other means acceptable to the ECA Director, how the proponent's proposed water management process will satisfy the technical requirements and other surface water quality commitments stated in the EA.	New Gold RRP has implemented a water sampling programs that meets the requirements of the MOECC Environmental Compliance Approvals and the Federal Metal Mining Effluent Regulation. During 2016 mine water that was discharged to the Pinewood River was from temporary sediment ponds constructed in the open pit. Water in these systems was treated for ammonia and suspended solids. Heavy metal concentrations have not been a concern to this time. During the Environmental Compliance Approval(s) application process (2015) a water management plan was submitted to MOECC.	Completed in 2015
12.2	The Proponent shall meet all requirements and commitments related to the establishment of a minimum water taking threshold from the Pinewood River as agreed to by the Ministry during the EA process, or as revised through approvals by the Ministry. These requirements and commitments are found throughout the EA and include, but are not limited to, those set out in the July 17, 2014 memo by the Ministry's surface water specialist regarding the "Rainy River Gold Project: Effluent Criteria Discussion and Water Taking Thresholds" which appears in Appendix B of the Ministry Review of the EA.	Through the PTTW application process New Gold has outlined how water management on site will satisfy the commitments stated in the EA. During 2016 water was taken from the Pinewood River during limited durations in August and September to allow for testing the pumping system and its components. No water was taken for milling purposes. On March 17, 2016 a letter was sent to MOECC outlining the exceedance of by-pass pumping under	Completed through PTTW approvals obtained between 2014 and 2015.

Condition / Tracking #	Description	Status	Date Completed (where applicable)
	Further, as part of its application for the Permit(s) to Take Water (PTTW) required for the Undertaking, the proponent shall identify, through memo or other means acceptable to the PTTW Director, how the proponent's proposed water management process will satisfy the water taking commitments stated in the EA.	PTTW No. 2133-9VUPV2 at location West Creek (WCPD). The cause was from a delay in completion of the construction and commissioning of water diversion systems, delays in permit approvals from other agencies and spring flooding events.	
13.1	The Proponent shall fulfill all requirements and commitments related to tailings management, including maintaining a sufficient water cover over deposited tailings and fulfilling monitoring requirements detailed in provincial regulatory documents, including the Closure Plan and any other permits and approvals associated with the Undertaking. In addition, the Proponent shall consider deterrent systems to ward off bird and animal life from accessing the TMA.	During 2016 the project was still in its construction phase and no tailings were produced. Moving into 2017 New Gold will be constructing the first cell of the TMA with the intent to deposit tailings mid-year. Research of animal deterrent systems as required in both the Provincial and Federal EA Decision Statements will be implemented.	N/A
13.2	The Proponent shall assess and utilize provincial, national and international industry best practices for tailings management and water management containment facilities as they relate to climate change and the increasing frequency of severe weather abnormalities. The management of tailings, based on this assessment, shall be done in a manner adequate to ensure the appropriate management of any contaminants that may be present during and beyond the operating life of the Undertaking. The Proponent shall, as part of the Compliance Reports required under Condition 6, or otherwise specified in	Completed. As described in the final EA / EIS Report and applicable Provincial approval applications as the Environmental Compliance Approvals, Permits to Take Water and Lake and Rivers Improvement Act Permit for dams and dykes, climate change and severe weather conditions, etc. Most notably regional storm events were also included. These components and design considerations have been included in the	Completed

Condition / Tracking #	Description	Status	Date Completed (where applicable)
	writing by the Director, provide details to the Ministry on how actions required by this condition have been considered in the project design, operations and the Closure Plan.	project designs, such as in the hydrologic design basis.	
14.1	The Proponent shall assess and utilize best practices to protect the biodiversity of existing species within the area of the Undertaking. Building on the baseline studies, including aquatic resources, terrestrial and species at risk baselines, already completed during the Environmental Assessment process, the Proponent shall establish a pre-construction biodiversity baseline and report on biodiversity levels within the area of the Undertaking. The Proponent shall as part of the Compliance Reports required under Condition 6, or otherwise specified in writing by the Director, provide details to the Ministry on how the requirements set out in this condition are being met.	Version 5 of the Terrestrial Systems Monitoring Plan was submitted to the MNRF on February 3, 2016. New Gold is currently completing monitoring as part of the Terrestrial Systems and Habitat Monitoring Plan. During 2016 the following monitoring programs were implemented; Species at Risk monitoring for bobolink and whip or will, wildlife observation monitoring, deer tissue sampling to assess metal accumulation in organ tissue and barn swallow monitoring. The Biodiversity Monitoring Plan for the Pinewood River was submitted to MOECC in 2016 as per ECA No. 5781-9VJQ2J Condition 10(5) and ECA No. 5178-6TUPD9 Condition 8(7). These annual monitoring programs build off of baseline data collected during the EA process. Version 5 of the Terrestrial Systems Monitoring Plan was submitted to the MNRF on February 3, 2016. The Biodiversity Baseline Report has been included in Appendix A Federal Condition 4, Supporting Documentation 4.6a Terrestrial Systems and Habitat Monitoring Plan Appendix 5. This is available in hard copy in the Emo Office and on the website as part of this ACR.	On February 3, 2016 a Terrestrial Systems Monitoring Plan was submitted to MNRF On December 14, 2016: Pinewood River Biological Effects Monitoring Plan was submitted January 13, 2017: In December 2016 The Species at Risk Annual Monitoring Report was submitted to MNRF December 2016

Condition / Tracking #	Description	Status	Date Completed (where applicable)
14.2	In addition to fulfilling all commitments with regard to rehabilitating wildlife habitat and terrestrial systems, the Proponent shall consult with MNRF on the development of a monitoring plan for terrestrial systems and habitat. The Proponent shall prepare the monitoring plan before the start of construction and shall provide a draft plan to MNRF for review before the plan is finalized. The Proponent shall carry out the plan during construction, operation and closure of the Undertaking. The purpose of the monitoring plan is to verify the accuracy of the predictions the Proponent made during the EA about the Undertaking's impacts on wildlife and habitat and to monitor the effectiveness of rehabilitation efforts for wildlife habitat and terrestrial environments. The Proponent shall report on biodiversity baseline and results required in Condition 14.1 through the Terrestrial Systems and Habitat Monitoring Plan.	Rainy River Project is currently completing monitoring as part of the Terrestrial Systems and Habitat Monitoring Plan. Monitoring was reported as part of the ACR and Biodiversity Baseline Report, available by March 31, 2017. The Terrestrial Systems and Habitat Monitoring Plan is available in hard copy in the NG Emo Office and on the website within this ACR. Version 5 of the Terrestrial Systems Monitoring Plan was submitted to the MNRF on February 3, 2016. The Biodiversity Baseline Report has been included in Appendix A Federal Condition 4, Supporting Documentation 4.6a Terrestrial Systems and Habitat Monitoring Plan Appendix 5.	Version 1; January 22, 2015, Version 2; April 20, 2015; Version 3; July 9, 2015, Version 4; July 30, 2015, Version 5; February 3, 2016
15.1.a	Conditions Specific to Vegetation Clearing Activities Occurring Before May 1, 2015: The Proponent shall prepare and implement a Vegetation Clearing Plan that sets forth how the Proponent will conduct vegetation clearing activities that are intended to occur on the Site before May 1, 2015 ("Vegetation Clearing Activities"). As itemized below, this Vegetation Clearing Plan shall address issues related to those Vegetation Clearing Activities, including: compliance monitoring; compliance reporting; a complaint protocol; a community communication plan; consultation with Aboriginal communities; and terrestrial systems and habitat monitoring plans.	Completed.	February 21, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
15.1.b	Conditions Specific to Vegetation Clearing Activities Occurring Before May 1, 2015: Unless otherwise stated in Condition 15 or stipulated per another timeline as may be identified in writing by the Director, the Proponent shall submit all elements of the Vegetation Clearing Plan to the Director, for the public record, 15 days before the Proponent's intended start of Vegetation Clearing Activities.	Completed.	February 21, 2015
15.1.c	Conditions Specific to Vegetation Clearing Activities Occurring Before May 1, 2015: The Proponent shall post the Vegetation Clearing Plan on its project website by no later than 15 days prior to the intended start of Vegetation Clearing Activities.	Completed.	Revision 2 was posted on February 12, 2015; Revision 3 was posted on February 24, 2015.
15.2.a	Compliance Monitoring for Vegetation Clearing Activities: In relation to any vegetation clearing that occurs on the site before May 1, 2015, the Proponent shall monitor its fulfilment of: 1) the provisions of the Environmental Assessment pertaining to mitigation measures and public consultation regarding such Vegetation Clearing Activities; 2) all other commitments made by the Proponent during the Environmental Assessment process including the Commitments Registry as contained in the Errata dated December 15, 2014, in relation to such Vegetation Clearing Activities; and 3) the conditions included in section 15 of this Notice of Approval.	All clearing that has occurred on site has been completed in accordance with licenses obtained from the MNRF (when applicable) and New Gold is satisfied that the work has been conducted in accordance with the vegetation clearing plan provided in February 2015. Clearing was ongoing during 2016 excluding the period of the breeding bird window, and additional clearing is planned for spring 2017.	Ongoing
15.2.b	Compliance Monitoring for Vegetation Clearing Activities: The Proponent shall prepare an implementation schedule for all the vegetation clearing activities that are intended to occur on the Site before May 1, 2015.	Completed.	February 21, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
15.3.a	Compliance Reporting for Vegetation Clearing Activities: In relation to vegetation clearing activities that occur on the Site before May 1, 2015, the Proponent shall prepare a Vegetation Clearing Compliance Report which describes and provides evidence of the Proponent's compliance with Condition 15 of this Notice of Approval	New Gold RRP submitted the updated RRP Vegetation Clearing Plan for Initial Clearing Prior to May 1, 2015, as required by the conditions of the Provincial EA Approval Notice.	February 9, 2015
15.3.b	Compliance Reporting for Vegetation Clearing Activities: The Proponent shall submit the Vegetation Clearing Compliance report to the Director within 30 days of completing the Vegetation Clearing Activities.	Completed.	May 31, 2015
15.4.a	Complaint Protocol for Vegetation Clearing Activities: The Proponent shall prepare and implement a Vegetation Clearing Complaint Protocol that sets out how the Proponent will address inquiries and complaints received during any Vegetation Clearing Activities.	An External Feedback Protocol for the Rainy River Project was completed.	February 2, 2015
15.5.a	Community Notification for Vegetation Clearing Activities: By no later than 15 days prior to the start of Vegetation Clearing Activities, the Proponent shall provide notification to those interested persons to whom Condition 8 of this Notice of Approval applies. The notification shall include a link to the location where copies of the Vegetation Clearing Plan can be seen by members of the public, as required by Condition 15.1 (c) above.	Completed. The Vegetation Plan was posted to the RRP (accessible to the public) on February 12, 2015. Aboriginal communities were notified on January 19, 2015.	Revision 2 was posted on February 12, 2015; Revision 3 was posted on February 24, 2015.

Condition / Tracking #	Description	Status	Date Completed (where applicable)
15.6.a	Consultation with Aboriginal Communities for Vegetation Clearing Activities: By no later than 15 days prior to the intended start of Vegetation Clearing Activities, the Proponent shall notify and then follow up with the Aboriginal communities identified in Condition 9.1 of this Notice of Approval. This notification shall append the implementation schedule required under Condition 15.2(b), above. The notification shall also include a link to the location where copies of the Vegetation Clearing Plan can be seen by members of the public, as required by Condition 15.1 (c) above.	Completed. An additional notification was provided on March 20, 2015 for new areas not included in the initial notification.	February 13, 2015
15.6.b	Consultation with Aboriginal Communities for Vegetation Clearing Activities: By no later than 15 days prior to the intended start of Vegetation Clearing Activities, the Proponent shall consult the Aboriginal communities identified in condition 9.4 of this Notice of Approval, to ascertain whether they wish to carry out specific cultural practices prior to Vegetation Clearing Activities occurring. The Proponent shall provide reasonable time for interested Aboriginal communities to carry out such cultural practices prior to the start of Vegetation Clearing Activities, in coordination with the interested communities.	Completed. An Aboriginal Blessing Ceremony was carried out on February 6, 2015 attended by several of the 16 Aboriginal communities. The event was a follow-up to the RRP updated vegetation clearing schedule sent to Aboriginal communities in January 2015.	February 6, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
15.6.c	Consultation with Aboriginal Communities for Vegetation Clearing Activities: By no later than 7 days prior to the intended start of Vegetation Clearing Activities, the Proponent shall submit to the Director copies of: the notification letters that it sent in fulfilment of conditions 15.6 (a) and (b); any records confirming the Aboriginal communities' receipt of those notification letters; records of any concerns heard from the Aboriginal communities in response to those letters; and records of efforts the Proponent has made, or has committed to make, to address those concerns.	Completed.	February 16, 2015
15.7.a	The Proponent shall fulfill all its EA commitments with regard to land clearing and to rehabilitating wildlife habitat and terrestrial systems, in relation to any associated impacts from Vegetation Clearing Activities.	Land clearing is contained within the footprint of the project only in areas where development is required. When licenses are required they are obtained from the MNRF. Grubbing is not conducted unless necessary and buffers are implemented around sensitive areas. As the project advances into operations the opportunity to reclaim more land will be possible.	Ongoing
15.8	When the Proponent submits its Vegetation Clearing Plan materials to the Director, the Proponent shall append a statement indicating that its submission is intended to fulfill Condition 15 of this Notice of Approval.	Completed	February 21, 2015

Condition / Tracking #	Description	Status	Date Completed (where applicable)
15.9	The Director may require the Proponent to amend aspects of the Vegetation Clearing Plan at any time. Should an amendment be required, the Director will notify the Proponent, in writing, of the required amendment and of the date by which the Proponent must complete the amendment and submit it to the Director.	Not requested in 2016.	N/A
15.10.	The Proponent shall carry out the Vegetation Clearing Plan, as it may be amended by the Director.	Completed.	Complete
15.11.	The Proponent shall make documentation pertaining to the Vegetation Clearing Plan available to the Ministry or designate upon request, in a timely manner, when so requested by the Ministry.	No such requests were made during 2016.	N/A
15.12.	In addition to fulfilling the Vegetation Clearing Plan conditions above, the Proponent shall also mention its Vegetation Clearing Activities, as relevant, in other materials it produces to fulfill the other conditions required by this Notice of Approval.	Complete. The Vegetation Clearing Plan was posted on New Gold's website February 12, 2015 and with a subsequent revision (Revision 3) posted on February 24, 2015. http://www.newgold.com/projects/rainyriver/rainyriver-project/environmental-assessment-process It remains on the website to date.	Revision 2 was posted :on February 12, 2015; Revision 3 was posted on February 24, 2015.

Condition / Tracking #	Description	Status	Date Completed (where applicable)
16.1.a	The Proponent shall ensure that the need for the Undertaking is capable of adapting to climate change during the construction, operation and closure phases of the Undertaking, and to that end the Proponent shall: Plan its construction practices, operational procedures and the design of the Undertaking to respond to storms, flooding, (including the consideration of the 500-year flood level), drought or other severe weather events resulting from climate change.	Project designs and infrastructure are completed by certified engineers and take into consideration climatic events. For example; during 2016 a site wide emergency pumping plan was implemented to address adequate pumps required for construction de-watering during rainfall events. As the project advances toward closure the need for possible revisions will be considered.	Ongoing
16.1.b	The Proponent shall ensure that the need for the Undertaking is capable of adapting to climate change during the construction, operation and closure phases of the Undertaking, and to that end the Proponent shall: Design the post-closure aspects of the site to ensure resilience to climate change impacts, such as maintaining an appropriate site water balance and sufficient water cover over the TMA. The Proponent shall also undertake an updated review of climate change scenarios at a point approximately two years prior to implementing final closure of the TMA to confirm, or modify, anticipated future hydrological conditions related to climate change scenarios.	Completed to date.	Complete
16.1.c	The Proponent shall ensure that the need for the Undertaking is capable of adapting to climate change during the construction, operation and closure phases of the Undertaking, and to that end the Proponent shall: The Proponent shall, as part of the Compliance Reports required under condition 6, or otherwise specified in writing by the Director, provide details to the Ministry on	Completed. As described in the final EA / EIS Report and applicable Provincial approval applications (such as Environmental Compliance Approvals, Permits to Take Water, and Lake and Rivers Improvement Act Permits (for dams and	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
	how climate change has been incorporated into the project design.	dykes), climate change and severe weather conditions and most notably regional storm events etc. have been included in the project designs, such as in the hydrologic design basis.	
16.1.d	The Proponent shall ensure that the need for the Undertaking is capable of adapting to climate change during the construction, operation and closure phases of the Undertaking, and to that end the Proponent shall: The Proponent shall also include these considerations, as appropriate, in the Closure Plan or future Closure Plan amendments submitted to MNDM.	Completed. As described in the final EA / EIS Report and filed Closure Plan, climate change and severe weather conditions and most notably regional storm events etc. have been included in the project designs, such as in the hydrologic design basis.	Complete
17.1	The Proponent shall obtain other necessary permits and approvals including, but not limited to, those that are committed to in the Environmental Assessment.	Completed to date. During 2016 four LRIA permits were obtained from the MNRF for the installation of culverts and dam construction. Forestry Clearing licenses were also obtained in the second half of 2016 for tree clearing.	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
18.1.a	In carrying out the Undertaking, the Proponent shall require that its contractors, subcontractors and employees: Fulfil the commitments made by the Proponent in the Environmental Assessment process, including those made in the Environmental Assessment and in the Proponent's responses to comments received during the formal Environmental Assessment comment periods.	Completed to date. All employees and contractors go through a standard site orientation, which includes: • Environmental, community, health and safety (and other pertinent site aspects). • Contractors are required to attend an environmental kick off meeting prior to start of work. Purpose of the meeting is to review commitments and permit requirements applicable to the Scope of Work. There are also statements in contracts that require the contractor to adhere to all applicable permits and site environmental procedures. • Financial / other materials may include specific clauses with contracts on standards, requirements etc., depending on the nature of the contract. • Environmental Conditions set out in Permits also include reference to specific contract drawings that are to be adhered to by the construction contractors • NG RRP Environmental Department monitors Contractors to ensure construction works are carried out in accordance with Environmental Commitments.	Complete

Condition / Tracking #	Description	Status	Date Completed (where applicable)
18.1.b	In carrying out the Undertaking, the Proponent shall require that its contractors, subcontractors and employees: Meet applicable regulatory standards regarding the construction, operation and maintenance of the Undertaking, including these conditions of approval.	Completed to date. See above.	Complete
18.1.c	In carrying out the Undertaking, the Proponent shall require that its contractors, subcontractors and employees: Obtain any necessary approvals, permits or licenses.	Completed to date. The majority of environmental-related approvals, permits and licenses are obtained by NG for the RRP, although contractors, subcontractors and employees are responsible for meeting the requirements therein.	Complete
19.1	Prior to implementing any proposed changes to the Undertaking, the Proponent shall determine what Environmental Assessment Act requirements are applicable to the proposed changes and shall fulfill those Environmental Assessment Act requirements.	Completed to date. New Gold RRP feels that during 2016 design modifications and changes to support project and permit delays were communicated effectively with MOECC to obtain input and ensure work was being conducted in accordance with current permits and approvals.	Groundwater Contingency Plan - Request for Extension - Feb 15, 2016; PTTW No. 2133-9VUPV2 - exceedance - March 17, 2016; Temporary Sediment Ponds 1 and 2 - change of intended use - July 29, 2016; Notice of Modification to Sewage Works ECA No. 5781-9VJQ2J installation of a portable ammonia treatment plan - October 30, 2016; TMA Starter Cell - November 3, 2016

Condition / Tracking #	Description	Status	Date Completed (where applicable)
20.1	30 days prior to construction, or as per another timeline as may be identified in writing by the Director, the Proponent shall provide notification of the Proponent's intention to proceed with construction. If significant changes to the existing environment or regulatory changes have occurred that could affect the implementation of the Undertaking or result in any new potential adverse environmental effects from the undertaking, the Proponent shall include a description of those changes in its notice. The Proponent shall provide the notice to the Director and Regional Director of the Ministry, the MNRF, the MNDM, and any other relevant agencies that the Proponent or the Director determine may have an interest in any changes provided in the notice.	Completed.	January 29, 2015

Appendix C
Commitments Registry

2016 Rainy River Project Annual Report

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
1	The Rainy River Project (RRP) will monitor and mitigate air emissions, particularly dust, through implementation of current industry best management practices.	Air quality monitoring program consists of two air quality sampling stations that were established in May 2015. The sampling stations are operated by New Gold staff with maintenance and data analysis conducted by consulting services. Dust mitigation measures utilized during 2016 included water application to roads, laydowns and quarry areas, and calcium application to roads.	Air Quality Stations installed in May 2015. Monitoring is ongoing for life of mine.
2	A fugitive dust best management practices plan will be prepared to identify all potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation, and detail the inspection and recordkeeping required to demonstrate that fugitive dusts are being effectively managed.	Best practices were implemented in 2016 through water application to roads, laydowns and quarry areas. Calcium application was done to all high traffic roads. Record keeping for all applications.	ECA Application Submission - November 14th 2014; Fugitive Dust Best Management Plans Submitted February 4, 2016; Updated Water Use Plan for Dust submitted December 14, 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
3	Sound will be monitored during construction, operations and active closure phases consistent with Ministry of the Environment and Climate Change (MOECC) requirements	Sound monitoring happened at five residential monitoring stations and two Whip-poor-will monitoring stations. Exceedances of the hourly energy equivalent sound level (L_{EQ}) were mostly caused by natural activities such as birds chirping and vehicle passbys, etc. There were however periods during monitoring where the sound levels were impacted by the Coreshack and Highway 600 construction activities. Highway 600 construction was completed in 2016. Despite the L_{EQ} sound level exceedances, the average sound pressure level that exceeded 90% of the time for that hour (L_{90}) was within the criteria limits during day, evening and night times.	Ongoing
4	NG (NG; previously Rainy River Resources) expect that the monitoring required will include: total suspended particulate (TSP) and metals on the TSP size fraction, PM10, dustfall and passive monitoring for NO2 and SO2. NG commits to conducting this monitoring which is also expected to be an approval requirement.	Air quality monitoring at two locations on the project site was initiated in May 2015 and remains in effect. New Gold submitted the Ambient Air Quality Monitoring Plan to MOECC in 2016. MOECC also conducted one inspection of the monitoring stations in July 2016 and found no significant issues with the station installation or operation.	Ambient Air Quality Plan submitted February 2016 and approved by MOECC in November 2016.

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
5	The best management plan related to fugitive dust management, source control and operational constraints required by the Provincial Environmental Compliance Approval will be provided to Environment Canada (EC) for review and will be fully implemented prior to the construction phase.	Completed and was included as part of Provincial ECA application. The final version of the Fugitive Dust Management Plan for operations and for construction was submitted to MOECC in 2015 and implemented during 2015 (early construction phase). As per condition 5(11) of ECA No. 5178-9TUPD9 an updated Management Plan of water used for dust suppression and other industrial uses was submitted to MOECC in December 2016.	ECA Application Submission - November 14,2014; Fugitive Dust Best Management Plans Submitted February 4, 2016; Updated Water Use Plan for Dust submitted December 14, 2016
6	A transboundary notification under the Canada - U.S. Air Quality Agreement will be filed prior to operation.	Completed. A notification was filed in 2014.	September 17, 2014
7	Planning measures aimed at reducing fuel and power consumption for the RRP site include the following: • Using larger, more fuel efficient trucks for material transport; • Using optimum insulation in buildings to reduce heat loss and heat recovery from equipment where practical; and • Maintaining site equipment and vehicles in good working order through regular preventative maintenance.	No specific measures were implemented during 2016 to reduce fuel and power consumption included apart from utilization of good operating practices. The Maintenance Program was refined during 2016 which implemented a better forecast structure for equipment. This change impacted the regular preventative maintenance.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
8	Monitoring of air quality will occur during construction, operations and active closure phases per Section 13.1.1 of the Final EA Report.	Monitoring has been ongoing at the RRP since May 2015. Two air quality sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 re-route on Tait Road, and one to the east of the Site on Gallinger Road. During 2016 there were three air quality exceedances; April 30 a recorded concentration exceedance of Total Suspended Particulate 20µg/m³ over the Canadian Ambient Air Quality Standard. The Annual Air Quality Report identifies the cause as road dust. The other exceedances occurred on May 6 and were double the standard for particulate matter (28µg/m³) which Annual Air Quality Report identifies the cause as forest fires burning north of the project and not as a result of project related activities.	Ongoing
9	Sound mitigation measures will be used, such as selection of quieter equipment. Implementation of sound abatement strategies to dampen sound infiltrating habitats and migratory bird nesting areas surrounding high traffic areas of the mine.	Measures that were implemented during 2015 and continued into 2016 to reduce sound during the construction phase included: • specific trucks that allow exhaust to pass through the truck box rather than directly through the exhaust pipe (can muffle sound) • reducing size of blasts where appropriate • tree buffers maintained where practical.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
10	Should the final equipment selections determine through detailed engineering and sound level assumptions vary materially from those presented in the Environmental Assessment (EA), an updated assessment with the new information will be prepared as part of the detailed design and approvals application(s) for the RRP.	Not applicable to 2016 Construction and Baseline Phase.	N/A
11	The maximum charge size per delay for blasting is limited to 1,000 kg as the vibration and overpressure mitigation option. If the charge size is larger than 1,000 kg per delay, the vibration and overpressure levels emanating from RRP blasting operations will be reassessed in a detailed study to confirm that the predicted levels are within guideline limits.	On average the maximum charge size per delay for blasting is 350 kg, well below the limit set out.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
12	NG will continue to work actively with local residents throughout the period of mine construction, operation and active closure to further manage and reduce any disturbances due to air and sound emissions to the extent possible, as well as for other effects.	New Gold RRP established a neighbour committee in 2015 to provide information to surrounding residents regarding construction work at the site. Quarterly newsletters and other notices with respect to construction activities were mailed out district wide. In addition: • New Gold RRP delivered contact information to all neighbours to ensure they had means to contact the company if any concerns. • Blasting updates were provided to neighbours. A vibration monitoring program was also instituted in 2015. In 2016, New Gold RRP was contacted by several neighbours, living on Highway 600, who had concerns about road dust as a result of increased traffic. New Gold RRP contacted Emcon, the MTO roads contractor, to ensure dust suppressant was placed on the road at more regular intervals.	Ongoing

13	Collectively and individually, the processes and water management strategies proposed for the RRP are Best Management Practices and/or Best Available Technology Economically Achievable (BATEA), and NG has committed to the use of such processes and water management strategies in the Final EA Report. Examples of such BATEA committed to by NG: • Use of the in-plant SO2/Air process for cyanide destruction and metal precipitation, as well as to extended post SO2/Air treatment effluent aging in the TMA (TMA) and water management ponds, followed by constructed wetland treatment; • Detailed plans and designs to manage potentially acid generating rock (PAG) on site, including ongoing progressive reclamation at the stockpile to limit acid generation, with drainage from this stockpile reporting to the mine rock pond, for re-use as part of the mill process water supply thereby reducing fresh water requirements. Dissolved metals associated with east mine rock stockpile drainage would ultimately report to the process plant SO2/Air and hydroxide precipitation circuit, and then to tailings; • Use of emulsion and/or emulsion blend explosives as a means of limiting ammonia residuals from the use of blasting agents at source; and • Collection of site runoff and seepage as per MMER (MMER), and to maximize the use of near 100% contact water recycle for the processing plant water supply.	During 2016 a key focus on environmental management continued to be water management, suspended solids control, and ammonia control. There was no processing / requirement for cyanide control during 2016. A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC approval requirements, and has been implemented at the RRP site. Monitoring is ongoing.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
14	Surface water runoff will be diverted from entering the pit or flowing through stockpiles by ditching or other means.	During 2016 surface water was diverted from stockpiles via temporary ditching systems. Due to construction setbacks associated with permitting delays the completion of permanent open pit dewatering systems caused the project to develop temporary in pit sumps to handle runoff. Water contained within these sumps was sampled as per ECA and MMER requirements and when necessary treated for suspended solids and ammonia. In October 2016 New Gold RRP submitted a Notice of Modification to MOECC to install a temporary ammonia treatment facility in the open pit which became operational in December 2016.	Ongoing
15	Open pit dewatering water will be contained and if necessary, treated before it is discharged to the environment.	During 2016 surface water was diverted from stockpiles via temporary ditching systems. Due to construction setbacks associated with permitting delays the completion of permanent open pit dewatering systems caused the project to develop temporary in pit sumps to handle runoff. Water contained within these sumps was sampled as per ECA and MMER requirements and when necessary treated for suspended solids and ammonia. In October 2016 New Gold RRP submitted a Notice of Modification to MOECC to install a temporary ammonia treatment facility in the open pit which became operational in December 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
16	In regards to final reclamation, the open pit will be flooded at closure to create a pit lake either passively through natural groundwater entry and precipitation inputs; or by active enhanced flooding. Discussions will be held with the various government agencies to determine the optimal balance between maintaining Pinewood River flows and filling the open pit on an expedited basis.	Not applicable during 2016 Construction Phase.	N/A
17	Enhanced pit flooding using the West Creek source is not under consideration by NG and has been clarified in the Draft Closure Plan submitted for review, pending discussions and further direction from various government agencies.	Not applicable during 2016 Construction Phase.	N/A
18	Pit lake water quality will be monitored regularly as part of the post-closure monitoring program.	Not applicable during 2016 Construction Phase.	N/A
19	Should it be determined that future treatment is needed for stockpile runoff / seepage and overflow from the pit at closure, passive treatment options would be fully considered during the detailed design stage.	Not applicable during 2016 Construction Phase.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
20	Ditches (and ponds as appropriate), will be established around the stockpiles to collect and manage runoff. Diversions will be sized to convey the environmental design flood. All sedimentation ponds will be designed with a retention period to meet the MMER discharge requirement for total suspended solids. The design criteria for perimeter ditching in this area (east mine rock stockpile and low grade ore stockpile) has been increased to the 100-year return period condition, as these stockpiles will contain possibly acid generating (PAG) materials.	The design and construction of temporary structures in accordance with this commitment was initiated during 2015 and continued in 2016. The ECA application was more flexible, stating that they are designed to provide a minimum 12-day retention time without the use of coagulant / flocculent, or a minimum of 3 days if coagulant / flocculent is used. The Provincial ECA provides greater flexibility and allows that coagulant / flocculent to be used if needed / as applicable. As the project advances in 2017 the need to establish PAG stockpiles will come into effect and appropriate systems will be constructed.	Ongoing
21	The retention time for sediment ponds 1 and 2 has been increased to 12 days, subject to review and acceptance by the MOECC.	Design of structures in accordance with this commitment was initiated during 2015 or as refined through the Provincial environmental approval process. During 2016 temporary ponds were constructed to capture runoff from small overburden piles. The construction of the permanent Sediment Ponds 1 and 2 is scheduled for 2017.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
22	PAG mine rock (and ore) will be managed, with drainage from the PAG mine rock and ore stockpile reporting to the mine rock pond, for re-use as part of the process plant water supply.	During 2016 the interim Mine Rock Pond was constructed however permitting setbacks did not allow for the construction of the permanent Mine Rock Pond. The need to manage PAG drainage and provide water for the process plant was not required in 2016, as the project was still in its Construction Phase. Moving into 2017 an LRIA approval from the MNRF will be necessary to complete the Mine Rock Pond. Construction of the Mine Rock Pond will begin when the LRIA approval from MNRF is received.	Ongoing
23	The deepest local till layer resting directly on bedrock contains PAG material and will be visually segregated and treated as PAG material unless otherwise determined, and will be stockpiled within the east mine rock stockpile, or disposed of in a manner where acid rock drainage (ARD) potentials will be controlled. A detailed mine rock segregation program / management strategy will be developed around the distribution of non-potentially acid generating (NPAG) and PAG materials, and a program of ongoing testing to be carried out during mining operations of the mine rock being removed.	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRP site. Monitoring was ongoing during 2016.	Ongoing Geochemical Monitoring Plan submitted to MOECC January 15, 2016.

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
	NG proposes to utilize visual and geochemical data to identify that portion of the till overlying the bedrock which requires handling as PAG material, based on the characteristics of the clasts (loose stones) contained therein. Segregation is commonly utilized and MEND 5.4.2d (MEND Manual, Volume 4, Prevention and Control) indicates that segregation is applicable where a clean separation can be made and where a disposal location is available for the PAG material - both of which apply to the RRP. This PAG till would be treated as PAG material and would be directed to the east mine rock stockpile for disposal along with PAG mine rock.		
23 cont	NG is conducting a detailed sampling and analysis program of the overburden within the pit area. The study will be used to delineate the thickness of till over the bedrock that may contain locally derived PAG rock materials so that these materials can be segregated during operations and placed into the East Mine Rock stockpile, or otherwise maintained in a saturated condition. Periodic confirmation analysis will be conducted during the (open pit)	Completed. A Mine Rock and Overburden Management Plan was included in the filed Closure Plan (as Appendix J).	February 20, 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
	stripping program to ensure that the initial interpretation of the thickness of till requiring handling as PAG remains accurate. A draft mine rock and overburden management plan was submitted with the Draft Closure Plan that will be finalized and submitted with the Final Closure Plan for filing with the MNDM later in 2014. It will also be provided to EC per their request. The plan will be revised during operations if necessary to ensure it remains current and as part of future Closure Plan amendments.		
24	Geochemistry monitoring: • Runoff and seepage related to tailings and stockpiles will be monitored as per surface and groundwater monitoring; • Blast hole sampling from open pit operations for mine rock segregation will be carried out throughout the open pit operations phase; • Tailings samples will be collected at regular intervals during the mine operations phase; and • Field trials will be carried out during all or a portion of the mine construction and operations phases as required to	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRP site. Monitoring was ongoing during 2016. To date no tailings have been produced or additional geochemical field trials initiated.	Geochemical Monitoring Plan submitted to MOECC January 15, 2016.

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
	generate data need to confirm modeling results.		
25	PAG material would only be used for fill material in areas where it can be maintained in a saturated state to exclude oxygen and inhibit sulphide oxidation. These uses may include underground backfill and construction of the upstream portion of the TMA dams.	In 2016, little PAG was encountered. Of the PAG that was found, all of it was placed within the mine footprint to support shovels and within haul roads.	Ongoing
26	Progressive rehabilitation of mine rock and overburden stockpiles will be undertaken where practical once the maximum height of each stockpile has been reached and/or as each lift is completed.	During 2016 mine rock and overburden piles did not require rehabilitation. Some rehabilitation in the form of shaping and compaction occurred at the topsoil salvage piles in the Water Management Pond area. Moving into Operations, wherever reasonable areas will continue to be rehabilitated, re-seeded and used for future reclamation	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
27	Encapsulation of the east mine rock stockpile under a multi-layered cover is proposed with a long term goal of controlling ARD.	Not applicable during 2016 Construction Phase.	N/A
28	As part of the geochemical characterization studies for the project, NG committed to an extended monitoring period of kinetic cells to both demonstrate and continue to evaluate the robustness of the geochemical results.	Kinetic cells are ongoing as required to support predictions. As of December 31, 2016 the following remained active: • Seven laboratory kinetic tests • Three waste rock humidity cells • Two tailings humidity cells • Two tailings columns; and • Ten field cells.	Ongoing
29	The run-of-mine stockpile is the temporary, working stockpile for the processing plant; the low grade ore stockpile is proposed to be depleted during the latter part of operations. As a contingency only, it is proposed that should an ore stockpile remain at closure, it will be managed similar to PAG in the East Mine Rock Stockpile with a multi-layer cover and seeded. Runoff and seepage will be directed to the open pit as part of the passive water management system.	Not applicable during the Construction Phase of 2016. In addition, no run-of-mine stockpile was present during 2016.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
30	Site runoff and seepage will be collected, managed and treated per the Provincial and MMER requirements.	Completed as required during 2016 in accordance with Provincial approvals (including ECA 5781-9VJQ2J and 5178-9TUPD9) and the MMER. During 2016 contact water was only generated on the plant site and in the open pit. Sampling and discharge met ECA approvals requirements. In 2016 surface water was monitored on and off site as per the monitoring program. Discharges met the environmental approval requirements, with the exception of: • Ten instances of elevated total suspended solids concentration, • Five unionized ammonia exceedances in mine water from the Open Pit, • One instance of Dyno Totan 1000 Emulsion spilled to ground due to a procedural error, and • One instance of MMER acute toxicity of rainbow trout where a causation analysis was completed and determined inconclusive. More information can be found in Appendix A Condition 3.	Ongoing Sediment Releases in 2016: Clark Creek – 8 March 2016 Teeple Dam Failure – 21 March 2016 Pinewood River Pumphouse – 28 March 2016 In Pit Sump 3 – 15 April 2016 Plant Site Treatment System – 19 April 2016 South Runoff Pond – 30 June 2016 West Creek Lower Diversion Plug – 8 July 2016 In Pit Sump 3 – 27 July 2016 Overburden/West Mine Rock Stockpile Temporary Sediment Pond 2 – 8 October 2016 Plant Site Treatment System – 27 November 2016
31	The overall site footprint and watershed capture will be minimized to the extent practical, so as to minimize the quantity of runoff and seepage requiring treatment and management.	This continues to be one of RRP Operating Strategies.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
32	West Creek pond and West Creek diversion flows will be measured on a continuous basis using water level transducers, supported by monthly manual measurements during the winter period, when transducer results experience interference caused by ice pressure .	These structures remained under construction during 2016. Permit approvals to finish the structures were obtained in late 2016 and New Gold RRP intends to complete the work in 2017.	Ongoing
33	The West Creek pond will only contain natural, non-contact water. The West Creek diversion channel will be kept separate from the constructed wetland downstream of the TMA, so as not to mix the natural creek water with excess water discharged from the TMA.	The diversion system was in construction and managed in compliance with this commitment in 2016. The finished diversion structure will meet the terms of this commitment.	Ongoing
34	West Creek Diversion will be positioned far enough from the pit perimeter to ensure integrity and stability and is expected to provide like-for-like fish habitat replacement.	The diversion system was constructed and managed in compliance with this commitment in 2016. The finished diversion structure will meet the terms of this commitment.	Ongoing
35	The West Creek diversion will be permanent, and there is no further consideration being given to diverting any flows from this creek into the open pit to help accelerate pit flooding at or following closure.	Detailed design is consistent with this commitment.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
36	There will be secondary containment in place for tailings and contact water pipelines at the crossing of West Creek.	During 2016 double contained tailings pipelines were drilled underneath West Creek however no tailings were generated in 2016 as the project was still in the Construction Phase.	N/A
37	A reliable water source for process plant operations and ancillary uses will be generated by maximizing the rate of water recycled to the process plant. Water demands are expected to be met by capturing and reusing the effluents and contact water within the site footprint.	Detailed design during 2016 was consistent with this commitment. The process plant is under construction and did not require water inputs during 2016.	ECA No. 5178 9TUPD9 valid until September 1, 2026 outlines the water recycle system that will be implemented on the project.
38	Water will be taken from the Pinewood River for the purpose of developing an initial water inventory, only during the construction phase. NG does not intend to take water directly from the Pinewood River thereafter, except possibly for contingency purposes.	Water was taken for a limited time from the Pinewood River in August and September 2016 for the purpose of testing the pumping system. No water has been taken at this time to establish a water inventory.	Ongoing
39	Water recycle will be maximized, using approximately 100% water recycle for the processing plant water supply.	Detailed design during 2015 and 2016 was consistent with this commitment. The process plant was under construction and did not require water during 2016.	ECA No. 5178 9TUPD9 valid until September 1, 2026 outlines the water recycle system that will be implemented on the project.
40	Local area lakes will not be used for process water supply for the RRP.	There are no plans to take water from local lakes and none was taken during 2016.	Complete

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
41	All process reagents and materials, and wastes, will be handled and stored responsibly, according to supplier and safety guidance, regulatory requirements and industry best practices.	During 2016 New Gold RRP implemented a process where all Material Safety Data Sheets for new materials be reviewed by the Environmental Department prior to being brought to site. The project was in the Construction Phase during 2016 and the need for process reagents was not required. RRP is in the process of establishing and maintaining a site wide Hazardous Waste Inventory as an ongoing activity.	Ongoing
42	Any chemical spills within the process plant / chemical storage areas will be controlled through provision of secondary containment as appropriate, and will not enter the environment. Spills of potentially hazardous materials during transport, or from on-site material storage and handling facilities will be managed. Measures will be taken to prevent and clean up any hydrocarbon spills (and other spills) at source to ensure such materials do not enter surrounding waters as practical. Spills will be reported to the MOECC and other appropriate agencies per the requirements of the Ontario Environmental Protection Act.	During 2016 the process plant was still under construction therefore the potential of hazardous material spills was not applicable. New Gold RRP has implemented a site wide policy for spill cleanup and spill reporting and has purchased appropriate spill response materials to handle hydrocarbon and other potentially hazardous material spills.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
43	The TMA dams will meet strict regulatory requirements including the requirements of the Provincial Lakes and Rivers Improvement Act (LRIA) and will be constructed to withstand the probable maximum flood and maximum credible earthquake. A remedial action plan would be developed in consultation with appropriate government agencies in the event of dam breach.	During the course of construction of the water and tailings management facilities, deformations were identified at one of the dams associated with such facilities. As a result, work on those facilities was paused in February 2016. Additional geotechnical testing and follow up monitoring were implemented. After receiving feedback from New Gold's Independent Tailings Review Board (a panel of independent experts established by New Gold in line with best practices in Canada) and MNRF, the water management structures on the site were redesigned. The redesign, together with enhanced construction procedures, including an enhanced QCV/QA program, were approved by MNRF in November 2016 following which construction was recommenced.	LRIA 2015-04C obtained November 2016
44	Runoff and seepage from the TMA and stockpiles will be captured, monitored, and either released to the environment if applicable criteria are met and/or re-used in the process plant during operations. Cyanide and metal concentrations in the TMA seepage and all treated effluent discharges to the environment will be controlled through the use of in-plant cyanide destruction and heavy metal precipitation, augmented by extended effluent aging in the TMA ponds.	Detailed design during 2016 was consistent with this commitment. Construction of the TMA dams was initiated in part during 2015 but the TMA was not in operation in 2016. Temporary collection systems have been installed for stockpiles (where applicable) and will be improved upon and made permanent as the project advances in 2017.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
45	All active pipelines will be inspected twice per 12 hour shift and informally at other times. Should flow unexpectedly lessen or stop in a pipeline, an inspection will be immediately conducted.	During 2016 pipeline installation on the project commenced however none of the lines were active during the Construction Phase of 2016. Some pipelines were hydro tested as part of the commissioning phase for periods of less than one hour using clean water.	N/A
46	The exposed tailings beach will be covered at closure with a layer of overburden, with flooding of the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond water remains of high quality, such that it will not pose a threat to wildlife.	Not applicable during 2016 Construction Phase. Detailed designs are consistent with this commitment.	N/A
47	NG commits to maintaining the deposited tailings during the post closure period in a saturated condition in perpetuity to prevent the generation of ARD. NG also commits to developing and completing a monitoring plan which evaluates the integrity of the cover system (e.g. low permeability overburden zone) and the continuous saturation of the tailings.	Not applicable during 2016 Construction Phase. Detailed designs are consistent with this commitment.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
48	The thickness and maintenance of water cover over the TMA will be clarified in the Closure Plan.	Complete. The thickness and maintenance of water cover over the TMA was clarified in the Closure Plan filed in 2015.	February 20, 2015
49	A detailed monitoring plan will be developed as part of the Provincial closure planning process to ensure that the deposited tailings solids remain permanently saturated in the post-closure condition. This plan will include consideration of the low permeability overburden perimeter cover bordering the tailings dams to ensure that the deposited tailings beneath the perimeter overburden cover remain saturated, or alternatively that the overburden zone cover itself remains sufficiently saturated so as to prevent oxidation of the underlying tailings. The monitoring program will consist of the following principal elements: • Establishment of a field trial to simulate the performance of the low permeability cover, with initiation during the development phase and monitoring during operations to support the closure design to ensure saturation levels in the cover and underlying tailings to confirm, or modify, design criteria; • Survey of the final tailings surface prior to flooding for closure, with results of the survey tied to TMA dam crest elevations and the spillway invert elevation; • Establishment of a water level monitoring station within the tailings pond, near to the spillway, with measurements to be taken at regular intervals;	The monitoring plan was detailed in the Closure Plan filed in 2015 and will be modified as appropriate in future Closure Plan Amendments. Closure Plan Amendments will occur during operations and as additional information becomes available.	February 20, 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
49 cont	• Establishment of a series of piezometers positioned around the TMA overburden zone perimeter that would measure water levels within both the overburden and the underlying deposited tailings, with such piezometers to be fitted with data loggers that would take continuous water level measurements at approximately daily intervals; • Updating the hydrological data for analyses of the TMA basin at a point approximately two years prior to implementing final closure of the TMA to confirm, or modify, applicable water balance parameters; • Undertaking an updated review of climate change scenarios at a point approximately two years prior to implementing final closure of the TMA to confirm, or modify, anticipated future hydrological conditions related to climate change scenarios; and • Annual reviews of water cover performance.	The monitoring plan was detailed in the Closure Plan filed in 2015 and will be modified as appropriate in future Closure Plan Amendments. Closure Plan Amendments will occur during operations and as additional information becomes available.	February 20, 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
50	In the event that observed water levels within the TMA pond were to decline to a level where there was a risk of the deposited tailings solids becoming partially unsaturated for extended periods, the available contingencies to mitigate that condition would be the following: • Periodically pump water from the Pinewood River during spring freshet, or during other high water periods, to maintain the TMA post closure water cover within an optimal zone (alternatively water could be periodically pumped to the TMA from the upper water column of the flooded open pit – pending suitable water quality); • Raise the spillway invert to further increase the depth of the TMA water cover (this action would require a widening of the spillway to continue to allow for passage of the probable maximum flood); or • Raising the dam crest, as well as the spillway invert to further increase the depth of the TMA water cover. In development of the above contingencies, trigger levels would be developed for implementation of the contingencies.	The detailed design for the TMA is consistent with these commitments however this condition was not applicable during 2016 as the TMA has not been fully constructed and the project has not generated any tailings.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
51	Mitigation measures that will be used to reduce potential adverse effects to the Pinewood River aquatic system will include the following: • Extensive contact water recycling for process plant needs to reduce overall water demands and to minimize final effluent discharge volumes to the Pinewood River; • Use of SO2/Air treatment for cyanide destruction and heavy metal precipitation in the process plant followed by extended effluent aging in the TMA pond and in the water management pond to achieve the highest quality effluent reasonably achievable; • Use of a constructed wetland system for final effluent polishing of a major portion of the discharge; • Management of the site for ARD control during operations and following closure to prevent adverse water quality impacts to the Pinewood River; • The DFO (DFO) Freshwater Intake End-of-Pipe Guidelines will be followed as mitigation for potential fisheries effects associated with water intakes; • Construction of the Pinewood River Highway 600 re-alignment crossing (bridge or culverts) in a manner that does not restrict fish passage; • Maintaining current fish habitat productivity; and • Implementation of an extensive monitoring plan for water quality and flow discharges, and receiving water aquatic life and habitat.	The detailed design during 2016 was consistent with these commitments. Only the following commitments were applicable, and accordingly fulfilled or addressed during detailed design activities during 2016: • The DFO (DFO) Freshwater Intake End-of-Pipe Guidelines were implemented and followed as mitigation for potential fisheries effects associated with water intake at the Pinewood River. • The Construction of the Pinewood River Highway 600 re-alignment crossing consisted of a clear span bridge that does not impact fish. • Maintaining current fish habitat productivity; and • Implementation of an extensive monitoring plan for water quality and flow discharges, and receiving water aquatic life and habitat.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
52	All final discharge points will have a point of control to immediately cease discharge. A control structure will be constructed at the discharge point of the treatment wetland to be in compliance with MMER. All discharge locations will be regularly sampled in accordance with environmental approval requirements and will provide insight as to ongoing treatment system performance.	The operational detailed design for the RRP is consistent with this commitment. There are currently nine temporary discharge points for surface water effluent that report to the Pinewood River. The discharges are batch, not constant discharges, and are measured using flow meters. Water quality is sampled weekly or every discharge and assessed against provincial and federal water quality requirements. Construction of the Constructed Wetland was not initiated during 2016.	Ongoing
53	NG acknowledges the need to meet effluent criteria for any discharge to the environment. Excess water discharged to the environment will meet applicable Federal and Provincial guidelines for the protection of aquatic life, or other scientifically defensible alternatives, in the receiver, as well as any site-specific approval requirements.	The detailed design is consistent with this commitment. There were 75 Project related effluent discharges in 2016. Effluent was treated with flocculent and dry ice to reduce total suspended solids and un-ionized ammonia, respectively. All effluent met the environmental approval requirements with the exception of: • Ten instances of elevated total suspended solids concentration, • Five unionized ammonia exceedances in mine water from the Open Pit, and, • One instance of MMER acute toxicity of rainbow trout from mine water from the Open Pit, where a causation analysis was completed and determined inconclusive. More information can be found in Appendix A Condition 3.	Ongoing Sediment Releases in 2016: Clark Creek – 8 March 2016 Teeple Dam Failure – 21 March 2016 Pinewood River Pumphouse – 28 March 2016 In Pit Sump 3 – 15 April 2016 Plant Site Treatment System – 19 April 2016 South Runoff Pond – 30 June 2016 West Creek Lower Diversion Plug – 8 July 2016 In Pit Sump 3 – 27 July 2016 Overburden/West Mine Rock Stockpile Temporary Sediment Pond 2 – 8 October 2016 Plant Site Treatment System – 27 November 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
54	Minimize the number of final effluent compliance points as reasonable.	Through 2016, there were nine final effluent compliance points that were and continue to be registered. Of the nine however only 5 are used on a regular basis. None of the discharge points represent a constant discharge. During the Operational Phase the current design requires two final effluent discharge points, one at the Water Management Pond and one at the Pinewood Pumphouse.	Ongoing
55	NG agrees to work with the MOECC to develop a mutually acceptable minimum flow threshold, below which water from the Pinewood River would not be taken to build up the initial water inventory to support processing plant startup operations. Subject to approval(s), NG is proposing spring and open water flow thresholds of 10,000 m3/d and 5,000 m3/d, respectively, below which direct water taking from the Pinewood River downstream of McCallum Creek, would temporarily cease until river flows recover. The application of such flow restrictions would be based on day to day prorated flow data obtained from Water Survey of Canada (WSC) Station 05PC023.	Complete. Thresholds have been agreed to through the Provincial environmental approvals process, including Permit to Take Water (PTTW) 8776-9W2QN3.	PTTW 8776-9W2QN3 valid from August 31, 2015 to November 20, 2018.

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
56	The appropriateness of the use of the WSC station will be assessed as part of the operations planning, and if this station appears unsuitable, a separate dedicated flow monitoring station will be set up, either independently, or in association with the WSC.	A dedicated station was established on the Pinewood River on October 9, 2015 in consultation with the MOECC.	Station installation completed October 9, 2015
57	Optimize the timing and positioning of final effluent discharges to the Pinewood River so as to limit the potential for adverse flow effects to the river.	In 2016, there were nine final effluent discharge locations obtained through the Environmental Canada Metal Mining Effluent notification process. These discharges are included under the RRP Permits to Take Water from the MOECC to regulate the volume of water. Water quality is measured at the discharge for both Federal and Provincial regulation limits.	Ongoing
58	Subject to approval(s), NG is proposing to operate the final effluent discharge from both the Constructed Wetland and the pipeline discharge from the Water Management Pond, such that a minimum 1:1 receiver to final effluent mixing ratio would be maintained in the Pinewood River, with the understanding that receiver to final effluent mixing ratios of greater than 1:1 would be the norm.	The Provincial ECA 5178-9TUPD9 received from the MOECC is consistent with this commitment. These permanent discharge locations were not used during 2016 as the project was still in the Construction Phase.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
59	NG commits to the discharge of effluents to the Pinewood River in a manner that will achieve rapid mixing within the river. If future operational monitoring shows that effective receiver mixing is not attained, NG commits to implement additional measures to enhance mixing to a level which is mutually acceptable to the MOECC and NG. Such additional measures could include the use of rock groynes placed on either side of the channel to force mid-channel mixing, and use of boulder clusters to increase flow turbulence within the mixing zone.	Not applicable during 2016 Construction Phase, however the installation of rock groynes has been discussed with the MNRF and New Gold RRP will be required to obtain appropriate permit approvals (LRIA) prior to installation planned for 2018.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
60	Scheduling of RRP development activities will consider environmental aspects, such as fish spawning.	All in water work is conducted in accordance with MNRF permitting requirements which prohibit in water work during fish spawning windows. Furthermore, activities that do require in water work creating a loss of fish habitat have been compensated for by the recreation of fish habitat under Fisheries and Oceans Canada Approvals. Over the past two years of construction New Gold has obtained licenses from the MNRF to relocate fish species that could be impacted by in water work in areas where the company is authorized regardless of timing of year. In regard to the breeding bird window no clearing of mature timber or thick brush is conducted between May 1 and August 31, 2016 to protect breeding birds. Should equipment need to access grassy areas during the window bird sweeps are conducted by trained staff to ensure that no ground nesting birds are present. In 2016, bird sweeps for nests began on April 1st in preparation for the breeding bird window. Efforts, including placing netting to deter birds from nesting on equipment and materials, were made prior to April 1st 2016 to discourage nesting. In the event that a nest is discovered an appropriate buffer was maintained around the structure or equipment and the timing of activities is re-scheduled until the nest was abandoned.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
61	A No Net Loss Plan and compensation strategy will be developed and implemented by NG to create new like-for-like habitats as project compensation and/or enhance existing restoration programs, to offset the RRP habitat losses.	The No Net Loss Plan and compensation strategy were finalized during 2015. Implementation was initiated during 2015 and continued in 2016, although the schedule for completion was delayed due to the changes in the construction schedule.	Ongoing
62	Except where aquatic habitat will be overprinted (and compensated for as part of DFO authorizations) for project development, a 120 m buffer zone will be maintained adjacent to rivers and creeks to the extent practical, to protect watercourses and their associated vegetated margins.	Buffer zones are maintained at water crossing by reducing tree clearing, grubbing and equipment access.	Ongoing
63	Fish flesh and fish organ tissue samples from the Pinewood River have been analyzed for metals for walleye and northern pike in the baseline condition. A commitment has been made to continue to monitoring metals in these two fish species after mine start-up. Should there be future evidence to show that fish are being taken from the Pinewood River on a more regular basis and prepared as a food source, NG would be pleased to work with these fishermen to collect and analyze a reasonable sampling to reflect any applied methods of food preparation.	In 2016, the RRP Fish Tissue Monitoring Program fish collection was conducted from September 19th to 24th. Fish communities and catchability for walleye and northern pike were generally consistent with the results of previous sampling efforts. The report found that the RRP has not had any influence on the concentrations of metals in muscle and liver tissues of the sentinel fish species. The 2016 report was finalized March 2017.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
64	Fish tissue (dorsal muscle tissue and livers) sampling will include both northern pike and walleye. If contaminant concentrations increase over time, potential consumers and the applicable Provincial departments (MOECC and MNRF) would be informed and information related to increased health risks (if any) would be provided, as suggested.	Tissue sampling program was initiated in 2015, continued in 2016 and will continue in 2017. As above both northern pike and walleye were included in the studies. The 2016 report was finalized March 2017. To date there has been no effluent discharge from the constructed wetland to the Pinewood River and the reports have indicated that the RRP has not had any influence on the concentrations of metals in muscle and liver tissues of the fish. There has been no indication of increasing contaminant concentrations. The study will continue to be conducted on an annual basis and if contaminants increase over time New Gold will disclose this information to fulfill this commitment.	Ongoing
65	Specific erosion and sediment control measures and their locations will be provided in the permit application documents once detailed design is completed to avoid direct impacts to fish during the mine construction phase.	Erosion and sediment control measures were provided in the various environmental approval applications, as applicable during 2016, including applications for approval under the *Lakes and River Improvement Act* and *Environmental Protection Act*. New Gold RRP implements erosion control measures through construction contracts, on site consulting assistance, regular inspections and field observations and installing temporary erosion control products where necessary.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
66	Pond dams will be inspected at a regular interval by site employees for any visible signs of concern and particularly during and after major storm events. They will also be inspected periodically by a qualified geotechnical engineer at an interval that meets regulatory requirements at a minimum.	Not applicable as the pond dams were not fully constructed in 2016. Inspection frequencies and standardized inspection record sheets are included in the Operation, Maintenance and Surveillance Manual (OMS Manual) for the RRP. As the dams on the site are commissioned, the inspections will be completed as per this commitment and the OMS Manual.	N/A
67	Surface water: to be monitored during construction, operations and active closure phases, with post active closure monitoring expected to continue for a decade (or more) at reduced frequencies pending ongoing analysis of data	Environmental monitoring was ongoing during 2016, consistent with all environmental approvals, environmental commitments and site management practices. Monthly surface water quality summaries are submitted to the MOECC as per ECA requirements.	Ongoing
68	Proposed (subject to modification to ensure participation and data sharing is adequate to meet the expectations of Aboriginal groups) surface water sampling program would include a First Nation training component followed by a rotating schedule whereby a First Nation representative would accompany NG staff on the monthly surface water sampling program. Laboratory results will be received by NG, reviewed and submitted to the identified individuals of each participating First Nation along with a summary explanation.	This program has not yet been fully instituted as yet. A preliminary training program took place in 2014 with the following participating: Couchiching, Naicatchewenin, Big Grassy River and Seine River First Nations (although all 16 First Nation communities were invited to participate). The Big Grassy River First Nation Environmental representative has been actively engaged with environmental monitoring at the site. Environmental Monitoring Boards with Aboriginal Groups were also established in 2016. The proposed program will be discussed at these boards.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
69	Sampling of sediments will take place to evaluate soil quality parameters prior to undertaking any further closure activities for any contact water ponds and drainage works (including stockpile sediment ponds) where breaching is proposed.	A Topsoil Sampling Program was completed in 2016 which included a chemical analysis of soil to be used for closure and reclamation activities. The report identified best case topsoil harvesting locations and provided information on the topsoil in Overall Benefit Lands. Additional sampling programs will be conducted as required.	Ongoing
70	NG staff is willing to describe the ongoing water quality program and provide freshet data on request. The water management plan for the RRP provides for the management of all site contact waters in accordance with accepted industry standards including periods of high runoff, and sequences of high precipitation years.	No requests were made in 2016.	Ongoing
71	There will be no sediment ponds associated with the aggregate pit(s).	There were no sediment ponds associated with the Roen Road Pit or Outcrop 3 during 2016. There is one sediment pond located adjacent to Outcrop 3 that is used to capture runoff from the equipment laydown. During the detailed design stage it was determined that a settling pond may be required to ensure high quality effluent from the Tait Quarry (to allow for ammonia degradation in situ and settling of suspended solids) and Provincial environmental approvals were obtained for this structure; however, the quarry did not generate water during 2016 and the sump was not needed.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
72	Related to the transmission line: • Tree stumps, root mats and ground vegetation cover will be left intact to reduce the potential for surface erosion and to help maintain groundcover for plant and wildlife habitat; • Vegetation (shrub) screens will be left to the extent practical along the single creek crossing that exists between Beadle and Preachers Lake, near the east end of the alignment, for erosion protection, while ensuring clearance requirements for conductors; • No in-water work will be conducted and all poles will be placed above the high water mark; • Industry standard sediment interception and erosion control practices will be applied wherever appropriate / needed; • Should any erosion of the ground be identified at the end of the construction period (or during any intervening inspections), the exposed area would be re-seeded or otherwise stabilized to control erosion until native vegetation takes hold. If the erosion is more severe, other methods such as placement of straw matting or equivalent will be used; • Where required in larger quantities, construction materials will be stored a minimum distance of 200 m from any open (non-frozen) surface water, and from major access points; and • Fueling and maintenance of vehicles will not occur within 50 m of surface waterbodies.	Clearing of the transmission line right of was initiated during November 2015 with construction completed in April 2016. To ensure that all of the commitments are understood and followed, New Gold RRP conducted routine inspections and attended weekly construction meetings with the contractor.	Transmission Line Clearing Completed April 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
73	As a result of the independent First Nation review of the Final Environmental Assessment report, NG committed to a joint water quality monitoring and reporting program with the area First Nations (including Big Grassy River First Nation; BGRFN) as part of the existing monthly water quality monitoring program which is currently carried out by NG. The program will be funded by NG and form an integral part of the overall environmental management program as it relates to First Nations traditional knowledge and assurances of maintaining water quality and by extension, aquatic biota protection. The program will be developed jointly with the First Nations in lead-up to the initiation of mine construction. (Letter to Chiefs from Kyle Stanfield, October 2013).	This program has not yet been fully instituted as yet. A preliminary training program took place in 2014 with the following participating: Couchiching, Naicatchewenin, Big Grassy River and Seine River First Nations (although all 16 First Nation communities were invited to participate). The Big Grassy River First Nation Environmental representative has been actively engaged with environmental monitoring at the site throughout 2016. Environmental Monitoring Boards were also established in 2016. The proposed program will be discussed at these boards.	Ongoing
74	NG has committed to provide a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally impacted waterways.	New Gold RRP has a Participation Agreement with Rainy River First Nations. This program will be instituted in the future through the Environmental Monitoring Board.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
75	To help limit the exposure of potentially acid generating materials to this base drainage through the former Clark Creek channel zone, a layer of non-potentially acid generating rock will be placed in the former creek channel bed area.	Not applicable as Clark Creek continued to flow through its native channel during 2016 and the PAG dump was not established.	N/A
76	Groundwater: to be monitored during construction, operations and active closure phases, with post active closure monitoring expected to continue for a decade (or more) at reduced frequencies pending ongoing analysis of data.	Groundwater wells were monitored throughout 2016, four times each, if not frozen.	Ongoing
77	A groundwater level (flow) and quality monitoring program of regular sampling and dipping of dedicated monitoring wells will be implemented to confirm that no area wells are affected by the mine. Furthermore, local well owners will be asked to participate in a well water quality program to monitor water quality in their wells.	Site Groundwater wells were monitored for levels and water quality four times each, when not frozen, in 2016. Data from 2016 was added to the Site Groundwater Database and reviewed for trends to quantify effects of dewatering and other RRP activities. The Offsite Groundwater Well Monitoring Program was drafted in 2016 for release in 2017.	Ongoing
78	If water quality or availability in local wells is compromised (by the RRP), NG is obligated to replace the system or offer water treatment systems to rectify issues related to water quality or availability shown to be caused by the mine.	There were no impacts of the RRP on local offsite wells in 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
79	If local artesian wells stop flowing (related to the RRP), NG will need to provide and install a pump to replace the artesian flow used by the homeowner.	There were no impacts of the RRP on local offsite wells in 2016.	Ongoing
80	A number of groundwater monitoring wells will be placed around the TMA and east mine rock stockpile and pond areas, as shown in Figure 13-3 of the Final EA Report. This groundwater monitoring network may be amended or expanded through the MOECC approvals process. Water levels in these monitoring wells will be measured continuously with data downloaded semi-annually. Groundwater samples will be collected quarterly, as described in Section 13.6 of the Final EA Report.	Installation of additional groundwater monitoring wells was initiated during 2015 and completed in 2016 in accordance with Provincial approval requirements. Groundwater wells were sampled four times each, if not frozen, during 2016. The program started in early 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
81	Mitigation measures that will be used to reduce potential effects on groundwater include the following: • Returning captured groundwater indirectly to the Pinewood River (after treatment and testing if necessary) during the period of mine operations to minimize potential flow effects to the river, especially during naturally occurring, low flow conditions; • Using in-plant SO2/Air treatment for cyanide destruction and heavy metal precipitation to optimize the quality of groundwater seepage associated with the TMA during operations and following mine closure; • Managing the site for ARD control, both during operations and following closure to prevent adverse water quality impacts to the Pinewood River, including that associated with any groundwater seepage; • Accelerating open pit inflow following mine closure, to the extent practicable, balancing the need for managing water quality and maintaining Pinewood River flows over the interim period until the pit can be completely flooded; and • Implementing a monitoring plan for water levels, water quality and flow discharges, and receiving water aquatic life and habitat maintenance.	The continued operation and construction of the RRP specific to the water management is consistent with this commitment: • Water from dewatering activities is treated, if required, to meet effluent quality regulations and released at licensed discharge locations. • The RRP is not yet in operation, therefore cyanide destruction is not applicable at this time • ARD is being managed in the PAG dump as committed to. Runoff from the PAG dump during 2016 reported to the Temporary Mine Rock Polishing Ponds, was treated as required, tested to meet effluent regulations and discharged to the environment. • The RRP is still in the Construction Phase therefore the requirements for mine closure are not applicable at this time. • Both Surface Water and Groundwater Monitoring Plans have been implemented and in place during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
82	Monitoring of key terrestrial systems and Species at Risk (SAR) will occur during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements.	Monitoring of terrestrial systems and SAR during 2016 was compliant with environmental approvals and monitoring plan requirements. During 2015 New Gold RRP implemented a site wide wildlife monitoring program that allows employees and contractors to report any wildlife sightings on the project. Education regarding SAR is provided during site orientation. During the spring months experienced ornithologists visit the site to complete SAR bird species monitoring. During fall 2016, a Deer Tissue monitoring program was implemented to study contaminant loadings in tissue.	SAR Bird Studies conducted in May and June 2016. Reporting on SAR and Wildlife Monitoring is completed as required as per condition 7.2(a) of Permit FF-C-001-14 under the Endangered Species Act was sent to MNRF.
83	Puffballs: NG and AMEC would be happy to receive photos and/or samples of this species and have AMEC experts identify it. If AMEC experts are unable to identify the species they will consult with staff at the Royal Ontario Museum or the Canadian Museum of Nature.	Complete. Samples were submitted to the Royal Ontario Museum and confirmed as common species. This information was provided to the resident. No further samples have been provided or discovered.	December 11, 2014

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
84	Rare plant surveys are proposed to be carried out along portions of the preferred transmission line corridor in late Spring / early Summer, 2014. Prior to transmission line construction, additional data collection will be undertaken for that portion of the proposed transmission line routing (Alternative A) west of Highway 71, where there is a baseline data gap for rare plants surveys. This additional data collection will be undertaken to support transmission line permitting, and would consist of the following activities, spread across a 2 km corridor (1 km on either side the transmission line): transect surveys for vegetation communities including surveys targeting the presence of rare plant species. Results will be made available to MNRF once the report is complete and the report will be referred to in the Errata.	Complete. Surveys were completed during 2014 and a report issued. The report was referred to in the issued Errata for the EIS / EA Report.	September 19, 2014

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
85	The principal mitigation measures that are proposed to limit short and long term adverse effects to local vegetation communities include: • Minimizing dust production along primary mine rock and overburden transportation routes by implementing dust suppression methods and thereby minimizing the zone of influence. Primary dust suppression methods will include road watering. • Annual monitoring of dust deposition on vegetation adjacent to mine roads; and • Active revegetation and encouragement of natural revegetation / recolonization of disturbed areas as part of progressive reclamation during operation and active reclamation at mine closure.	These mitigate measures have been in place since 2015 as applicable, including the use of water and calcium for dust suppression on roads. During the spring and summer of 2016 New Gold RRP also started to revegetate disturbed areas using native seed mixes and planting willows, dogwood, eastern white cedar, cattails and white pine.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
86	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season; • Vegetation removal will be reduced to the extent necessary to support construction activities and longer-term transmission line reliability (from interference with conductors and fall of adjacent hazard trees). Minimizing vegetation removal includes retaining existing low vegetation ground cover; • Access to the right of way (ROW) will be provided from existing infrastructure (some of which may need to be upgraded, as reasonable for personnel, material and equipment access), but no new permanent access roads are proposed. Generally, where access is poor, the ROW will be accessed along the ROW itself. Construction vehicles will not be allowed to travel through surface waters; and • Mechanical means will be used for periodic vegetation height maintenance along the transmission line, instead of herbicides.	Studies were completed during 2014 and the detailed design and construction plans are consistent with this commitment. Clearing of the transmission line right of way occurred in late November 2015 and the transmission line clearing was completed in April 2016. Some existing access roads required upgrading by adding road bedding material but no new roads were constructed.	Completed

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
87	Scheduling of RRP development activities will consider environmental aspects. Clearing of forests having a density of at least 10 cavity trees per hectare with a diameter at breast height greater than 25 cm will be limited to outside of the bat roosting season (April 1 to November 15) unless cleared by a bat biologist that has surveyed the trees for bat activity. Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	The schedule of RRP construction activities during 2016 were consistent with this commitment. There was no tree clearing at all during May 1 to August 15. Clearing of the transmission line right of way was initiated in late November 2015 and completed by April 2016. The trees in the RRP area were surveyed by a bat biologist for bat activity. The trees to be cleared in the RRP area did not qualify for bat habitat.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
88	Wildlife awareness information will be included in regular safety and environmental inductions performed by the mine, along with SAR identification and sensitivities, permit conditions and cultural awareness. Wildlife sighting logs or information boards will be installed to notify workers of local bear, wolf or other large mammal or furbearer observations. Workers and contractors will be made aware of seasonal changes in local mammal behaviour or presence in proximity to the mine. Food wastes generated on site will be managed in a manner that limits the attraction of wildlife, such as Black Bear.	In 2015 New Gold RRP incorporated wildlife awareness, avoidance and SAR information to the site orientation that is still delivered to all employees and contractors. Also during 2015 a no tolerance policy was implemented related to feeding and harassing wildlife onsite. This policy remains in effect. Regular site wide radio announcements remind employees about the importance of following this policy as well as reporting wildlife sightings. During 2016 New Gold RRP advanced the onsite wildlife reporting procedure and document sightings are recorded in a GIS based mapping program. The program allows visual representation on a site map in real time where sightings have been reported. This information is helpful in answering a number of scientific questions related to wildlife adaptation.	Implemented in 2015 and improved in 2016. Ongoing
89	All staff and contractors will be provided with training in animal encounters as part of the site orientation process.	The site orientation program includes information regarding wildlife awareness and wildlife encounters. Wildlife awareness information is also provided on an ongoing basis during field-based inspections of construction areas, in toolbox morning meetings and during morning radio announcements.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
90	Road-killed animals or any other carcasses found onsite will be removed in a timely manner to limit the attraction of wildlife.	The limited number of road-killed animals / carcasses found within the RRP during 2016 were disposed of in an area of the project site with limited to no human interaction or buried (depending on the circumstance and animal).	Ongoing
91	A wildlife monitoring program will record the efficacy of these avoidance measures (will evaluate the effectiveness of the methods implemented) and annual reporting to EC and the MNRF will provide the information requested by the reviewer. New Gold will provide opportunities to Aboriginal groups to receive the annual reports.	In February 2016 a final version of the Wildlife Monitoring Program for the project was submitted to MNRF. During 2016, aspects of the program were implemented including a dear tissue sampling program to assess natural metal accumulation in organ tissue. Opportunity to consult on wildlife monitoring conducted onsite was included during community meetings where presentations were made to Environmental Committee Members and Aboriginal Community as a whole. The presentations were made by New Gold on all environmental monitoring conducted, including wildlife monitoring, to Aboriginal groups during 2016. After presentations Aboriginal groups asked questions and were provided with the presentation and meeting minutes. During 2016, Aboriginal groups were provided with the opportunity to participate in the Deer Tissue Collection Program and were provided with a background of the wildlife monitoring and the tissue programs. The Fish Tissue Monitoring 2015 report was provided to communities for consultation during 2016 specifically on the type of fish that were consumed and of interest. Input was received and the 2016 Fish Tissue Program was adjusted. Aboriginal communities were visited and met with regularly throughout 2016, please refer to Appendix E for the record of Aboriginal consultation.	Wildlife Monitoring Program Submissions to MNRF are as follows; Version 1; January 22, 2015, Version 2; April 20, 2015; Version 3; July 9, 2015, Version 4; July 30, 2015, Version 5; February 3, 2016 (final). Presentations on Environmental Monitoring: November 22, 2016 November 23, 2016 November 25, 2016 December 1, 2016 December 7, 2016 December 21, 2016, and, January 21, 2017

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
92	A more detailed wildlife follow-up monitoring plan will be developed through consultation with the MNRF and EC. As suggested by the reviewer, additional control sites around the periphery of the mine footprint can be developed and monitored following mine construction and periodically throughout mine operations. A draft plan will be issued to MNRF and EC prior to commencement of construction. NG will provide opportunities to Aboriginal groups to participate in the development of the plan.	In February 2016 a final version of the Wildlife Monitoring Program for the project was submitted to MNRF. During 2016, aspects of the program were implemented including a dear tissue sampling program to assess natural metal accumulation in organ tissue. Opportunity to consult on wildlife monitoring conducted onsite was included during community meetings where presentations were made to Environmental Committee Members and Aboriginal Community as a whole. The presentations were made by New Gold on all environmental monitoring conducted, including wildlife monitoring, to Aboriginal groups during 2016. After presentations Aboriginal groups asked questions and were provided with the presentation and meeting minutes. During 2016, Aboriginal groups were provided with the opportunity to participate in the Deer Tissue Collection Program and were provided with a background of the wildlife monitoring and the tissue programs. The Fish Tissue Monitoring 2015 report was provided to communities for consultation during 2016 specifically on the type of fish that were consumed and of interest. Input was received and the 2016 Fish Tissue Program was adjusted. Aboriginal communities were visited and met with regularly throughout 2016, please refer to Appendix E for the record of Aboriginal consultation.	Wildlife Monitoring Program Submissions to MNRF are as follows; Version 1; January 22, 2015, Version 2; April 20, 2015; Version 3; July 9, 2015, Version 4; July 30, 2015, Version 5; February 3, 2016 (final). Presentations on Environmental Monitoring: November 22, 2016 November 23, 2016 November 25, 2016 December 1, 2016 December 7, 2016 December 21, 2016, and, January 21, 2017

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
93	The use of exclusion fencing for reptiles and amphibians will be added as a mitigation measure during construction and operations. The placement of fencing will be decided upon through consultation with the MNRF and EC.	The use of exclusion fencing for reptiles and amphibians was considered during 2016, but during 2016 construction activities there was no apparent conflict and it was not considered needed. New Gold RRP obtains a scientific research license from MNRF each year which allows for the relocation of reptiles and amphibians that may be impacted by activities on site. During 2016 one snapping turtle required relocation from the Plant Site to a designated area outside of the project footprint.	Ongoing
94	In regards to the transmission line: • Construction crews will be advised not to interfere with or harass wildlife. No hunting or fishing by construction crews will be allowed. Disciplinary actions will be taken should either occur; • Contractors will be required to handle food and food wastes in a responsible manner, and to educate workers to ensure no feeding of wildlife; and • Should any nuisance wildlife be encountered which pose a risk to construction crews, the MNRF will be contacted for direction.	Construction of the transmission line was initiated in late 2015 and completed in April 2016. All Environmental permits, approvals and commitments related to the transmission line contract were communicated to the contractor during an environmental kick off meeting in November 2015. During the construction of the transmission line New Gold's RRP Environmental department conducted regular inspections of the site to ensure these commitments were being followed.	Construction Completed April 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
95	The primary mitigation strategies for limiting adverse effects to wildlife will include: • Preventing hunting from occurring on all lands owned by NG (required for the safety of workers; this is currently ongoing during exploration as well); • Maintenance to the extent practical of a 120 m buffer zone adjacent to rivers and creeks to protect watercourses and their associated vegetated margins; • Restoration of disturbed habitats at closure, including the development of habitats capable of supporting a diversity of wildlife species, including ungulates, large predators, furbearers and bats; • Enforcement of speed limits along proposed mine access roads to reduce the potential for collisions with ungulates. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Workers and contractors will be made aware of seasonal changes in local deer or large mammal behaviour or presence in proximity to the mine. Workers and contractors will be made aware of seasonal changes in local mammal behaviour or presence in proximity to the mine;	The following mitigation strategies applied to the 2016 construction year; Hunting did not occur on site except for required trapping of nuisance beavers. Buffer zones were maintained around fish bearing waterways and where necessary temporary erosion control products were installed. New Gold RRP has installed speed limit signs on project roads have implemented a site wide no tolerance policy for speeding which is enforced by radar. In 2016 wildlife crossing signs were installed at six locations on the project site in an attempt to reduce vehicle collisions with wildlife. Regular bulletins regarding wildlife are emailed and posted on site. Wildlife awareness training is provided to all contractors and employees during site orientation.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
95 cont	• Treatment of the tailings slurry to levels equal to or less than 1 mg/L weak acid dissociable cyanide before deposition in the TMA (which is well below the 50 mg/L weak acid dissociable cyanide threshold criteria outlined by the International Cyanide Management Code); • Fencing the TMA to prevent access; • Covering the exposed tailings beach at closure with a layer of overburden and flooding the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond waters remain of high quality, such that they will not pose a threat to wildlife. The margins of the tailings pond will develop as wetland habitat; • Minimizing dust production along primary haulage routes by implementing dust suppression methods and thereby minimizing the RRP zone of influence; and • Disposing of food wastes generated on site in a manner that limit the attraction of wildlife, such as Black Bear and wolves.	Milling is scheduled to commence in 2017 at which time tailings will be produced and require treatment. At this time fencing of the TMA will be implemented. Dust is managed along haul roads using water and calcium. In late 2015 a Waste Management Program was implemented on site which included the hiring of a Waste Management Technician to implement the program. In 2016 the program was refined to better manage waste on the RRP. All general waste bins have locking lids and a regular disposal schedule has been established to reduce the amount of waste being temporarily stored on site. Special Bear Bins have also been installed to limit wildlife interaction with RRP waste.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
96	Mitigation measures that will be used to reduce potential adverse effects to amphibians will include the following: • Development of a compact RRP site to reduce overall habitat loss and to limit potential adverse effects related to sound emissions to the extent practical; • Restricting the clearing of terrestrial amphibian breeding habitats to periods outside the amphibian breeding season as directed by the MNRF; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Enforcement of speed limits along proposed mine access roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • If frog mortality on roadways is found to be a problem along mine access roads or the re aligned Highway 600, silt fencing may be installed to prevent frogs from crossing the road and may direct them to the nearest culvert(s);	During the planning state of the project consideration into the size of the project site was taken into consideration and achieved as best possible. During the spring and summer clearing restrictions are in place to protect both amphibians and birds. Noise monitoring is conducted and large equipment in the open pit is maintained to reduce sound emissions. In 2015 New Gold RRP implemented and in 2016 continued site wide speed limits and a no tolerance to speeding policy which remains in effect. Wildlife crossing signs were also installed during 2016 on project roadways known for high concentrations of wildlife. Visual observations made along project roadways did not show and increase in frog mortality however a more regular monitoring program will be implemented in 2017.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
96 cont	• Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Workers and contractors should continually be made aware of seasonal changes in local wildlife behaviour or presence in proximity to the mine; • Treatment of tailings slurry containing cyanide and associated heavy metals from the ore leaching process in the process plant using the SO2/Air process before being discharged to the TMA; • Discharge of effluent that will result in protection of aquatic life standards in the Pinewood River so that no adverse water quality effects to amphibians are anticipated; • Maintenance of generally abiotic conditions within the TMA to discourage wildlife presence; and • Covering the exposed tailings beach at closure with a layer of overburden and flooding the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond waters remain of high quality such that they will not pose a threat to wildlife. Margins of the tailings pond will be developed into wetland habitat.	Wildlife awareness training is provided to all contractors and employees during site orientation. Bulletins and radio announcements regarding wildlife awareness are made throughout the year. 2016 was the second year of construction on the project and the TMA and Mill were nonoperational therefore there are currently no tailings to treat or manage. As the project advances these factors will come into effect in the later part of 2017.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
97	Generally abiotic conditions will be created within the fenced TMA during operations to limit the interest of the pond to waterfowl.	2016 was the second year of construction on the project and the TMA and Mill were non-operational therefore there are currently no tailings to treat or manage. As the project advances these factors will come into effect in the later part of 2017.	N/A
98	Scheduling of RRP development activities will consider environmental aspects, such as fish spawning and bird nesting seasons. Tree and woodland clearing will be restricted to periods outside of the breeding bird season (May 1 to August 15). Clearing or modification of known Trumpeter Swan breeding habitat will be restricted to outside the breeding season (March 15 to August 15).	All scheduling of site activities during 2016 was in full consideration of environmental aspects and no known timing conflicts occurred.	Ongoing
99	A monitoring plan will be developed for Common Nighthawk and Eastern Whip-poor-will, in partnership with the MNRF, EC and interested First Nation Communities including the standardized information suggested well as a mortality trigger that will be decided upon during consultation with the MNRF and EC, and in consideration of conditions under the Net Benefit Permit being developed by the MNRF.	A monitoring plan was developed and implemented during 2015 and 2016 respectively, in accordance with ESA FF-C-001-14.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
100	Breeding bird surveys are proposed to be carried out along portions of the preferred transmission line corridor in late Spring / early Summer, 2014. Prior to transmission line construction, additional data collection will be undertaken for that portion of the proposed transmission line routing (Alternative A) west of Highway 71, where there is a baseline data gap for breeding bird surveys. This additional data collection will be undertaken to support transmission line permitting, and would consist of point count surveys for breeding birds between late May and early July, spread across a 2 km corridor (1 km on either side the transmission line). Results will be made available to MNRF once the report is complete. NG will provide opportunities to Aboriginal groups to receive the survey results.	Complete	September 19, 2014

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
101	The primary mitigation strategies for limiting adverse effects to birds and habitat: • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Wildlife sighting logs or information boards will be installed to notify workers of local observations. Workers will be made aware of seasonal changes in local animal behaviour or presence in proximity to the mine; • Minimizing the level of potentially disturbing activities near any known or subsequently discovered active raptor and raven nest sites until the nest is vacated; • Annual monitoring of the Bald Eagle nest in Woodland 122 to determine seasonal eagle activity at the nest site which will guide RRP activities occurring in proximity to the nest. Should eagles continue to use the nest site and raise offspring, work will be adjusted appropriately to reduce adverse effects to the breeding success of the local pair; • Maintenance of a safe distance between RRP activities and the nest as well as maintenance of landscape buffer areas (preferably forested or natural) between the activity and nest trees. To avoid disturbing nesting Bald Eagles, no buffer is necessary around nest sites outside of the breeding season once the juvenile eagles are known to have vacated the defined significant wildlife habitat; • Limiting less typical activities in proximity to the nest site during the nest building and breeding season. The local eagle pair appears tolerant of agricultural activities and road grading;	The following mitigation strategies for limiting adverse effects on birds and habitat were implemented during 2016; Inclusion of wildlife awareness information in site wide health and safety bulletins and employee orientation has been implemented since 2015. Wildlife logs have been placed in lunch rooms and a site wide protocol is in place to report wildlife sightings to the security department via radio communication. Bear awareness training was also provided to interested staff in 2016. In 2016 an eagle's nest was discovered in the north west portion of the property in an area of overall benefit land (no construction). This is the second nest that has been documented on site. Both of these nests are also in areas that will not be subject to tree clearing.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
101 cont	• Environmental induction programs and ongoing environmental updates provided to workers will make them aware of Bald Eagle nesting activities prior to the commencement of new or irregular activities in proximity to an active eagle nest (within 500 m), and having them observe proper protocol in order to avoid disturbance during these activities; • Restriction of tree and woodland clearing to periods outside of the breeding bird season which extends between May 1 and August 15; • Protection of suitable breeding habitat as a result of the provision of compensatory habitat for species protected under the Endangered Species Act; • Restoration of disturbed habitats at closure to habitats capable of supporting a diversity of wildlife species; • Implementation of sound abatement strategies; • Enforcement of speed limits along proposed mine access roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;	Since the start of construction in 2015 New Gold has been implementing a no tree cutting policy during the breeding bird window. The project has also installed speed limit signs on project roads and has implemented a radar system for speeding. In the summer of 2016 wildlife crossing signs were installed at six locations on the project site to help reduce the potential for vehicle collisions with wildlife. Monitoring logs of reported wildlife collisions have been kept although there is room to improve on the reporting strategy as not all small animals (ie; skunks) are reported. By the end of 2016 there were two reported Bald Eagle's nests within the project boundary but not within the infrastructure footprint.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
101 cont	• Restrictions to clearing or modification of known Trumpeter Swan breeding habitat to outside the breeding season (March 15 to August 15) to prevent the disturbance of nesting swans or impact the likelihood of cygnet survival; • Disposing of food wastes generated on site in an appropriate manner that limits the attraction of wildlife, including Common Ravens, Turkey Vultures and Bald Eagles; • Timely removal of carcasses of road-killed animals or any other carcasses found onsite to limit the attraction of wildlife, such as Common Ravens and Turkey Vultures; and • Treatment of tailings slurry containing cyanide and associated heavy metals from the ore leaching process in the process plant using the SO2/Air process before being discharged to the TMA; and • Creation of generally abiotic conditions within the fenced TMA during operations to limit the interest of the pond to waterfowl.	The mitigation strategies listed above were implemented during 2016, with the exception of aspects related to the TMA and tailing slurries. The TMA and tailings slurry mitigation strategies were not applicable as the project was in the Construction Phase in 2016 and the TMA and Mill were not constructed.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
102	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Tree clearing to take place outside of the breeding bird nesting season, defined as the period from May 1 to July 31; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season; • Direct impacts to raptor nesting areas will be avoided. There are currently no stick nests on or near the proposed ROW. Should any stick nests be identified during construction, the area will be avoided until a qualified avian biologist can be contacted for direction; • Conductor wire separation distances will be sufficiently far apart to preclude larger avian species, particularly raptors which frequently use hydro pole for perching or nesting, from electrocution by contacting two conductor wires simultaneously;	Construction of the transmission line was initiated in late 2015 and completed in April 2016 to ensure no impact to birds and limited impact to understory vegetation: Prior to and during the construction period no sticks nests were identified. A vegetation and breeding bird survey was conducted by qualified biologists during 2014 and no rare plants were identified in the construction area. The separation of conductor wires was reviewed during the design of the hydro line to ensure spacing distance was adequate.	Completed April 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
102 cont	• Construction crews will be advised not to interfere with or harass wildlife. No hunting or fishing by construction crews will be allowed. Disciplinary actions will be taken should either occur; and • Contractors will be required to handle food and food wastes in a responsible manner, and to educate workers to ensure no feeding of wildlife.	During the 2016 construction phase of the transmission line regular meetings were held with the contractor as well as regular site inspections to ensure that all commitments were being met. There were no cases of hunting, fishing or feeding wildlife observed. The survey team that was working on the project did frequently report wildlife sightings of timber wolves to New Gold RRP.	Completed April 2016
103	The site will be rendered suitable for other compatible land uses and functions after the mine has closed and the land has been reclaimed. NG will encourage and, as practical, actively restore the RRP site to productive, naturalized vegetation communities on cessation of mining capable of supporting a diversity of wildlife species. RRP revegetation efforts at closure will include providing suitable habitat for SAR species, most notably whip-poor-will, and other species of interest, if practical.	This commitment is applicable during the mine closure planning phase and will be implemented post mine closure.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
104	The RRP footprint has been altered through consultation with the MNRF in order to further avoid known whip-poor-will territories where feasible, including maintenance of forest buffers between RRP components and whip-poor-will nesting and foraging habitat where practical. Provide compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat. Where feasible, manage site lighting fixtures to reduce excess light production near whip-poor-will foraging areas, so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered).	Private land habitat and compensation land has been provided in accordance with the Provincial ESA permit ESA FF-C-001-14 since the start of construction. Site environmental inspections address location and use of light plants as possible while maintaining site safety aspects.	Ongoing
105	NG will implement a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas. Continue funding external research programs in collaboration with the MNRF in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the Endangered Species Act permit.	A monitoring plan was developed in 2015 and implemented as needed during 2015 and 2016 in accordance with ESA FF-C-001-14. New Gold RRP will fund a separate / independent research program as a requirement and in accordance with the ESA permit although there was not a program in place during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
106	NG will implement a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas - developed through consultation with the MNRF. Acquire and protect compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRP development.	Private land habitat and compensation land has been provided in accordance with the Provincial ESA permit ESA FF-C-001-14 since the start of construction.	Ongoing
107	NG will identify Barn Swallow nesting colonies prior to mine construction. Establish zones where Barn Swallow colonization is desired, tolerated or not wanted. Create artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed. Implement a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	Four artificial nesting structures were put in place in April 2015, prior to the 2015 breeding season. During 2016, the artificial structures were monitored. In 2016, one of the nesting structures was utilized. There were some cases of barn swallows and nests being identified within construction areas. These cases were treated by isolating work areas and stopping work until the eggs had hatched and the birds had abandoned the nest.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
108	Where feasible, RRP lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment (for Common Nighthawk and Short-eared Owl).	Site environmental inspections address location and use of light plants when possible while maintaining site safety aspects.	Ongoing
109	Monitoring of key terrestrial systems and SAR: during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements.	Annual SAR monitoring has been implemented on site since the EA baseline research studies. The SAR permit No. FF-C-001-14 for the project was issued in November 2014 and the following spring SAR monitoring commenced in accordance with the permit. The MNRF and EC have received two annual monitoring reports. As the project advances opportunities for habitat development post closure will be examined.	Completed 2016 and Annual SAR monitoring report submitted to MNRF and EC January 13, 2017

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
110	Mitigation measures that will be used to reduce potential adverse effects to Eastern Whip-poor-will will include the following: • Provision of compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat; • Restricting the clearing of habitats to periods outside the breeding bird season which occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, management of site lighting fixtures to reduce excess light production near whip-poor-will foraging areas so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered); • Maintenance of forest buffers between RRP components and whip-poor-will nesting and foraging habitat where practical; • Management of dust through dust suppression activities (best management practices); • Enforcement of speed limits along mine-controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;	These measures were implemented during 2015 and continued during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
110 cont	• Environmental induction of RRP personnel, including SAR identification and sensitivities, and knowledge of Endangered Species Act permit conditions; • Implementation of a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas; and • Continue funding external research programs in collaboration with the MNRF in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the Endangered Species Act permit.	These measures were implemented during 2016. New Gold RRP will fund a separate / independent research program as a requirement and in accordance with the ESA permit.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
111	The primary mitigation strategies for limiting adverse effects to Bobolink will include: Restricting the development of open country habitats to periods outside the breeding bird season which occurs from May 1 to July 31; • Acquiring and protecting compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRP development; • Enforcement of speed limits along mine controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Environmental induction of RRP personnel, including SAR identification and sensitivities and knowledge of Endangered Species Act permit conditions; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Restoration of disturbed habitats at mine closure or encouraging development of habitats capable of supporting Bobolink and other open country species; and • Implementation of a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas.	Since the start of construction New Gold RRP has implemented the mitigation strategies listed in this condition on site.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
112	Mitigation measures that will be used to reduce potential adverse effects to Barn Swallows will include the following: • Identification of Barn Swallow nesting colonies prior to mine construction; • Restricting habitat displacement for mine infrastructure to periods outside the breeding bird season which occurs from May 1 to August 15; • Creation of artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed; • Restoration of disturbed habitats at closure or encouraging development of habitats capable of providing suitable Barn Swallow foraging habitat; • Sound abatement strategies will be implemented to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Establishment of zones where Barn Swallow colonization is desired, tolerated or not wanted. These measures may be necessary to prevent colonization in areas of high human or vehicular activity that would put swallows and swallow breeding success at risk or where order and cleanliness are desired. In this case, discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to swallows nesting in other locations where their presence is encouraged and does not cause problems to mine operations;	The RRP began to monitoring barn swallows within the project prior to the construction phase (pre 2015) and implemented four artificial nesting structures in 2015 prior to the breeding season to offset the removal of existing farm structures. Monitoring of the success of the nesting structures has been completed over the past two years. 2016 was the first year that nesting has occurred in one of the structures. As the project advances toward operations the need to establish zones where barn swallow colonization is desired, tolerated or not wanted will be taken into consideration as well as the need to provide additional nesting structures.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
112 cont	• Enforcement of speed limits along mine controlled roads to reduce potential adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; and • Implementation of a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	In 2015 New Gold RRP installed speed limit signs on project roads and implemented a policy for speeding on site. In 2016 as vehicle traffic increased, radar detection was implemented on site to reduce; i) safety incidents, ii) reduce collisions with wildlife, iii) reduce dust. A collision log was kept of all collisions as well. Wildlife crossing signs were also installed in the summer of 2016 on project roads.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
113	Mitigation measures that will be used to reduce potential adverse effects to all species of Special Concern and Provincially rare species will include the following: • Restriction of principal habitat displacement for mine infrastructure to periods outside the breeding bird season which MNRF has indicated occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, RRP lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment. • Establishment of zones where Black-billed Magpie colonization is desired, tolerated, or not wanted. These measures may be necessary to prevent colonization in areas of high human vehicular activity that could put magpie and magpie breeding success at risk. Discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to magpies nesting in other locations where their presence is encouraged and does not cause problems to mine operations. • Enforcement of speed limits along mine controlled roads to reduce the potential for adverse effects of increased vehicular traffic associated with the RRP. Signs warning drivers of the possibility of wildlife.	Since the start of construction New Gold RRP has been implementing a no tree clearing policy during the breeding bird season. The project has also implemented sound abatement strategies through planning tree clearing to consist only in areas of mine infrastructure, purchasing new equipment constructed with muffler systems and implementing preventative maintenance programs to ensure all equipment is operating adequately. In 2015 speed limit signs were posted on project roads and moving into 2016 a program was implemented and security was equipped with radar detection equipment. During the summer of 2016 wildlife crossing signs were installed at six locations to warn drivers of the possibility of wildlife encounters. Currently Black-billed Magpie are found throughout the project site with no colonization in high vehicular activity. Currently there are no mitigation measures necessary however once the Construction Phase of the project is complete, there will be an opportunity to identify areas where nesting will be encouraged.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
113 cont	• Inclusion of wildlife awareness information into regular safety inductions performed by the mine. Workers will be made aware of seasonal changes in wildlife behaviour or presence in proximity to the mine; • Treatment of tailings slurry containing cyanide and associated heavy metals in the process plant using the SO2/Air process before being discharged to the TMA; and • Restoration of disturbed habitats at closure including the development of habitats capable of supporting a diversity of wildlife species, including Species of Special Concern and rare species.	These measures were implemented during 2015 as applicable. Restoration-related aspects were not applicable to 2016. No tailings were produced during 2016. In 2016, wildlife awareness was a seasonal activity as bear awareness and bird nesting behaviour were discussed often to lower the risk of an encounter.	Ongoing
114	Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	Clearing and construction of the transmission line right of way was initiated between November 2015 and April 2016 to avoid the breeding bird season and main tourist season.	Complete April 2016

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
115	Traditional Knowledge/Traditional Land Use (TK/TLU) data has been widely collected for the RRP, including from the closest communities of BGRFN, Rainy River First Nations and Naicatchewenin First Nation. All TK/TLU sessions were community driven, meaning that the method of data collection was community specific. The majority of the data has been broad and overreaching, which NG will continue to respect as it serves as the basis for Aboriginal Persons unique relationship to the land. TK/TLU collection will continue; information collected will be appropriately considered for construction, operation and closure phases. For example, NG will further investigate the historical travel corridor and incorporate appropriately any new information that may become available. (Letter to Chiefs from Kyle Stanfield, October 2013).	No additional TK/TLU was provided in 2016.	Ongoing
116	NG will share results of the TK/TLU data sessions in a non-public First Nations forum(s). (Letter to Chiefs from Kyle Stanfield, October 2013).	TK/TLU data is owned by individuals and communities. NG has shared available data as requested within specific communities.	Completed prior to January 15, 2015 as part of EA consultations

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
117	NG has an open invitation for First Nations, the MNO and regional stakeholders to participate in all baseline and environmental monitoring programs, including: Whip-poor-will, where appropriate and to share monitoring results. NG will continue to advise of the opportunity at public forums in order to encourage anyone who's interested to participate. (Letter to Chiefs from Kyle Stanfield, October 2013).	In 2016, New Gold RRP provided Environmental presentations to Mitaanjigamiing First Nation, Seine River First Nation, Lac La Croix First Nation, Couchiching First Nation, Rainy River First Nations, Naicatchewenin First Nation, and Big Grassy River First Nation. Meetings with additional communities are scheduled for 2017. Big Grassy River First Nation also had an Environmental Monitor that was actively engaged in environmental monitoring at the Rainy River site.	Ongoing
118	Additional information related to Lake Sturgeon and the Rainy River First Nations management program as requested, was added to the Final EA Report. NG has committed to a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally-impacted waterways.	New Gold has a Participation Agreement with the Rainy River First Nations. This program will be instituted in the future through the Environmental Monitoring Board. During discussions around the Fish Tissue Monitoring Program in the Pinewood River fish, Rainy River First Nation identified that sturgeon could be added to the program. RRP will continue to look for additional ways to support this initiative going forward.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
119	NG will reach out to the Seven Generations Education Institute and/or the MNRF to obtain any additional information on baseline health of animals and fish. (Letter to Chiefs from Kyle Stanfield, October 2013).	Complete	March 3, 2014
120	Aboriginal People will play an active role in the development of the mine Closure Plan, including development of the monitoring and mitigation programs. While the Closure Plan will be completed prior to construction, NG will consult on significant revisions periodically during operations to ensure incorporation of TK and best management practices. (Letter to Chiefs from Kyle Stanfield, October 2013).	The Aboriginal communities participated in a joint technical review of the Closure Plan and have planned participation in the 2017 Closure Plan Amendment. No activity on the Closure Plan occurred in 2016.	August 2014
121	Monitoring programs targeted at ungulates (moose, deer) will be coordinated with local Aboriginal people. (Letter to Chiefs from Kyle Stanfield, October 2013).	The Deer Tissue Monitoring Program was initiated in the Fall of 2016. There were presentations to First Nation Communities before the program started and results will be communicated in 2017.	Ongoing
122	NG would be pleased to assemble a map showing the locations of the closest First Nation community water supply intakes on receipt of the locations/coordinates. (Letter to Chiefs from Kyle Stanfield, October 2013).	Water supply intake locations known were included on map provided by New Gold Rainy River Project.	October 1, 2014

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
123	While the Draft EA has shown no impacts to Aboriginal or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to Aboriginal people. (Letter to Chiefs from Kyle Stanfield, October 2013). Further, NG has committed to analyze ungulate organ meats voluntarily submitted to them by local hunters, with the results of any such analysis made available to local residents and Aboriginal communities.	No new information was obtained or new impacts predicted during 2016 related to the RRP, that could affect the health of Aboriginal people. Results from the 2016 Fish Tissue program indicate no effect caused by the RRP activities. Results from the 2016 Deer Tissue Monitoring program will not be available until 2017.	Ongoing
124	NG will work with Aboriginal groups to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented. (Letter to Chiefs from Kyle Stanfield, October 2013). NG has an employee assistance program available to all employees. RRP employees and contractors are required to commit to be fit for duty (physical, mental and emotional state suitable to work safely). NG continues to commit to work with Aboriginal individuals to ensure there are appropriate cultural considerations, including an Aboriginal liaison on site, locations to conduct ceremony etc.	A First Nations Aboriginal liaison is onsite and available to meet with employees. RRP also has seasonal public ceremonies, established tobacco offering stations and provides an employee assistance program as part of the benefits provided to all employees.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
125	As a best practice and acting as a responsible neighbour, NG will notify local stakeholders of project activities as appropriate.	New Gold RRP established a neighbour committee in 2015, which continued in 2016, to provide information to surrounding residents regarding construction work at the site. Quarterly newsletters and other notices with respect to construction activities were mailed to residents district wide. New Gold RRP also provided site tours to the neighbours in 2016. The Neighbour's Tour was held on September 13th 2016.	Ongoing
126	NG has and will continue to actively engage the MNRF and local outfitters including those that hold the Bear Management Areas that will be affected by the RRP.	As 2016 was a construction year, the focus was to keep stakeholders safe and advising of active construction zones and avoidance where necessary.	Ongoing
127	NG will calculate the area of forest land that will be removed from the total forest land within BGRFN territory, utilizing public sources and provide this information to the First Nation on delineation of the traditional territory by the BGRFN.	New Gold RRP had extensive discussions with Big Grassy River First Nation (BGRFN) regarding traditional territory and signed a Participation Agreement in January 2015. New Gold RRP also provided the clearing plan to BGRFN on February 13, 2015.	Complete February 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
128	NG is consulting with First Nations and the Métis Nation of Ontario (MNO) on the Draft Closure Plan provided on March 19, 2014. NG has provided resources to these communities to undertake independent review the Draft document. Results of the independent review process will be used to help the Company develop any further commitments and/or mitigations to reduce potential impacts to Aboriginal and treaty rights. This process is expected to be completed concurrent with the conclusion of the EA process.	Nine First Nations and the MNO had confirmed participation in the Draft Closure Plan technical review. The results of the independent technical reviews were submitted to New Gold RRP in September 2014, with detailed responses provided and revisions made to the Closure Plan as appropriate. The Closure Plan was accepted as filed by the Ministry of Northern Development and Mines on February 23, 2015, shortly after positive decisions on both the Federal and Provincial EAs.	The independent review completed September 2014. The Closure Plan was accepted as filed on February 23, 2015.
129	NG is open to discussing closure objectives in relation to the results of the Traditional Knowledge / Traditional Land Use (TK / TLU) study.	New Gold RRP remains open to this discussion ongoing. No specific comments received in 2016.	Ongoing
130	NG is supportive of the further development of mitigation measures in relation to traditional hunting (and plant gathering), which could potentially involve: • Continuing to involve BGRFN members in the development of adaptive management techniques related to closure planning, including the rehabilitation of habitat for wildlife; and • Restoring access to RRP lands following mine closure to the extent that such access is safe / possible.	New Gold RRP remains committed to providing access. Consideration will be provided upon completion of construction activities.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
131	NG has committed to provide members of the BGRFN, Big Island First Nation, Ojibways of Onigaming First Nation, Naotkamegwanning First Nation, Rainy River First Nations, Naicatchewenin First Nation and Métis represented by the MNO Region 1 Consultation Committee, the ability to access certain lands that NG is able to make available for gathering of wild medicines, berries or other vegetation. Access will be coordinated with the Aboriginal communities.	New Gold RRP remains committed to providing access to all areas of the site that are safe to do so. During construction, access is more limited as there is heavy equipment and construction activities in numerous areas. In 2016, Aboriginal communities accessed a designated ceremonial area on Gallinger Road; access to other areas was allowed when it was safe to do so and with site personnel present.	Ongoing
132	NG has committed to ensure that Aboriginal communities (including BGRFN, Big Island First Nation, Ojibways of Onigaming First Nation, Naotkamegwanning First Nation, Rainy River First Nations, Naicatchewenin First Nation and Métis represented by the MNO Region 1 Consultation Committee) have the ability to access the site for cultural and ceremonial purposes so that local Aboriginal people can undertake ceremonies at different times of the year to show respect for the land and its spiritual aspects. This will ensure that young people can participate in ceremonies and learn from elders and ceremonialists. Teaching through the generations will therefore be maintained.	New Gold RRP remains committed to the opportunity for ceremony. In 2016, New Gold RRP hosted two annual ceremonies, one in Spring and one in Fall. In 2016, there was also a Water Ceremony and a Blessing of the Administrative Building. During 2016 the following was held onsite: Fall Ceremony - Oct 19, 2016 Spring Ceremony - May 31, 2016 Blessing Ceremony - June 22, 2016	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
133	A detailed Fire Response Plan will be developed (Final EA Report, Section 8.2). This document will be made available for MNRF review prior to construction initiation.	A detailed Fire Response Plan was developed in 2015. In 2016, the Fire Response Plan was reviewed.	Completed April 2016
134	NG will engage with local stakeholders as appropriate to provide notification of project activities and to mitigate potential impacts as practical.	New Gold RRP established a neighbour committee in 2015 to provide information to surrounding residents regarding construction work at the site. As well, quarterly newsletters and other notices with respect to construction activities were mailed to residents district wide. During 2016 the following was held: Fort Frances Chamber of Commerce - Feb 11, 2016 Men's Breakfast Club - Aug 9, 2016 Confederation College - June 13, 2016 Community Presentation at the Emo Legion - Sept 15, 2016	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
135	Related to the transmission line: • Compensation will be provided for merchantable timber value where applicable; • Maintain transmission line set back distances of not less than 100 m from area lakes to provide effective visual screening from open waters; • Landscape screening to minimize the contrast in landscape character; for example, by leaving shrub cover vegetation that will not affect the conductors (i.e., the wire) in the ROW at creek crossings; and • Minimizing land use conflicts and concerns by consulting with other users and stakeholders (i.e., Aboriginal peoples, hunters, trappers, outdoor recreationalists) to identify and implement other means of conflict resolution.	New Gold RRP proactively placed newspaper advertisements to advise recreational users of construction activities along the transmission line during the hunting season in 2015, as well as engaged with the Clearwater Association.	Completed 2015
136	NG will implement a hiring policy that encourages employment of local workers, including members of human environment regional study area First Nations and Métis communities. Where feasible, goods and services will be procured from local and regional suppliers as well as suppliers that can further demonstrate Aboriginal employee content. Provide on the job Common Core training to assist local workers to develop mining-specific skills, and implement career training and development opportunities for employees once hired. NG will provide continuous, on the job safety training.	In 2015, NG implemented a Human Resource Strategy that focused on local employment which continued in 2016. Also in 2015, 16 career fairs were held in the region. In 2016, New Gold RRP had a business development officer available on staff to support local businesses in providing goods and services to the project.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
137	NG will continue to engage with potentially affected stakeholders as the project develops, including those local and regional businesses which may provide accommodation facilities for the RRP workforce.	New Gold RRP continued in 2016 to mail newsletters and engage with local stakeholders including Chambers of Commerce. During 2016 the following was held: Fort Frances Chamber of Commerce - Feb 11, 2016 Men's Breakfast Club - Aug 9, 2016 Confederation College - June 13, 2016 Community Presentation at the Emo Legion - Sept 15, 2016	Ongoing
138	Fish habitat compensation will be provided onsite related to the Federal Fisheries Act. A portion of this compensation habitat, notably the Clark Creek, Clark Creek pond and Teeple pond, could potentially be provided to licensed bait fishermen.	New Gold RRP has presented an access agreement to two local baitfish harvesters for their consideration during 2016.	Ongoing
139	NG respects BGRFN's Aboriginal and Treaty Rights, and is working with the community to develop a collective agreement that will include mutually acceptable means for mitigation of accepted impacts.	New Gold RRP and BGRFN signed a participation agreement on January 9, 2015 and the ongoing relationship is good.	Completed January 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
140	Where NG has control, commercially reasonable efforts will be made to work with local logging companies, Resolute, MNRF and local loggers to facilitate the use of merchantable timber by local mills, in recognition of the importance of mills to the local economy.	A local logging company was utilized to remove merchantable timber during 2015 and 2016, as needed to support project development.	Ongoing
141	NG will make reasonable efforts to accommodate Resolute in providing access through NG lands to Crown lands over which Resolute has an interest provided that the access does not interfere with mine construction or operation; that the access does not put the safety and security of NG or Resolute personnel or property at risk; and subject to the prior execution of any land access agreement(s) which NG deems appropriate.	There were no requests for access during 2016.	N/A
142	As the mine approaches the end of mine life, NG will implement strategies to transition the workforce to buffer the effects of job losses, as well as an Adjustment Committee.	Not applicable during 2016 (Construction Phase)	N/A
143	The health and safety of workers will be ensured by meeting applicable occupational health and safety legislation standards, as well as utilizing other best management practices for industrial hygiene hazard control as appropriate.	New Gold RRP strives to meet or exceed the health and safety regulatory requirements. New Gold RRP provides and ensures that all workers have the necessary personal protection equipment to protect against industrial hygiene exposures.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
144	While the Draft EA has shown no impacts to Aboriginal or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to Aboriginal groups. (Letter to Chiefs from Kyle Stanfield, October 2013). NG has committed to analyze ungulate organ meats voluntarily submitted to them by local hunters, with the results of any such analysis made available to local residents and Aboriginal communities.	No new information was obtained or new impacts predicted during 2016 related to the RRP, that could affect the health of Aboriginal people. Results from the 2016 Fish Tissue program indicate no effect caused by the RRP activities. Results from the 2016 Deer Tissue Monitoring program will not be available until 2017.	Ongoing
145	NG will work with Aboriginal groups to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented. (Letter to Chiefs from Kyle Stanfield, October 2013).	New Gold RRP has an employee assistance program available to all employees. RRP employees and contractors are required to commit to be fit for duty (physical, mental and emotional state suitable to work safely). New Gold RRP continues to commit to work with Aboriginal individuals to ensure there are appropriate cultural considerations, including an Aboriginal liaison on site, and locations to conduct ceremony.	Ongoing
146	A blasting plan will be developed describing all proposed blasting operations at the RRP site. All personnel who handle explosives will have appropriate training; all other individuals will be restricted from access.	New Gold RRP developed blasting plans during 2015 and 2016 that followed this commitment. All personnel who handle explosives have had the appropriate training. A locked fence with signage provides restricted access to the Explosives mixing and storage areas.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
147	Recognizing that safety of workers is paramount, NG will attempt to reduce light pollution as possible.	This approach was taken during 2016 while maintaining employee safety during night shift operation. Site inspections of laydowns and work areas included inspections of light plants to minimize light pollution and impact on wildlife active during the night.	Ongoing
148	The RRP has been designed to meet all applicable fire protection system requirements and codes. Regular fire drills will occur to ensure that all workers are familiar with fire response procedures, as dictated within the environmental management system. All workers and visitors on site will receive an orientation which includes fire reporting and response procedures.	All personnel on site receive a site orientation. The site has acquired a fire truck and established an Emergency Response Team in place to respond to fires. During 2016, two fire drills were held.	Ongoing
149	Should it be determined in the future that additional fire break is required, appropriate approvals will be obtained from the MNRF.	No additional fire break was determined to be required during 2016.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
150	NG will ensure that safe access to properties is maintained during the construction and operation phases of the project. Once detailed plans are progressed, NG would welcome the opportunity to discuss further.	For the residents of Tait Rd, New Gold RRP worked cooperatively with landowners during 2016 to ensure safe access to their properties during the construction of Highway 600. Public access has also been maintained on Marr Road. Signage and gates are in place to ensure safe access to site. Security personnel also monitor site access.	Ongoing
151	Any infrastructure, such as hydro services, that require relocation will be completed as expediently as possible, to minimize disruption to local users. It is currently envisioned that the disruption will only occur during the switchover from the existing to the (at that time) newly built line.	During 2016, there was no relocation of services that caused a disruption to local users.	Ongoing
152	The re-aligned Highway 600 will be constructed by NG to MTO standards so that NG can pursue transfer of the road to the Province after construction.	This approach was taken during 2016. Construction of the re-aligned Highway 600 was completed in 2016.	Complete

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
153	NG has had extensive consultations with the MTO in Thunder Bay related to the RRP highway planning and will continue to discuss issues related to the Highway 600 re-alignment, and associated maintenance and safety issues with MTO, the Township of Chapple, Stratton, the Rainy River Valley Safety Coalition, school bus operators, utility companies and emergency response groups.	In 2016, New Gold RRP had extensive discussions with the MTO, Township of Morley, Township of Chapple and Hydro One regarding Highway 600. The re-aligned Highway 600 was opened to the public on December 23, 2015.	An agreement was signed with the Township of Chapple on March 24, 2016 An agreement was signed with the Township of Morley on Feb 17, 2016.
154	A new East Access Road will connect Highway 71 with Roen Road by means of Korpi Road, to provide access for the general public, including to properties on Marr Road and for users of Crown land north of the site.	Construction of the East Access Road (Korpi Road) was completed in 2016.	Completed
155	NG will schedule the delivery of major equipment at off peak times where practical and ensuring that heavy loads are sized appropriately and transported only on highways that have sufficient load capacities while observing half-load seasonal restrictions.	All load transport requirements and restrictions were met during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
156	Only licensed suppliers and carriers will be selected for the supply and transport of hazardous materials to the RRP site. When suppliers are selected, Rainy River will share supplier handling and transport information with the MNO.	Only licensed suppliers and carriers were selected for the supply and transport of hazardous materials to the RRP site. Information was shared with the MNO by the RRP in compliance with this condition during 2016.	Ongoing
157	Drivers will be required to meet all applicable regulatory training requirements, be trained in spill response procedures for the materials they transport, and carry the appropriate Material Safety Data Sheets.	Drivers of licensed suppliers were required to be trained and carry the licenses, permits, documentation and signage as required.	Ongoing
158	Vehicles transporting materials to site will be required to maintain a supply of basic emergency response equipment, including communication equipment, first aid materials and a fire extinguisher, where appropriate.	All vehicles travelling onsite are required to have spill kit, first aid kit, fire extinguisher and radio. New Gold RRP has also provided an onsite emergency response trailer containing equipment and supplies for handling hazardous spills to the environment. During 2015, an Emergency Response team was established and continued training in 2016 which included the operation of an onsite fire truck.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
159	Notification and/or reporting of any vehicular accidents and spills will follow Provincial (Ministry of the Environment) and other applicable requirements.	During 2016, there were no incidents of vehicular accidents causing spills. In one instance only, while a tow truck was preparing to remove a vehicle that had driven into a ditch along the East Access Road, the tow truck had a hydraulic line break. Each incident where a vehicle left the road was monitored during the vehicle removal for any spills; no spills occurred in this way during 2016.	Ongoing
160	With regards to controlling adverse traffic effects during transmission line construction: • Ensuring that NG employees and contractors / subcontractors adhere to posted speed limits and practical speed limits along the ROW; • Contractors and their subcontractors will be required to have properly and seasonally maintained equipment; and • Maintain regular communications with the Township of Chapple, the MTO and Ontario Provincial Police representatives, to monitor and mitigate traffic effects.	New Gold RRP regularly reminds all site personnel of the speed limit requirements and Site Security conducts speed monitoring onsite. Regular communications between Chapple, MTO and OPP are maintained. Specifically OPP have been requested to provide additional traffic monitoring on site access roads to reduce the likelihood of speeding and poor driving behaviours.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
161	NG will monitor regional housing supply, particularly in the Chapple, Emo, and Fort Frances markets during the planning and construction phase of the RRP and in advance of each wave of new operations employment. Engage in regular discussions with Municipal planning officials in these communities to understand the anticipated evolution of their resale and new-home markets, and the extent to which each community desires growth or does not. NG will continue to work with hoteliers and town officials, to help avoid possible construction employment demands that would negatively affect accommodation capacity needed to support the tourist season.	To alleviate pressures on regional housing supply and hoteliers, during 2016 New Gold RRP has: 1) Contracted a local Aboriginal business to provide a 500+ person accommodation facility for construction workers who are contracted by New Gold RRP. The accommodation facility is located on Atkinson Road in Chapple Township. Atkinson Road is located 1.5km south of the junction of Barwick Road and Highway 600, approximately 5 km south of the project site. The accommodation facility was built by Onikaajigan Construction, a partnership between Rainy River First Nation, Naicatchewenin First Nation and Saulteaux Consulting and Engineering. It is owned and operated by Onikaajigan Construction. New Gold RRP exclusively leases the camp facility for the purpose of housing out of town construction workers. 2) Committed to hiring local people. 3) Developed an employee incentive program to support new housing development. 4) Working with local developers to construct new accommodation in the region.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
162	Develop suitable policies and initiatives to encourage carpooling amongst employees, with the aim of reducing commuter-related traffic and reducing the individual burden of commuting. NG may explore alternate accommodation strategies to support its employees.	During 2016, buses were used to transport employees to site from Fort Frances, Emo, Chapple Fire Hall and the accommodate facility.	Ongoing
163	NG will continue to discuss the RRP and potential additional demands that could be placed on the services of regional Municipalities. NG will continue to support government-led initiatives that support social sustainability during all project phases. NG with work with local service agencies to gather information about social issues or service capacity issues so that they may be addressed in a collaborative manner. NG will maintain communications with local and regional service providers to monitor and work collaboratively to address any Project-related changes that may be experienced.	New Gold RRP provides public presentations, works with the Chambers of Commerce, holds regular meetings with Chapple and provides updates at the Rainy River District Municipal Association. During 2016 the following was held: Fort Frances Chamber of Commerce - Feb 11, 2016 Men's Breakfast Club - Aug 9, 2016 Confederation College - June 13, 2016 Community Presentation at the Emo Legion - Sept 15, 2016	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
164	Potential health risks associated with the consumption of ungulate organ meats will be mitigated through the voluntary submission of organ meats by local hunters for analysis. Results of any such analysis would be made available to local residents and Aboriginal communities.	In 2016, RRP requested voluntary submission of organ and tissue by local hunters as part of the Deer Tissue Monitoring program. Results from the 2016 program will not be available until 2017 and will be made available to local residents and Aboriginal communities.	Ongoing
165	NG has committed to undertaking a mitigation program related to cultural heritage landscapes and built heritage resources consisting of an illustrated history of the study area.	An illustrated settlement history was completed by Dan Morisseau on October 23rd 2015. New Gold RRP is working with Chapple Heritage Committee on the editing and distribution. Once the document is complete, it will be distributed to MOECC and MTCS.	Ongoing
166	Emergency response procedures will be established as part of the environmental management system. After any incident, a review will be conducted to ensure that the required design changes and procedures and appropriate monitoring measures are in place to ensure that incident will not be repeated.	Emergency response training occurred during 2016 to the Emergency Response Team. One field emergency response drill was conducted as a review of the emergency response procedures in 2016. The field drill included a review and follow-up actions as part of the conclusion to ensure better preparedness. One small fire occurred in 2016 however it was immediately contained and resulted in no emergency action and reported appropriately.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
167	NG has committed to ensure that First Nations (including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, and Ojibways of Onigaming First Nation) and Métis community members have the: • Ability to access the site for cultural and ceremonial purposes, so that local Aboriginal people can undertake ceremonies at different times of the year to show respect for the land and its spiritual aspects. • All NG staff will undergo cultural awareness training. Temporary contractors will undergo an awareness program as part of the regular induction program when working at the mine (Letter to Chiefs from Kyle Stanfield, October 2013). This will ensure that people that work at the site are aware of indigenous culture and values, and are respectful of the principles and values of the Ojibwe people. This mitigation has been identified as a result of the Draft EA independent First Nation review and agreed to by NG. NG will follow up directly with the BGRFN regarding any additional mitigation and accommodation measures.	New Gold RRP is committed to providing access to the site for cultural and ceremony purposes. All New Gold RRP staff and contractors undergo Cultural Awareness training as part of the site induction.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
168	NG is fully agreeable to work with local Aboriginal peoples on an ongoing basis to monitor metal concentrations in country foods (notably fish muscle and liver tissues, and White-tailed Deer liver tissue; and other wildlife tissues as appropriate. A commitment to work with local Aboriginal groups to sample White-tail Deer liver tissues [and other wildlife tissues as committed to herein] for metals analysis has been made. This analysis could be expanded to include testing for additional metals. NG will work with local Aboriginal hunters to determine the most effective path forward on this topic.	In 2016, RRP requested voluntary submission of organ and tissue by local hunters as part of the Deer Tissue Monitoring program. Results from the 2016 Fish Tissue program indicate no effect on fish tissue caused by the RRP activities. Results from the 2016 Deer Tissue Monitoring program will not be available until 2017.	Ongoing
169	NG will conduct a risk assessment of the potential long-term exposure of fish and wildlife to accumulated metals within the constructed wetland. Such a study will be carried out within one to two years prior to mine closure (or earlier during the project operations phase), and if a meaningful risk is determined to exist the risk will be mitigated as part of overall mine closure by removing and disposing the contaminated sediments to the bottom of the pit lake. This could readily be accomplished by a small dredging operation.	Not applicable during the Construction Phase of 2016 as construction of the constructed wetland had not begun.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
170	Unterman McPhail will prepare a complete description of the evaluation process for resources identified of cultural heritage value or interest in a memo format.	This memo was completed September 11, 2013.	September 11, 2013.
171	At closure, NG will undertake an evaluation of any remaining cultural heritage resources / structures located on NG property in consultation with a qualified professional, and also incorporating any liability/public safety concerns.	Not applicable to 2016 (closure activity).	N/A
172	A range of conservation approaches will be considered in the recommended Cultural Heritage Assessment Report / Cultural Heritage Documentation Reports for Sites #11 and #13 as suggested by MTCS.	Site #11 was demolished in 2015 as it was deemed to be hazardous and structurally unfit. Unique features, such as blacksmith hardware were removed and are currently in storage. As part of the development of the Richardson Trail, New Gold RRP intends to highlight the settlement history through artifacts such as the hardware. Prior to the demolition, New Gold RRP contacted a representative of the Chapple Heritage Committee to ensure there were no other considerations. Site #13 remains in situ. A descendent of the builder has expressed an interest in relocating the structure; New Gold RRP is open to considering the move of the structure.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
173	NG will provide follow-up documentation related to Cultural Heritage Assessment Report / Cultural Heritage Documentation Reports to the following local museums and archives: • Chapple Museum; • Kay-Nah-Chi-Wah-Nung Historical Centre (Manitou Mounds); • Rainy River District Women's Institute Museum; and • Fort Frances Museum and Cultural Centre.	Completed on April 14, 2015. A number of former local residents have come forward to request copies of the reports which New Gold RRP provided.	April 14, 2015
174	Monitoring would occur for the following durations: • Archaeology: construction phase • Built heritage: construction phase	New Gold RRP has completed a thorough investigation for cultural resources within the project area (Woodland Heritage Resources and Unterman McPhail). Stage 4 Acceptance letters received Sept 28, 2016. All field work was completed in 2015. In addition, all New Gold employees and contractors are advised during induction of the potential of cultural resources and advised to stop work should potential resources be identified.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
175	With regards to protection of cultural heritage values during transmission line construction: • Should human remains be identified during construction, all work in the vicinity of the discovery will be suspended immediately, and notification will be made to the Ontario Provincial Police, or local police, who will conduct a site investigation and contact the district coroner. Notification must also be made to the Ministry of Tourism, Culture and Sport, and the Registrar of Cemeteries, Ministry of Government Services. • Should cultural heritage resources (archaeological or historical materials or features) be identified during construction or operations, all activity in the vicinity of the find will be suspended and the Ministry of Tourism, Culture and Sport archaeologist be contacted. This condition provides for the potential for deeply buried sites not typically identified; and • In addition, NG will continue to engage Aboriginal people (including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members) about the transmission line construction and will respond should additional culturally significant areas be identified that could be impacted by the construction.	No human remains or cultural resources were identified during transmission line clearing or any other works in 2016. The Transmission Line construction was completed April 2016.	Complete

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
176	Related to transmission line, construction will be supervised by a qualified archaeologist at identified areas of high archaeological potential. Regular, ongoing discussions with stakeholders, Aboriginal people and local communities will help to monitor any effects to the socio-cultural environment and identify mutually satisfactory ways to mitigate negative or enhance positive effects. A formal complaints procedure will be established to provide stakeholders and Aboriginal peoples a voice during the construction, operation and decommissioning phase of the transmission line project. A response protocol will also be established to ensure that follow up occurs.	Prior to construction activities, New Gold RRP conducted the required assessments on the transmission line, which included the field assessment of high potential areas as per the 2011 Standards and Guidelines for consultant archaeologists. Archaeology clearance letter was received on the transmission line on Dec 29, 2014. The Transmission Line construction was completed April 2016. New Gold RRP also employs a qualified archaeologist and in 2015 had consultant archaeologist on site. No cultural resources were identified during 2016. NG completed and submitted an external feedback procedure to MOECC on February 2, 2015.	Complete
177	A targeted site investigation will be conducted at the end of mine life to identify soils that may have been affected by hydrocarbons or chemicals in specific areas (e.g. truck refuelling area). Soil materials found to exceed the appropriate clean up criteria for hydrocarbons will be remediated according to government requirements. If there is reason to suspect an area of soil has been affected by chemicals other than hydrocarbons, soil samples will be collected and tested. If the applicable regulatory requirements are exceeded, an appropriate method of disposal will be sought in consultation with the relevant authorities.	Not applicable during 2016 Construction Phase (Closure Activity).	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
178	Document and respond to comments, issues or concerns.	An External Feedback and Compliant Protocol was issued in follow up to the Provincial EA approval and was implemented during 2015 and 2016.	Completed February 2, 2015
179	NG made 13 significant commitments (Tables 3-4 and 14-2) arising from the independent technical review of the Draft EA Report (Version 1) on behalf of Aboriginal groups which will be fulfilled.	These commitments were all met as described in the registry provided in this registry, or through negotiated agreements (non-public).	Ongoing
180	BGRFN undertook a second independent review of the Draft EA Report provided to the NG on October 18, 2013. The review concluded that additional work with the community was required and NG has committed to continuing the close engagement with the community in support of the RRP development.	BGRFN and New Gold RRP signed a Participation Agreement on January 9, 2015. In the agreement there is a defined protocol for communication and engagement.	9-Jan-15
181	Environmental monitoring will be conducted in accordance with standard practice and regulatory requirements, including any site-specific environmental approvals.	Completed during 2016 as applicable.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
182	Operational procedures to minimize the potential of accidents or malfunctions will be incorporated into the environmental management system. Penalties will be imposed for operational violations.	During 2016, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include operational procedures with penalties for non-conformances.	Ongoing
183	Procedures will be regularly reviewed as part of the environmental management system.	The EMS was not fully in place and development was still on going in 2016. As such no monitoring of the EMS was completed in 2016. Both New Gold Corporate and the RRP have some policies and procedures in place and in draft form. Reviews of the implemented New Gold RRP EMS, procedures and policies will be completed once the EMS is finalized.	Ongoing
184	The emergency response plan included in the environmental management system will address the primary hazardous materials on site including procedures for spill response on the trucking route to the RRP site.	During 2016, the EMS continued to be developed and ongoing. The emergency response plan included in the RRP EMS addresses the primary hazardous materials onsite and spill response.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
185	All chemicals used at the site will have a Material Safety Data Sheet, in order to comply with the best practices in the industry for health and safety, and to provide relevant regulatory standards for the safe use of these materials.	The Material Safety Data Sheets are provided to New Gold RRP and are accessible from the online site wide MSDS registry. Within this system, regular review and updates to the MSDS are a required by the department which each chemical. This aspect is included as part of the RRP Health and Safety WHMIS Program.	Ongoing
186	Monitoring details will be developed through ongoing stakeholder consultation during the EA process, and through conditions placed on regulatory instruments such as permits, authorizations and approvals, issued by the Federal and Provincial regulatory agencies.	Completed during 2016. The majority of the approvals required for construction and operation were received during 2015 however some were required and received during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
187	A Follow up Monitoring Program (FMP) is provided in Section 13 of the Final EA Report, which subject to modification through the EA review process, will be implemented by NG in the manner and schedule identified, to: • Verify the accuracy of the environmental assessment of a designated project; and • Determine the effectiveness of any mitigation measures.	During the course of construction of the water and tailings management facilities, deformations were identified at one of the dams associated with such facilities. As a result, work on those facilities was paused in February 2016. Additional geotechnical testing and follow up monitoring were conducted. After receiving feedback from New Gold's Independent Tailings Review Board (a panel of independent experts was established by New Gold in line with best practices in Canada) and MNRF, the water management structures on the site were redesigned. The redesign, together with enhanced construction procedures (including an enhanced QCV/QA program, were approved by MNRF in November 2016 following which construction was recommenced. New Gold RRP is still awaiting approvals under the LRIA for various other structures, which are expected to be received in early 2017.	Ongoing
188	Subject to acceptance in writing of the FMP by the Federal and Provincial governments, monitoring results will be provided to the parties involved in the FMP annually during the construction and operation phases of the RRP.	No FMP annual reports were required or issued during 2016.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
189	A list of FMP commitments made during the EA process will be maintained by NG, indicating where appropriate: • The nature of the commitment; • To whom, or to what group or agency the commitment was made, if specific; • Whether the commitment is related to the EA process alone; • Whether the commitment is addressed or linked to a regulatory instrument, such as a regulation or environmental approval; • Any applicable timeline if any; • The status of the commitment; and • Additional actions required to fulfil the commitment.	This registry addresses the master list of commitments.	Ongoing
190	Environmental aspects and potential impacts of the project will be managed within an environmental management system which integrates environmental performance with overall project management.	The EMS is in development and ongoing. New Gold Corporate and the RRP have some environmental policies and procedures in place. During 2016, the EMS progressed more formally including an external gap analysis that was completed in 2016. A component of the EMS will manage and track the environmental aspects and impacts. Reviews of the implemented New Gold RRP EMS, procedures and policies will be completed once the EMS is finalized.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
191	Implementation and maintenance of the environmental management system will be driven by the NG commitment to ongoing compliance with the environmental requirements. Worker awareness of this commitment and requirements related to their work will be communicated through formal programs such as project orientation, job training or contractor packages.	During 2016, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include formal training programs and a focus on ongoing environmental compliance.	Ongoing
192	Periodic management reviews will be completed to consider changing circumstances which could affect the continued suitability and adequacy of the monitoring plans, and to support continual improvement in overall effectiveness.	During 2016, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include periodic management reviews of the RRP operation and continual improvement.	Ongoing
193	NG proposes to amend the Closure Plan periodically as more information becomes available and as required by the Ontario Mining Act.	No amendments were completed during 2016. New Gold RRP has been working on a Closure Plan Amendment but no amendments were completed in 2016. The Reporting period for this ACR is from March 31st 2016 to December 31st 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
194	NG is proposing to work with Aboriginal groups including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members to provide access to alternative private lands for the purposes of supporting TLU on such lands; and potentially providing compensation or incentives through collaborative agreements between the Aboriginal groups and NG. Access will be coordinated with the Aboriginal groups.	New Gold RRP has negotiated agreements with *Rainy River First Nations* (October 10, 2014), *Naicatchewenin First Nation* (October 10, 2014), *Big Grassy River First Nation* (January 9, 2015) and *the Metis Nation of Ontario* (November 25, 2014). New Gold RRP continues to actively engage with *Big Island First Nation, Ojibways of Onigaming* and *Naotkamegwanning First Nation*.	Ongoing
195	NG will communicate with Aboriginal groups including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members on traditional teachings and ceremony.	New Gold RRP hosts two annual ceremonies at site; additionally, Aboriginal liaison personnel meet with community members to discuss the project, activities, ceremony, etc. During 2016 the following was held onsite: Fall Ceremony - Oct 19, 2016 Spring Ceremony - May 31, 2016 Blessing Ceremony - June 22, 2016	Ongoing
196	NG will review the BGRFN TK / TLU study and discuss accommodations of the cultural heritage sites identified.	This was addressed during Participation Agreement discussions.	January 9, 2015

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
197	Related to transmission line construction, environmental monitoring will include (but will not be limited to) inspection of: • ROW to ensure excessive vegetation clearing is not conducted; • Appropriateness of equipment choice and maintenance of equipment to minimize environmental impacts; • Effectiveness of erosion control measures where applicable; • Construction activities and equipment operation, including refueling exercises; • Waste management, including wood waste from clearing and domestic wastes; • Monitoring of remedial actions associated with malfunctions and accidents (if any); and • Any requirements contained in environmental approvals and permits required to construct the transmission line. At a minimum, weekly inspections by a qualified person will occur of worksites and related areas, during clearing of the ROW and construction of the transmission line. Contractors will be required to have properly trained personnel to provide guidance to construction teams in the absence of the qualified environmental persons. The results of the inspections will be documented and follow-up actions, if any, delineated. Completion of follow-up actions will be confirmed during subsequent inspections. Inspection frequency will be increased should the need be identified. The duration of post-construction inspections, will depend on the results of the construction inspection. At a minimum, periodic aerial inspection will occur for environmental aspects during operation, coincident with other aerial surveys.	Monitoring of these aspects was completed during 2016 as applicable. New Gold RRP and the Contractor conduct weekly inspections during working periods. Work on the transmission line was completed in April 2016.	Complete

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
198	NG will continue to communicate closely with First Nations and the MNO regarding the Project. (Letter to Chiefs from Kyle Stanfield, October 2013).	New Gold RRP has several Participation Agreements / Impact Benefit Agreements in place which identify ongoing communication protocols: *Rainy River First Nations* (October 10, 2014), *Naicatchewenin First Nation* (October 10, 2014), *Big Grassy River First Nation* (January 9, 2015), and, the *Metis Nation of Ontario* (November 25, 2014). In addition, New Gold RRP provides regular updates through newsletters, public presentations and individual meetings and emails with community representatives.	Ongoing
199	NG is committed to working closely with the MNO. NG has provided resources to the MNO to undertake traditional studies as well as technical reviews of both the Draft EA as well as the Draft Closure Plan. NG will continue to support the MNO as part of the EA process and as mine operations begin.	New Gold RRP has a Participation Agreement with the MNO (November 25, 2014) and continues with regular engagement on the RRP.	Ongoing
200	NG is committed to working closely with the area First Nations and the MNO. NG has provided resources to Aboriginal Groups to undertake traditional studies as well as technical reviews of both the Draft EA as well as the Draft Closure Plan. NG will continue to support First Nations as part of the EA process and as mine operations begin.	New Gold RRP actively engages all Indigenous groups about the Rainy River project, through newsletters, face to face meetings, site tours, business opportunities and job postings. Condition 9 of the EA approval is being fulfilled, although the level of engagement is directed by the communities.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
201	NG will commit to clearing of flammable debris within a minimum 30 m buffer area.	During 2016, New Gold RRP cleared flammable debris and fuel sources (cut trees) within a minimum 30 m buffer to standing trees.	Ongoing
202	NG is committed to continuing to engage potentially affected stakeholders as development and operation of the RRP progresses. Local municipalities will be engaged specifically in regards to contingency and emergency response procedures, prior to construction start. MNRF coordination will be undertaken as appropriate.	New Gold RRP engages stakeholders on a regular basis through presentations, newsletters, etc. Specific engagements during 2016 included: Fort Frances Chamber of Commerce - Feb 11, 2016 Men's Breakfast Club - Aug 9, 2016 Confederation College - June 13, 2016 Community Presentation at the Emo Legion - Sept 15, 2016	Ongoing
203	NG is committed to further discussions with potentially affected Aboriginal groups with respect to development of a protocol for the preservation of artifacts. Where practical and reasonable, artifacts that require removal will be transferred to a public institution selected through consultation with local First Nations and Métis represented by the MNO Region 1 Consultation Committee, in consultation with the MTCS. A MTCS collection transfer form will be completed by the surrendering licensee and the institution accepting the materials. Collection shall be curated to current standards.	New Gold RRP will continue to work with local Aboriginal groups on the transfer of artifacts. No artifacts were found or transferred from the site during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
204	NG will develop an accommodation with local trapline holders that meets the needs of both the proponent and the trappers.	New Gold RRP is developing access agreements with local trapline holders. During the construction phase, access to harvest areas will be limited for health and safety reasons.	Ongoing
205	NG will enhance components of the Richardson Trail and mitigate the impacts in collaboration with local landowners.	New Gold will initiate this commitment during the operations phase of the development, as it will be much safer to access particular areas of the project at that time.	N/A

Appendix D

EA Follow Up Monitoring Registry

2016 Rainy River Project Annual Report

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.1	RRR expects that it will be responsible to carry out the Follow-up Monitoring Plan (FMP); and further, that the involved Federal and Provincial agencies and authorities will have a review and monitoring role regarding the implementation of the FMP by RRR and will require RRR to take corrective action for non-compliance as appropriate. Local Aboriginal groups are considered by RRP to be involved parties for the purposes of the FMP, and accordingly, local First Nations and Métis will be provided the results of the FMP.	During the course of construction of the water and tailings management facilities, deformations were identified at one of the dams associated with such facilities. As a result, work on those facilities was paused in February 2016. Additional geotechnical testing and follow up monitoring were conducted. After receiving feedback from New Gold's Independent Tailings Review Board (a panel of independent experts was established by New Gold in line with best practices in Canada) and MNRF, the water management structures on the site were redesigned. The redesign, together with enhanced construction procedures (including an enhanced QCV/QA program, were approved by MNRF in November 2016 following which construction was recommenced. New Gold RRP is still awaiting approvals under the LRIA for various other structures, which are expected to be received in early 2017.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.2.2	For fugitive dust from roads, stockpiles and open pit operations, RRR will assess the effectiveness of planned dust control measures both visually by plume assessment, and using dust fall jars and high-volume samplers for total particulate and PM2.5. Dust fall samples will be collected monthly during the non-winter period for the construction, operation and active reclamation project phases. Select filter samples will be assessed for metals (comprised of a full metal scan - including mercury, arsenic, cadmium and lead). Two monitoring stations will be set up at the approximate property boundary locations shown in Figure 13-1 subject to power availability and location specific constraints. Equipment siting, operations, auditing and reporting will follow all appropriate MOE requirements as provided in the Operations Manual for Air Quality Monitoring in Ontario (MOE 2008).	Monitoring has been on going at the RRP since May 2015. Two air quality sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Dust fall jars were also established along with passive filters to analyze for SO2 and NO2. There were three air quality exceedances in 2016. One exceedance was of TSP at the Tait Road site on April 30, 2016. The Notice of Exceedance can be found in SD 5.2c. This exceedance was attributed to road traffic travelling on the newly graveled Highway 600 realignment. The second and third exceedances were of $PM_{2.5}$ and both occurred on May 6, 2016 at both the Gallinger Road station (Notice of Exceedance in SD 5.2d) and the Tait Road station (Notice of Exceedance in SD 5.2e). These exceedances were attributed to smoke in the area from forest fires to the north. Aboriginal groups were not notified of these exceedance. In late 2016, RRP initiated a notification system to advise Aboriginal groups of exceedances and going forward Aboriginal groups will be notified.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.3.2	Subject to consultation and support from area residents and the regulatory agencies, RRR plans to measure sound levels at (or near) residences positioned around the RRP site (Figure 13-1). These would include: • One residence to the south of the mine site in Black Hawk; • One residence to the east of the mine site on Gallinger Road; • One residence to the southeast of the mine site on south Gallinger Road; • One residence to the west of the mine site in Dearlock; and • One residence to the northwest of the mine site on Highway 600. A dedicated remote monitoring system may be used to provide a real time access system. All sound monitors will conform to MOE NPC-103 measurement protocols. As per MOE protocols, sound level measurements are to be taken at each measurement location. Hourly Leq, L10, L90 and Lmax will be recorded. Audio samples based on trigger levels will also be recorded. Trigger levels, with automated alerts will be developed for addressing exceedances.	Sound was measured at the listed locations (residences) and as related to ESA permit requirements. A dedicated remote monitoring system was not established during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.4.2	In addition, RRR will carry out the following geochemical monitoring program: • As part of the ongoing mine rock management plan, collect and analyze blast hole drill cuttings for analysis of total inorganic carbon and total sulphur, using a Leco furnace, as a means of segregating PAG and NPAG materials for optimal management of PAG mine rock; • Submit a subset of Leco furnace samples, collected as part of the ongoing mine rock management plan, for acid base accounting static testing and metals analysis; Collect and analyze mill composite tailings samples, on an approximate monthly basis, for acid base accounting static testing and metals analysis; and • Conduct additional geochemical testing on an as required basis to provide further information on Project specific aspects, such as any conditions of note evolving out of developing trend analyses.	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRP site. The monitoring plan was implemented during 2016 and was on going in 2016. The monitoring plan included analyzing blast hole drill cuttings using a Leco furnace and submission of a subset for ABA and metals analysis, per the commitment.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	The following surface water system monitoring is proposed. A. Collect and analyze samples, and measure rates of flow, as appropriate, from site discharges, and runoff and seepage collection facilities, at the start of their respective operations, including: • TMA discharges to the Pinewood River both directly by pipeline discharge and through the constructed wetland; • Sedimentation Pond #1 and #2 discharges to West Creek; Aggregate operation(s), discharges (if any); • Sewage effluent discharge; and • Runoff and seepage collected from site operations areas (TMA, overburden and mine rock stockpiles, plant site area and haul roads) in accordance with MMER and Environmental Compliance Approval requirements.	This monitoring program was put in place during 2015 and is ongoing. In 2016 surface water was monitored on and off site as per the monitoring program. Discharges met the environmental approval requirements, with the exception of: • Ten instances of elevated total suspended solids concentration, • Five unionized ammonia exceedances in mine water from the Open Pit, • One instance of Dyno Totan 1000 Emulsion spilled to ground due to a procedural error, and • One instance of MMER acute toxicity of rainbow trout where a causation analysis was completed and determined inconclusive. More information can be found in Appendix A Condition 3.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	B. For each of the above, where there is a discharge to a receiver (West Creek or Pinewood River) monitor on a monthly basis (commencing at least three months before the first anticipated discharge / release) the quality of waters upstream and downstream of discharge and runoff / seepage releases at proposed monitoring locations shown in Figure 13-2, inclusive of three stations on West Creek and five stations on the Pinewood River (including Pinewood River baseline monitoring stations SW10, SW3 and SW15. The two current baseline monitoring stations on the Rainy River (SW16 and SW17) would also be maintained for monthly monitoring. Quarterly samples from selected water quality sampling stations will be collected for trace analysis of total and methyl mercury in discussion with the MOE.	The receiver monitoring was conducted on a monthly and quarterly basis as per the commitment. All samples collected from the receivers met the environmental approval requirements. In 2016, no quarterly samples were collected for trace analysis of total or methyl mercury. More information can be found in Appendix A Condition 3.	Ongoing
13.5.2	C. Monitor flows as shown in Figure 13-2 commencing as soon as construction is completed on the West Creek pond and the West Creek diversion at: • West Creek at the West Creek pond outflow; • West Creek diversion; and • Pinewood River at Highway 617 (Water Survey of Canada Station; WSC 05PC023). Flows are already being measured for the Pinewood River at WSC Station 05PC023. Note that given the importance of the WSC station to overall site water management as per Section 4.12, RRR will need to enter into an agreement with WSC to ensure that the station will be maintained throughout the RRP mine life, and that data will be made available to RRR on a daily basis, and that RRR would be immediately informed of any maintenance activities which could influence its operations.	Construction of the West Creek diversion was not completed during 2016. Pumped flows, as part of the various Permits to take Water, were measured. No flows through or discharges from West Creek diversion were present during 2016. The WSC remains active; however, New Gold RRP installed a dedicated flow monitoring station on the Pinewood River during 2015 to supplement this data source and continued to monitor it in 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	D. As data availability permits, develop annual updated statistical flow estimates for local watercourses based on flow data derived through monitoring, with such estimates to include: • Monthly averages; • Annual averages • Extreme low flow statistics corresponding to 2, 5, 10 and 20 year return period conditions; and • Extreme high flow statistics corresponding to 2, 5, 10 and 20 year return period conditions.	Instream measurements were on going during 2016 in the Pinewood River. Updated statistical flow estimates were not derived during 2016. Instream flow monitoring in other watercourses is planned for 2018, when water management structures are commissioned.	Ongoing
13.5.2	E. Carry out an environmental effects monitoring (EEM) program in accordance with the Metal Mining Guidance Document for Aquatic Environmental Effects Monitoring (EC 2012d) to assess the character and quality of aquatic resources at the following locations: • West Creek diversion; and • Pinewood River upstream and downstream of the RRP site area.	As a discharge of surface runoff water was released in Sept 2015, the MMER were triggered and during 2016 an EEM program was initiated. The West Creek Diversion was not completed during 2016.	Ongoing
13.5.2	F. Except as provided for in Item E, above, carry out commencing one year after the date of commercial production and at three year intervals thereafter, fish habitat and fisheries assessments, including sediment and benthos investigations for: • West Creek; • Clark Creek (upstream of the east mine rock stockpile); and • Pinewood River.	Commercial production was not attained during 2016.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
	G. Monitor contaminants of potential concern in fish tissues from game fish harvested from the Pinewood River coincident with monitoring carried out pursuant to Item F. above.	Baseline Fish Tissue studies were completed in 2015 and 2016.	
13.5.2	H. As a component of the RRP stormwater management plan, collect and analyze late winter snow pack samples for pH and metals to help determine the effects of dustfall accumulated within the snow pack during spring melt.	Winter snow was measured as part of the surface water monitoring program with runoff being collected, sampled and tested prior to release to environment in 2016. Discharges met the environmental approval requirements, with the exception of discharges mentioned in 13.5.2 A.	Ongoing
13.6.2	RRR will carry out groundwater system monitoring as per the following: A. Collect and analyze samples, and measure pumping rates for mine water from the open pit and underground transferred to the mine rock pond (or to the TMA during construction); B. Establish a groundwater well (piezometer) network around the open pit area to monitor groundwater levels throughout the area on a continuous basis using water level transducers, with transducer downloads to be completed twice per year, commencing at least six months prior to the start of pumping, all as shown in Figure 13-3;	A site wide groundwater monitoring system was established including the following aspects: A. Samples are collected and analyzed and pump rates are measured from mine water pumped from the open pit and transferred to the treatment sumps. No water was sent to the TMA during 2016. B. A groundwater well program was established in late 2015 and early 2016 that extended around the entire site. The piezometers / wells included water level transducers with downloads completed.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.6.2 cont	C. Collect groundwater samples from the groundwater well / piezometer network quarterly except where prevented by freezing conditions, and analyze the samples for applicable parameters as provided for in Provincial approvals; and D. Review groundwater monitoring data annually and update the groundwater model on three year intervals, with the first such update to be based on data obtained from the first three full years of pumping; and with the model updates to be completed within nine months of the end of the data collection period.	C. Groundwater well samples were taken from the piezometer / well network quarterly during 2016 however during the fourth quarter due to freezing conditions some wells were not able to be sampled . D. The groundwater samples were analyzed for the parameters in the Provincial approvals and the data was reviewed during 2016. The groundwater model was not scheduled to be updated in 2016. The first scheduled update of the groundwater model is to be in 2019, based on the data collected from 2016, 2017 and 2018.	
13.7.1	A wildlife monitoring plan will be implemented to ensure that effects on wildlife are properly mitigated. FMP monitoring will be based where possible, on standard survey protocols used during baseline studies so that any changes in local mammal, area-sensitive breeding bird or amphibian populations may be detected.	The comprehensive Wildlife Monitoring Plan was issued May 25, 2016, Version 5.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.7.2	Methods for determining adverse RRP-induced effects on mammals following the implementation of proposed mitigation measures will include: • Bat acoustic monitoring at representative locations; • Aerial helicopter survey in late winter to document numbers and distributions of White-tailed Deer, Moose and Wolves at locations representing suitable habitat directly adjacent to the RRP site; and control sites. Such surveys to be conducted during the first winter of the construction phase, the winter following the completion of construction, and at three year intervals thereafter until the end of the active mine reclamation phase; • Working with any Aboriginal hunters to document White-tailed Deer, Moose, Wolf and Black Bear harvesting activities in the RRP site area; • Implementation of a wildlife log (including collisions) of general mammal observations made by employees on the RRP site including White-tailed Deer, Moose, Black Bear and any other larger furbearers; and • Monitoring of Black Bear activity related to waste disposal (if applicable) and general site activities.	Monitoring of potential adverse effects on mammals did not occur during 2016. MNRF has requested that the study be aligned with their regional monitoring. Due to limited snow pack in 2016, aerial surveys did not take place. The MNRF aerial surveys are to take place in January and/or February 2017 and will cover the District with transect lines spread out much wider than just the RRP. Bat acoustic monitoring was completed as part of the baseline program for the Environmental Assessment. No suitable bat habitat was identified on the RRP site therefore bat acoustic monitoring was not carried out in 2016. The need for bat acoustic monitoring will be reassessed in the future. New Gold RRP implemented a wildlife log at the site during 2015, and continued documenting wildlife sightings and interactions through 2016. The wildlife logs for 2016 included documented Black Bear activity related to site activities, including waste management.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.7.3	Methods for determining adverse effects to breeding birds following the implementation of proposed mitigation measures will include: • Targeted point count surveys for diurnal SAR including Golden-winged Warbler, Barn Swallow and Bobolink and for woodland area-sensitive breeding birds in suitable habitat. Point counts will be based on standardized survey protocols described for the Ontario Breeding Bird Atlas Guide for Participants (OBBA 2001) so as to be consistent with baselines study methodology (Section 5.2.12); • Incidental data collection for SAR and Provincially rare species which are currently present at lower abundance including: Canada Warbler, Olive-sided Flycatcher, Short-eared Owl, American Pelican, Bald Eagle and Black-billed Magpie; • Targeted twilight surveys for Eastern Whip-poor-will in suitable habitat. Whip-poor-will monitoring efforts will follow standardized survey protocols as outlined in the whip-poor-will Roadside Survey Participant's Guide (BSC 2012); • Concurrent data collection for Common Nighthawk to be undertaken during targeted Eastern Whip-poor-will surveys as described above as no standardized survey protocols have been developed specifically for this species; Annual monitoring of active Bald Eagle nests which occur in close proximity the RRP site. Monitoring will attempt to establish fledging success; • Implementation of a wildlife log of general breeding bird observations at the RRP site by employees (focused on raptors and raptor nests, and SAR species); and Any additional monitoring defined in ESA permits.	Monitoring of breeding birds during 2016 followed the requirements of the Provincial ESA Permit and included the listed aspects.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.7.4	Effects on amphibians after implementation of proposed mitigation measures will include: • Implementation of a wildlife log of general amphibian observations by employees.	The wildlife log implemented during 2015 was continually updated during 2016 and includes tracking general amphibian observations.	Ongoing
13.8.2	This section considers the potential for traffic accidents on public roads related to the construction and operation of the RRP. Roads of specific interest are: • Highways 71 and 11, west of Fort Frances and south of Kenora; • Highway 600; • Teeple Road west of Highway 71; and • East Access Road. Methods for assessing traffic accidents along public roads will include: • Monitoring road surface conditions for the identified roads of interest during the winter months and working with the MTO and the local municipalities, to ensure that roads are properly cleared, salted and sanded, as appropriate to maintain safe driving conditions; • Maintaining a record of any accidents involving RRR employees and contractors related to the RRP; and • Maintaining a record of any near misses related to potential traffic accidents along the roads of interest involving RRR employees and contractors related to the RRP.	Records of any reported traffic accidents and near misses are maintained. Security conduct road inspections on site each night shift, with New Gold RRP self-performed crew addressing identified issues/hazards. Teeple Road, East Access Road and Highway 600 are included in these inspections. Reports of road hazards are communicated during the HSE Communication broadcast over all radio channels at shift start.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.9.2	To assess potential changes to Tradition Land Use (TLU) that could potentially derive from implementation of the RRP, RRR will carry out, or provide financial support for, the following activities: • Subject to any terms of agreement with the local First Nations and Métis, periodically update Traditional Knowledge (TK) studies conducted for the RRP beginning five years after mine operations initiate, to determine if there have been any changes to resource harvesting patterns by local Aboriginal peoples as a result of the RRP, and the reasons for any such changes; • Conduct reviews at five year intervals, of the activities of a subset of RRR Aboriginal employees (representative cross section) to determine the effects of employment on their traditional activities; and • Confirm any expected changes in the availability of fisheries and wildlife resources to local harvesters, based on data derived from biological monitoring programs.	No updates etc. were conducted in 2016. The information will be provided to MOECC once available, subject to support from the Indigenous communities to share the information.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.10.2	RRR will carry out the following monitoring program to ensure the protection of cultural heritage resources • Maintain a record of all cultural heritage resources known to occur in the vicinity of planned RRP developments, such that intrusion or damage to such resources can be avoided during construction, recognizing and respecting confidentiality limitations; • Maintain an active dialogue with local residents and Aboriginal group representatives, having knowledge of specific areas prior to and during major construction activities, to provide guidance to supervisory staff on the likely or possible occurrence of as yet undocumented cultural heritage sites; • Enlist the services of a trained archaeologist during the conduct of major construction works to support RRR as needed, where there is a reasonable potential for encountering as yet undocumented cultural heritage sites; • Enlist the services of Elders or other cultural advisors in the event that cultural heritage resources are encountered (in addition to meeting all Regulatory requirements); and • Conduct a post-construction assessment of the state of known cultural heritage sites in the vicinity of RRP activities / structures to confirm the integrity of such resources.	New Gold RRP engaged qualified Archaeologists and Built Heritage Specialists to record all resources prior to construction commencing. New Gold RRP continues to actively engage local residents and Aboriginal groups through meetings and visits and public events such as 2015 Archaeology Day. A New Gold RRP employee is a qualified Archaeologist and has engaged Woodland Heritage Services to conduct ongoing investigations. New Gold RRP agrees to enlist the services of Elders should Cultural Heritage resources be discovered. New Gold RRP will conduct post construction assessment of the state of known Cultural Heritage sites.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.11.2	RRR will carry out the following monitoring program to ensure the documentation of cultural heritage landscapes and built heritage resources as appropriate: • Develop an initial record of all cultural heritage landscapes and built heritage resources known to occur near the planned RRP developments, such that intrusion or damage to such resources can be documented; and • Conduct a post-construction assessment of the state of known cultural heritage landscapes and built heritage resources in the vicinity of RRP activities / structures to confirm the status of such resources.	The initial record was completed by Untermann McPhail Associates. New Gold RRP will complete a post-construction assessment of the state of known cultural heritage resources.	N/A
13.12.2	Traffic flow on local roads with more limited capacity is of greater interest, notably: • Highway 600; • Teeple Road west of Highway 71; and • The East Access Road. The intent is to document that these local roads are able to continue to function adequately, and within safe limits for both project and local traffic. Methods for measuring traffic use along local roads will include: • Periodic traffic count surveys using automated traffic counters; • Employee surveys to determine transport routes to and from the mine site; and • Ongoing discussions with MTO and the Township of Chapple to support additional traffic volume monitoring studies if appropriate.	Any reports of traffic issues on local roads are addressed immediately. The use of buses to transport workers to/from site assists in reducing traffic loads.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.13.2	Methods for documenting accommodations use in association with the RRP will include conducting contractor and employee surveys to determine: • Community or nearest community of local residence; • Type of residence (rental or ownership); • Type of accommodation (existing or new); • Type of occupancy (single, shared or family); and • Whether or not the employee / contractor is an existing local resident, or new to the area.	As New Gold RRP is a residential operation, New Gold RRP employees do not fly-in/fly-out of the community. New Gold RRP tracks all New Gold RRP employees to identify local hires, which gives a good representation on local impacts on the housing market. As of December 31st 2016, 80% of operations employees were from the local districts.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.14	It is anticipated the Environmental Management System (EMS) will consider the following areas as significant environmental aspects of the RRP (although they may not be represented by individual management plans depending on the final environmental management system framework): • Recycling and waste reduction program; • Mine rock (PAG / NPAG) management; • Water management; • General waste management; • Hazardous materials management; • Fuel handling and storage; • Fugitive dust management; • Sound management; • Wildlife management; • Traffic management; • Cultural awareness; • Heritage management; • Emergency response; and • Response to malfunctions and accidents.	During 2016, the EMS continued to be developed and will be ongoing through 2017. The EMS system continues to be developed using the ISO 14001 Standards and will enable the New Gold RRP the option of becoming ISO Certified. Both New Gold Corporate and the RRP have some policies and procedures in place and in draft form. The aspects listed will be fully considered in the final system. During 2016 reviews of the following were completed • Recycling and waste reduction program; • General waste management; • Hazardous materials management; • Mine rock (PAG / NPAG) management; • Water management; • Fuel handling and storage; • Fugitive dust management; • Wildlife management; • Traffic management; • Emergency response; and • Response to malfunctions and accidents.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.14	Environmental management system maintenance and effectiveness will be monitored through a variety of programs, such as: • Formal and informal audits; • Environmental monitoring; • Non-conformance incidents, status of corrective actions; and • Stakeholder feedback. Periodic management reviews will completed to consider changing circumstances which could affect the continued suitability and adequacy of the plans, and to support continual improvement in overall effectiveness.	The EMS was not fully in place and development was still on going in 2016. As such, no monitoring of the EMS was completed in 2016. Reviews of the implemented New Gold RRP EMS will be completed once the EMS is finalized.	N/A

Appendix E

Public Consultation Registry

2016 Rainy River Project Annual Report

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
01/05/2016	E-mail	New Gold provided an update regarding the RRP Closure Plan noting that as a result of the 2015 regulatory review of the Closure Plan, the provincial regulators required New Gold to prepare a Closure Plan Amendment to address any comments that were deemed material. New Gold noted that each community would receive a summary of the Closure Plan Amendment within the near future to help each community understand the information and would be available to assist with any questions prior to completion of the Closure Plan Amendment by February 23, 2016.	Key First Nation Stakeholders receiving the update included: Lac La Croix First Nation, Mitaanjigamiing First Nation, Naicatchewenin First Nation, Nigigoonsiminikaaning First Nation, Seine River First Nation Couchiching First Nation, Big Grassy River First Nation, Rainy River First Nations, Buffalo Point First Nation Ojibways of Onigaming First Nation, Anishinaabeg of Naongashiing (Big Island) First Nation, Naotkamegwanning (Whitefish Bay) First Nation, Anishinabe of Wauzhushk Onigum (Rat Portage) First Nation, Northwest Angle No.33 First Nation, and Animakee Wa Zhing 37 First Nation	No comments were received.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
01/13/2016	E-mail	New Gold provided a copy of the RRP Closure Plan Amendment summary document and noted that the Ministry of Northern Development and Mines (MNDM) would be in contact with the communities to identify comments or concerns. New Gold offered to assist with any questions about the Closure Plan Amendment.	Lac La Croix First Nation, Mitaanjigamiing First Nation, Naicatchewenin First Nation, Nigigoonsiminikaaning First Nation, Seine River First Nation, Couchiching First Nation, Mishkosiimiiniiziibing (Big Grassy River) First Nation, Rainy River First Nations, Buffalo Point First Nation, Ojibways of Onigaming First Nation, Anishinaabeg of Naongashiing (Big Island) First Nation, Naotkamegwanning (Whitefish Bay) First Nation, Anishinabe of Wauzhushk Onigum (Rat Portage) First Nation, Northwest Angle No.33 First Nation, Animakee Wa Zhing 37 First Nation	Comments were received from Onigaming First Nation; see below consultation dated March 10, 2016.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
01/13/2016	E-mail	New Gold provided a copy of the RRP Closure Plan Amendment summary document and noted that the Ministry of Northern Development and Mines (MNDM) would be in contact with the Métis Nation of Ontario to identify comments or concerns. New Gold offered to assist with any questions about the Closure Plan Amendment.	Métis Nation of Ontario	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either. New Gold or the Ministry of Northern Development and Mines	Buffalo Point First Nation	No comments were received.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Lac La Croix First Nation, Mitaanjigamiing First Nation, Nigigoonsiminikaaning First Nation, Seine River First Nation, Couchiching First Nation	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Métis Nation of Ontario	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Anishinaabeg of Naongashiing (Big Island) First Nation	No comments were received.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Naotkamegwanning (Whitefish Bay) First Nation	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Northwest Angle No.33 First Nation	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines. New Gold requested that the correspondence be shared with the Chief of Northwest Angle No. 37.	Animakee Wa Zhing 37 First Nation	No comments were received.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines. New Gold also expressed interest in having the Ojibways of Onigaming First Nation Chief and Council come to the RRP for a site visit in the coming weeks.	Ojibways of Onigaming First Nation	No comments were received.	Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Rainy River First Nations, Naicatchewenin First Nation	No comments were received.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/03/2016	E-mail	New Gold provided an update on the RRP including key accomplishments during 2015 and an overview of the planned activities for 2016 as they relate to construction, operations, people and the environment. The email also provided a reminder that comments or questions on the Closure Plan Amendment provided in January are due by 2016-02-23 to either New Gold or the Ministry of Northern Development and Mines.	Anishinabe of Wauzhushk Onigum (Rat Portage) First Nation	No comments were received.	Aboriginal
03/10/2016	E-mail	New Gold responded to comments Onigaming First Nation provided on 2016-02-24 regarding the Closure Plan Amendment.	Ojibways of Onigaming First Nation	No further action required	Aboriginal
01/04/2016	Meeting	New Gold met with an Elder from Nigigoonsiminikaaning First Nation; the Elder does not support the extraction of resources.	Nigigoonsiminikaaning First Nation	No further action required; New Gold will continue to work with the community.	Aboriginal
01/05/2016	Meeting	New Gold held a Quarterly Participation Agreement Joint Implementation Committee Meeting with the Métis Nation of Ontario at New Gold's office in Emo.	Métis Nation of Ontario	Ongoing quarterly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
01/12/2016	Meeting	New Gold met with the Chief of Naicatchewenin First Nation to provide an update on RRP-related activities. The Chief suggested that New Gold connect with the First Nation's employment and training committee, who are scheduled to meet in February 2016.	Naicatchewenin First Nation	New Gold, along with Naicatchewenin and Rainy River First Nations, formed a Human Resource sub-committee to deal with employment and training opportunities.	Aboriginal
01/12/2016	Negotiation Meeting	New Gold met with Onigaming First Nation to discuss a Participation Agreement.	Ojibways of Onigaming First Nation	Next meeting was scheduled for February 23, 2016.	Aboriginal
01/12/2016	Meeting	New Gold held a Quarterly Chiefs Meeting with Mishkosiimiiniiziibing (Big Grassy River) First Nation.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	Ongoing quarterly meetings are held.	Aboriginal
01/13/2016	Workshop	New Gold conducted a pre-employment workshop for Lac La Croix First Nation at the Zhingwako Zaiganing School, which covered resumes, cover letters, communication and social media. New Gold provided	Lac La Croix First Nation, Seven Generations Education Institute	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
		laptops to assist in generating profiles for electronic recruitment, updating resumes and cover letters, and to conduct employment readiness assessments.			
01/19/2016	Meeting	New Gold met with Rainy River First Nations. Topics discussed included cultural awareness training, communication and job opportunities.	Rainy River First Nations	No further action required	Aboriginal
01/20/2016	Conference Call	New Gold met with Couchiching First Nation. During the meeting the following topics were discussed: Closure Plan, tailings management area, contracts and Highway 600.	Couchiching First Nation	New Gold provided the complete Closure Plan Amendment to Couchiching First Nation. No other follow up actions are required at this time.	Aboriginal
01/28/2016	Meeting	New Gold met with the representatives from Nigigoonsiminikaaning First Nation to discuss the RRP.	Nigigoonsiminikaaning First Nation	No further action required	Aboriginal
02/01/2016	Meeting	New Gold held a Quarterly Participation Agreement Joint Implementation Committee Meeting with the Métis Nation of Ontario at New Gold's office in Emo.	Métis Nation of Ontario	Ongoing quarterly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/03/2016	Negotiation Meeting	New Gold held a meeting with Naotkamegwanning First Nation to discuss a Participation Agreement.	Naotkamegwanning (Whitefish Bay) First Nation, Major, Sobiski & Moffatt LLP, Petersen Consulting	Next meeting was scheduled for March 11, 2016.	Aboriginal
02/03/2016	Community Event	New Gold participated in a career fair for Confederation College in Thunder Bay. New Gold provided information on the RRP and employment opportunities.	Confederation College	No further action required	Public
02/04/2016	Negotiation Meeting	New Gold met with Anishinaabeg of Naongashiing First Nation to discuss a Participation Agreement.	Anishinaabeg of Naongashiing (Big Island) First Nation, Dickinson Wright	Next meeting was scheduled for October 17, 2016.	Aboriginal
02/04/2016	Site Visit	New Gold conducted a site tour for Anishinaabeg of Naongashiing First Nation.	Anishinaabeg of Naongashiing (Big Island) First Nation	No further action required	Aboriginal
02/05/2016	Negotiation Meeting	New Gold met with Anishinaabeg of Naongashiing First Nation to discuss a Participation Agreement.	Anishinaabeg of Naongashiing (Big Island) First Nation, Dickinson Wright	Discussions will be ongoing.	Aboriginal
02/08/2016	Meeting	New Gold met with Mishkosiimiiniiziibing (Big Grassy River) First Nation to discuss the education fund and allocation of scholarships.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No further action required	Aboriginal
02/09/2016	Meeting	New Gold met with a local bait fish harvester to discuss an access agreement.		No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/09/2016	Meeting	New Gold participated in a regularly held Naicatchewenin Employment Committee Meeting. During the meeting employment statistics as well as upcoming training and education programs were discussed.	Naicatchewenin First Nation	No further action required	Aboriginal
02/11/2016	Community Event	New Gold participated in a career fair for Mishkosiimiiniiziibing (Big Grassy River) First Nation at the Pegamigaabo School. New Gold provide information on employment opportunities and RRP information.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No further action required	Aboriginal
02/12/2016	Meeting	New Gold met with the Chief of Lac La Croix First Nation to provide an update on the RRP. New Gold also provided information about the percentage of First Nation employees and it was suggested that the community appoint a new representative for the Advisory Committee. Plans for a community visit to assist with applications were finalized and confirmed with the Business Development Manager. New Gold's First Nations Liaison will plan to meet with newly elected Chief and Council.	Lac La Croix First Nation	No further action required	Aboriginal
02/18/2016	Workshop	New Gold conducted a resume workshop with a presentation on electronic recruitment for Naotkamegwanning First Nation. Four members of the First Nation attended.	Shooniyaa Wa-Biitong, Naotkamegwanning (Whitefish Bay) First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/19/2016	Meeting	New Gold met with two individuals to discuss the property boundaries of the Tailings Management Area.		No further action required	Public
02/23/2016	Meeting	New Gold attended a Chief and Council meeting at Lac La Croix First Nation to provide introductions. New Gold provided Chief and Council with an updated on the RRP. The First Nation identified an interest in conducting employment readiness training for their members.	Lac La Croix First Nation	No further action required	Aboriginal
02/23/2016	Negotiation Meeting	New Gold met with Onigaming First Nation to discuss a Participation Agreement.	Ojibways of Onigaming First Nation	Next meeting was scheduled for May 19, 2016.	Aboriginal
02/24/2016	Meeting	New Gold met with the Chief of Nigigoonsiminikaaning First Nation to follow-up on previous meetings regarding a Participation Agreement. The Chief identified a continued interest in participating; however, feels that talks about signing an agreement are no longer needed.	Nigigoonsiminikaaning First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
03/04/2016	Meeting	New Gold participated in a regular Naicatchewenin Employment Committee Meeting. During the meeting employment statistics as well as upcoming training and education programs were discussed.	Naicatchewenin First Nation	No further action required	Aboriginal
03/08/2016	Meeting	New Gold held a Quarterly Participation Agreement Joint Implementation Committee Meeting with Mishkosiimiiniiziibing (Big Grassy River) First Nation.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	Ongoing quarterly meetings are held.	Aboriginal
03/11/2016	Negotiation Meeting	New Gold held a conference call meeting with Naotkamegwanning First Nation to discuss a Participation Agreement.	Naotkamegwanning (Whitefish Bay) First Nation, Major, Sobiski & Moffatt LLP, Petersen Consulting	Discussions will be ongoing.	Aboriginal
03/11/2016	Community Event	New Gold presented to students (senior kindergarten through grade 3) at the Nestor Falls School. New Gold provided information on the mine, equipment and items that are made from the mined resources.	Unknown Individual (Unknown)	No further action required	Public
03/15/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
03/22/2016	Site Visit	New Gold conducted a site tour for Animakee Wa Zhing 37 First Nation.	Animakee Wa Zhing 37 First Nation	No further action required	Aboriginal
03/23/2016	Negotiation Meeting	New Gold met with Animakee Wa Zhing 37 First Nation to discuss a Participation Agreement.	Animakee Wa Zhing 37 First Nation	Next meeting was scheduled for June 7, 2016.	Aboriginal
03/23/2016	Meeting	New Gold met with local employment agencies to help improve the agencies' services to individuals seeking employment with New Gold.	Rainy River First Nations, United Native Friendship Centre (UNFC), Naicatchewenin First Nation, Shooniyaa Wa-Biitong, Northern Community Development Services	No further action required	Aboriginal
03/29/2016	Community Meeting	New Gold met with the Mitaanjigamiing First Nation community to provide an update on the RRP, employment statistics as well as an update on the First Nation Coordinator position.	Mitaanjigamiing First Nation	No further action required	Aboriginal
03/31/2016	Meeting	New Gold met with the Chiefs of Rainy River First Nations and Naicatchewenin First Nation.	Rainy River First Nations, Naicatchewenin First Nation,	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
04/12/2016	Presentation	New Gold presented to high school students at the Lac La Croix High School. New Gold provided information on the various employment opportunities and the electronic recruitment process as well as assisted in the development of electronic recruitment profiles, resumes and cover letters.	Lac La Croix First Nation, Shooniyaa Wa-Biitong	No further action required	Aboriginal
04/13/2016	Meeting	New Gold met with the Lac La Croix First Nation to provide assistance to four community members with creating electronic recruitment profiles, resumes and cover letters.	Lac La Croix First Nation, Shooniyaa Wa-Biitong	No further action required	Aboriginal
04/14/2016	Meeting	New Gold held a meeting with the Environmental Sub-Committee of the Fort Frances Chiefs Secretariat Participation Agreement Advisory Committee.	Lac La Croix First Nation, Couchiching First Nation, Mitaanjigamiing First Nation, Seine River First Nation	No further action required	Aboriginal
04/14/2016	Meeting	New Gold held a quarterly meeting with the Fort Frances Chiefs Secretariat Participation Agreement Advisory Committee.	Lac La Croix First Nation, Seine River First Nation, Couchiching First Nation, Mitaanjigamiing First Nation	Ongoing quarterly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
04/19/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal
04/21/2016	Community Event	New Gold participated at a STEAM (Science, Technology, Education, Arts and Math) event at the Sturgeon Creek School. There were approximately 60 people in attendance. New Gold engineering staff provided information about aspects of their work.	Sturgeon Creek School	No further action required	Public
04/22/2016	Community Event	New Gold participated in the Fort Frances Business Expo at the Fort Frances Curling Club. New Gold had an information booth with site flyover video, posters and photos.	Unknown Unknown (Unknown)	No further action required	Public
04/25/2016	Community Event	New Gold participated in the Red Gut Health Fair.	Nigigoonsiminikaaning (Red Gut Bay) First Nation	No further action required	Aboriginal
05/02/2016	Meeting	New Gold held a Quarterly Participation Agreement Joint Implementation Committee Meeting with the Métis Nation of Ontario.	Métis Nation of Ontario	Ongoing quarterly meetings are held.	Aboriginal
05/06/2016	Site Visit	New Gold held a breakfast and site tour for the Chiefs of Rainy River First Nations and Naicatchewenin First Nation.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
05/12/2016	Community Event	New Gold participated in a career fair at the Fort Frances High School. New Gold provided information on the RRP and employment opportunities.	Fort Frances High School, Unknown Unknown (Unknown)	No further action required	Public
05/16/2016	Community Event	New Gold met with the Early Years classes at Robert Moore School to provide information about mining and the RRP.	Robert Moore School	No further action required	Public
05/17/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations	Ongoing monthly meetings are held.	Aboriginal
05/19/2016	Negotiation Meeting	New Gold met with Onigaming First Nation to discuss a Participation Agreement.	Ojibways of Onigaming First Nation	Next meeting was scheduled for _____	Aboriginal
05/26/2016	Meeting	New Gold met with an Elder from Nigigoonsiminikaaning First Nation and invited the Elder to the Spring Ceremony; however, the Elder declined due to other commitments.	Nigigoonsiminikaaning First Nation	No further action required	Aboriginal
05/31/2016	Site Visit	New Gold conducted a site tour for the Fort Frances Chiefs Secretariat Participation Agreement Advisory Committee and the Environmental Sub-Committee. Onigaming First Nation Elders also attended.	Seine River First Nation, Ojibways of Onigaming First Nation, Mitaanjigamiing First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
05/31/2016	Ceremony	New Gold held a Spring Ceremony with the First Nations. Attendees were given a description of why the ceremony was taking place. Attendees expressed gratitude for being brought tobacco and to be able to ask forgiveness of the earth for the damage done by the Project at site. They expressed encouragement about the Project and hope that it will be a benefit for everyone in the area, including the First Nations membership and communities.	Rainy River First Nations, Mishkosiimiiniiziibing (Big Grassy River) First Nation, Naotkamegwanning (Whitefish Bay) First Nation, Naicatchewenin First Nation, Mitaanjigamiing First Nation, Seine River First Nation, Ojibways of Onigaming First Nation, Animakee Wa Zhing 37 First Nation	No further action required	Aboriginal
06/06/2016	Meeting	New Gold met with the Environmental Sub-Committee of the Fort Frances Chiefs Secretariat Participation Agreement Advisory Committee.	Seine River First Nation, Couchiching First Nation, Mitaanjigamiing First Nation	Ongoing quarterly meetings are held.	Aboriginal
06/07/2016	Negotiation Meeting	New Gold held a meeting with Animakee Wa Zhing 37 First Nation to discuss a Participation Agreement.	Animakee Wa Zhing 37 First Nation	Next meeting was scheduled for October 17, 2016.	Aboriginal
06/07/2016	Meeting	New Gold met with the Chief of Nigigoonsiminikaaning First Nation to provide an update on the RRP and employment statistics.	Nigigoonsiminikaaning First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
06/09/2016	Mass Mailout	New Gold mailed out the RRP Spring 2016 Newsletter to the following communities: • Rainy River, Fort Frances (includes Couchiching, Nigigoonsiminikaaning, Mitaanjigamiing, Lac La Croix, Sunset Country Métis), • Devlin (includes Naicatchewenin), • Emo (includes Rainy River First Nations), Barwick, Stratton, Pinewood, • Sleeman (includes Big Grassy, Big Island), • Nestor Falls (includes Onigaming), • Mine Centre (includes Seine River), and • Pawitik (includes Whitefish Bay and Sioux Narrows). A digital version was also posted on the New Gold website.		No further action required	Public and Aboriginal
06/14/2016	Meeting	New Gold held an introductory meeting for the Environmental Monitoring Board (Rainy River First Nations and Naicatchewenin First Nation).	Rainy River First Nations, Naicatchewenin First Nation	No further action required	Aboriginal
06/16/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal
6/17/2016	Site Visit	New Gold conducted a site tour for two individuals.		No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
06/20/2016	Meeting	New Gold met with Shooniyaa-Wa-Bitoong for a Regional Training Planning Meeting. The purpose of the meeting was to discuss the possibility of regional training to support and prepare First Nation communities for the next wave of New Gold employment opportunities. A follow-up meeting was scheduled for the first week of July 2016.	Shooniyaa-Wa-Bitoong	No further action required	Aboriginal
06/20/2016	Meeting	New Gold met with an Elder from Naicatchewenin First Nation to request that they have blessing ceremony for the Administration Building on 2016-06-20. The Elder was offered tobacco.	Naicatchewenin First Nation	No further action required	Aboriginal
06/22/2016	Ceremony	A Blessing Ceremony for the Administration Building was held at the RRP. The ceremony was presided over by two elders from the Naicatchewenin and Naotkamegwanning (Whitefish Bay) First Nations.	Naicatchewenin First Nation, Onikaajigan Construction LP, Pwi-Di-Goo-Zing Ne-Yaa-Zhing Advisory Services, Naotkamegwanning (Whitefish Bay) First Nation	No further action required	Aboriginal
06/27/2016	Ceremony	An awards ceremony and luncheon was held for members of Naicatchewenin First Nation who have been employed with New Gold for one year or more.	Naicatchewenin First Nation	No further action required	Aboriginal
06/30/2016	Community Event	New Gold participated in the Fort Frances Mall Daze. New Gold had an information booth and staff in attendance to answer RRP-related questions.	Unknown Unknown (Unknown)	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
02/23/2016	Mass Mailout	New Gold mailed out the RRP Winter 2016 Newsletter to the following communities: • Rainy River, Fort Frances (includes Couchiching, Nigigoonsiminikaaning, Mitaanjigamiing, Lac La Croix, Sunset Country Métis), • Devlin (includes Naicatchewenin), • Emo (includes Rainy River First Nations), Barwick, Stratton, Pinewood, • Sleeman (includes Big Grassy, Big Island), • Nestor Falls (includes Onigaming), • Mine Centre (includes Seine River), and Pawitik (includes Whitefish Bay and Sioux Narrows). A digital version was also posted on the New Gold website.		No further action required	Public and Aboriginal
07/07/2016	Meeting	New Gold held a Quarterly Chiefs Meeting with Rainy River First Nations and Naicatchewenin First Nation at Rainy River First Nations Roundhouse.	Naicatchewenin First Nation, Rainy River First Nations	Ongoing quarterly meetings are held.	Aboriginal
07/12/2016	Ceremony	The opening of the Pinewood River pump house was celebrated with a Water Ceremony performed by an Elder from Rainy River First Nations.	Rainy River First Nations	No further action required	Aboriginal
07/11/2016	Community Event	New Gold participated in a Métis Nation of Ontario and Town of Fort Frances Career Fair. There were 39 participants.	Métis Nation of Ontario	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
07/13/2016	Community Event	New Gold participated in a Naotkamegwanning First Nation Career Fair. There were 12 participants.	Naotkamegwanning (Whitefish Bay) First Nation	No further action required	Aboriginal
07/14/2016	Presentation	New Gold presented to Animakee Wa Zhing 37 First Nation community members at the Windigo Island Band Office. New Gold responded to questions related to the RRP career options and the recruitment process. There were 12 participants.	Animakee Wa Zhing 37 First Nation	No further action required	Aboriginal
07/14/2016	Community Event	New Gold participated in a Seine River First Nation Career Fair. There were 9 participants.	Seine River First Nation	No further action required	Aboriginal
07/19/2016	Meeting	New Gold held a Monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold Emo office.	Naicatchewenin First Nation, Rainy River First Nations	Ongoing monthly meetings are held.	Aboriginal
07/19/2016	Community Event	New Gold participated in a Mitaanjigamiing First Nation Career Fair. There were 14 participants.	Mitaanjigamiing First Nation	No further action required	Aboriginal
07/21/2016	Community Event	New Gold participated in a Rainy River First Nations Career Fair. There were 4 participants.	Rainy River First Nations	No further action required	Aboriginal
07/25/2016	Community Event	New Gold participated in a Anishinaabeg of Naongashiing First Nation Career Fair. There were 13 participants.	Anishinaabeg of Naongashiing (Big Island) First Nation	No further action required	Aboriginal
07/26/2016	Community Event	New Gold participated in an Onigaming First Nation Career Fair. There were 10 participants.	Ojibways of Onigaming First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
07/27/2016	Meeting	New Gold provided an update to the Chief of Naicatchewenin First Nation on the Employment Training Committee. Information on the second wave positions at RRP and Career Fair was requested. New Gold provided the information requested.	Naicatchewenin First Nation	New Gold provided the information on positions and career fairs to the community.	Aboriginal
07/27/2016	Community Event	New Gold participated in a Naicatchewenin First Nation Career Fair. There were 35 participants.	Naicatchewenin First Nation	No further action required	Aboriginal
08/02/2016	Site Visit	New Gold hosted a tour of the RRP mine site for three Couchiching First Nation members.	Couchiching First Nation	No further action required	Aboriginal
08/02/2016	Open House	New Gold hosted an RRP open house at Couchiching First Nation. The open house was attended by two community members.	Couchiching First Nation	No further action required	Aboriginal
08/02/2016	Site Visit	New Gold hosted a tour of the RRP mine site for one Rainy River Community College member.	Rainy River Community College	No further action required	Public
08/03/2016	Site Visit	New Gold hosted a tour of the RRP mine site for one Seven Generations Education Institute, Rainy River First Nations members and Naicatchewenin First Nation Environmental Monitoring Board members.	Seven Generations Education Institute, Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
08/04/2016	Meeting	New Gold met with the Mining Advisor of the Anishinaabeg of Kabapikotawangag Resource Council Inc. at the Anishinaabeg of Kabapikotawangag Resource Council Inc. office at Animakee Wa Zhing 37 First Nation. New Gold was requested to present at the next Anishinaabeg of Kabapikotawangag Resource Council Mining Committee Meeting.	Animakee Wa Zhing 37 First Nation	New Gold advised that they would present at the next meeting; the Mining Advisor would advise New Gold of the date of the committee meeting.	Aboriginal
08/05/2016	Site Visit	New Gold hosted a tour of the RRP mine site for 46 members of the Stratton Seniors Club.		No further action required	Public
08/05/2016	Meeting	New Gold provided the Chief of Couchiching First Nation with an update on employment statistics and an update on the Fort Frances Chiefs Secretariat Participation Advisory Committee and Environmental Sub-committee. The meeting was held at the Couchiching Band Office.	Couchiching First Nation	No further action required	Aboriginal
08/08/2016	Community Event	New Gold participated in a Big Grassy River First Nation Career Fair. There were 22 participants.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No further action required	Aboriginal
08/09/2016	Site Visit	New Gold hosted the Premier of Ontario and Member of Provincial Parliament (Thunder Bay-Superior North) to a tour of the RRP mine site.	Ontario Ministry of Northern Development and Mines, Government of Ontario	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
08/09/2016	Presentation	New Gold provided an update on the RRP to approximately 50 members of the Men's Breakfast Club of Sioux Narrows-Nestor Falls.		No further action required	Public
08/10/2016	Community Event	New Gold participated in a Lac La Croix First Nation Career Fair. There were 6 participants.	Lac La Croix First Nation	No further action required	Aboriginal
08/11/2016	Site Visit	New Gold provided a tour of the RRP mine site for the First Nations Natural Resources Youth Program. There were 65 participants from various First Nations, the Ministry of Natural Resources and Forestry.	Ministry of Natural Resources and Forestry; and various First Nations	No further action required	Aboriginal
08/11/2016	Meeting	New Gold held a Joint Implementation Committee Meeting with the Métis Nation of Ontario at New Gold's office in Emo.	Métis Nation of Ontario	Ongoing quarterly meetings are held.	Aboriginal
08/15/2016	Site Visit	New Gold hosted a tour of the RRP mine site for 15 Ministry of Natural Resources and Forestry (MNRF) Fort Frances Junior Rangers.	Unknown Unknown (Unknown)	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
08/15/2016	Site Visit	New Gold hosted a four day visit to New Gold's New Afton Mine for seven Animakee Wa Zhing 37 First Nation members. Participants viewed mine operations and visited with First Nations affiliated with the New Gold New Afton Mine.	Animakee Wa Zhing 37 First Nation	No further action required	Aboriginal
08/16/2016	Community Event	New Gold participated in a Nestor Falls Community Career Fair. There were 16 participants.	Unknown Individual (Unknown)	No further action required	Public
08/17/2016	Meeting	New Gold met with Couchiching First Nation to review the Fort Francis Chiefs Secretariat Participation Agreement.	Couchiching First Nation	No further action required	Aboriginal
08/17/2016	Community Event	New Gold participated in the Barwick Career Fair. There were 32 participants.	Unknown Individual (Individual - GP)	No further action required	Public
08/18/2016	Community Event	New Gold participated in a Nigigoonsiminikaaning First Nation Career Fair. There were 8 participants.	Nigigoonsiminikaaning First Nation	No further action required	Aboriginal
08/19/2016	Meeting	New Gold held a monthly Joint Implementation Committee meeting with Rainy River First Nations and Naicatchewenin First Nation.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
09/01/2016	Site Visit	New Gold hosted a tour of the RRP mine site for Member of Parliament for Thunder Bay-Rainy River.	Government of Canada (Member of Parliament - Thunder Bay-Rainy River)	No further action required	Public
09/13/2016	Meeting	New Gold outlined the need to access the boundary road between the Townships of Morley and Chapple to support water management line maintenance twice per year and allow emergency vehicle access. New Gold also identified two boundary road culverts in need of replacement.	Township of Chapple, Township of Morley	New Gold developed agreements with the Township of Morley and the Township of Chapple.	Public
09/13/2016	Site Visit	New Gold hosted a tour of the RRP mine site for the surrounding neighbours of the RRP mine site. There were 29 participants.	(Unknown Individual)	No further action required	Public
09/14/2016	Site Visit	New Gold hosted two tours of the RRP mine site for the public of Fort Frances. There were two bus loads with a total of 97 participants who responded to New Gold's media public tour notices posted in the Fort Frances Time and Westend Weekly.	(Unknown Individual)	No further action required	Public
09/14/2016	Meeting	New Gold met with Anishinaabeg of Kabapikotawangag Resource Council Inc. (AKRC) at the AKRC office in Northwest Angle #33 First Nation. AKRC requested New Gold meet to describe New Gold's First Nations Coordinator role and the participation of Pwi-di-goo-zhing Advisory Services.	Animakee Wa Zhing 37 First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
09/15/2016	Meeting	New Gold met with the Chief of Nigigoonsiminikaaning First Nation to plan for a session to assist members of Nigigoonsiminikaaning First Nation with job applications and interview skills.	Nigigoonsiminikaaning First Nation	New Gold will work with community members to assist in application process with New Gold.	Aboriginal
09/15/2016	Presentation	New Gold presented an update on progress of the RRP followed by a question and answer session at the Emo Legion. There were approximately 15 participants.	(Unknown Individual)	No further action required	Public
09/16/2016	Meeting	New Gold held a quarterly Joint Implementation Committee Meeting with Mishkosiimiiniiziibing (Big Grassy River) First Nation at the RRP Administrative Building.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	Ongoing quarterly meetings are held.	Aboriginal
09/17/2016	Site Visit	New Gold hosted a tour of the RRP mine site for the public of Fort Frances. There were two buses with a total of 88 participants who responded to New Gold's media public tour notices posted in the Fort Frances Time and Westend Weekly.	(Unknown Individual)	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
09/20/2016	Other	New Gold responded to a noise complaint from a resident near the project.	Resident near the Project Area	New Gold tried to identify the source of the noise, which was not identified and stays in communication with the resident.	Public
09/22/2016	Meeting	New Gold held a meeting with the Environmental Sub-Committee of the Seine River First Nation, Lac La Croix First Nation and Couchiching First Nation at the Nanicost Board Room in Fort Frances. The RRP Site Tour scheduled for early November 2016 was cancelled due to participant schedule conflicts.	Lac La Croix First Nation, Couchiching First Nation, Seine River First Nation	No further action required	Aboriginal
09/22/2016	Meeting	New Gold attended the Quarterly Fort Frances Chiefs Secretariat Participation Advisory Committee meeting held at the Nanicost Building in Couchiching, Ontario. Members from the Couchiching First Nation, Lac La Croix First Nation and Seine River First Nation were in attendance.	Lac La Croix First Nation, Seine River First Nation, Couchiching First Nation	Ongoing quarterly meetings are held.	Aboriginal
09/23/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
09/27/2016	Site Visit	New Gold hosted Grade 8 students and teachers from the Mishkosiimiiniiziibing (Big Grassy River) First Nation School to a tour of the RRP mine site. There were 20 participants.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No further action required	Aboriginal
09/27/2016	Site Visit	New Gold hosted a tour of the RRP mine site for members of the Ojibways of Onigaming First Nation. There were 2 participants.	Ojibways of Onigaming First Nation	No further action required	Aboriginal
09/27/2016	Presentation	New Gold and the Mishkosiimiiniiziibing (Big Grassy River) First Nation delivered a presentation on Best Business Practices to the Matawa Mineral Technical Committee and the Ontario Ministry of Northern Development and Mines (MNDM). The meeting was held at the Copper River Inn.	Mishkosiimiiniiziibing (Big Grassy River) First Nation, Matawa Mineral Technical Committee, Ontario Ministry of Northern Development and Mines	No further action required	Aboriginal
09/28/2016	Site Visit	New Gold hosted the Matawa Mineral Technical Committee and the Ontario Ministry of Northern Development & Mines (MNDM) to a tour of the RRP mine site.	Ontario Ministry of Northern Development and Mines, Matawa Mineral Technical Committee	No further action required	Public and Aboriginal
09/28/2016	Site Visit	New Gold hosted the Rainy River First Nations, the Matawa Mineral Technical Committee and the Ministry of Northern Development & Mines (MNDM) to a tour of the Atkinson Camp. Rainy River First Nations delivered a presentation on the Onikaajigan Construction Ltd. Partnership after the tour.	Ontario Ministry of Northern Development and Mines, Rainy River First Nations, Onikaajigan Construction LP, Matawa Mineral Technical Committee	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
09/29/2016	Presentation	New Gold attended the Couchiching First Nation meeting with the Matawa Mineral Technical Committee. Couchiching First Nation delivered a presentation on Wasaw Enterprises and Couchiching First Nation's Agreement with New Gold. The Ontario Ministry of Northern Develop and Mines discussed resources and programs available to First Nations.	Ontario Ministry of Northern Development and Mines, Couchiching First Nation, Matawa Mineral Technical Committee,	No further action required	Aboriginal
09/29/2016	Meeting	New Gold attended the Nigigoonsiminikaaning First Nation's meeting with the Matawa Mineral Technical Committee held at the Nigigoonsiminikaaning FN Community Hall.	Ontario Ministry of Northern Development and Mines, Nigigoonsiminikaaning First Nation, Matawa Mineral Technical Committee	No further action required	Aboriginal
09/30/2016	Site Visit	New Gold hosted community members from the Naicatchewenin First Nation to a tour of the RRP mine site. There were 16 participants.	Naicatchewenin First Nation	No further action required	Aboriginal
10/03/2016	Workshop	New Gold hosted a one-day Mining Matters workshop for students at Rainy River High School, Rainy River, Ontario.	Prospectors and Developers Association of Canada Rainy River High School	No further action required	Public
10/04/2016	Workshop	New Gold hosted a one-day Mining Matters workshop for Grades 4 and 5 students at Robert Moore School, Fort Frances, Ontario.	Prospectors and Developers Association of Canada Robert Moore School	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
10/04/2016	Mass Mailout	New Gold mailed out the RRP Fall 2016 Newsletter to the following communities: • Rainy River, Fort Frances (includes Couchiching, Nigigoonsiminikaaning, Mitaanjigamiing, Lac La Croix, Sunset Country Métis), • Devlin (includes Naicatchewenin), Emo (includes Rainy River First Nations), Barwick, Stratton, Pinewood, • Sleeman (includes Big Grassy, Big Island), • Nestor Falls (includes Onigaming), Mine Centre (includes Seine River), and • Pawitik (includes Whitefish Bay and Sioux Narrows). A digital version was also posted on the New Gold website.		No further action required	Public and Aboriginal
10/05/2016	Workshop	New Gold hosted a one-day Mining Matters workshop for Grades 6 and 7 students at Robert Moore School, Fort Frances, Ontario.	Prospectors and Developers Association of Canada Robert Moore School	No further action required	Public
10/05/2016	Community Event	New Gold hosted a Mining Matters Community Night for children at Donald Young School, Emo, Ontario.	Prospectors and Developers Association of Canada Donald Young School	No further action required	Public
10/06/2016	Site Visit	New Gold hosted the Canadian Institute of Forestry to a RRP mine site tour. There were 14 participants.	Canadian Institute of Forestry	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
10/06/2016	Workshop	New Gold hosted a one-day Mining Matters workshop for Grades 4, 5, 6 and 7 students at the Mine Centre Public School, Mine Centre, Ontario.	Prospectors and Developers Association of Canada, Mine Centre Public School	No further action required	Public
10/06/2016	Meeting	New Gold and TBT Engineering held a New Gold Dam Assessment Meeting with members from Rainy River First Nations Chief and Council. The meeting was held at the TBT Engineering Office in Thunder Bay.	Rainy River First Nations, TBT Engineering	No further action required	Aboriginal
10/06/2016	Ceremony	New Gold participated in the New Gold and Lakehead University Collaboration Framework Agreement signing ceremony at Lakehead University, Thunder Bay.	Lakehead University	No further action required	Public
10/07/2016	Meeting	New Gold attended the Naicatchewenin First Nation Committee Meeting. Naicatchewenin FN invited New Gold to participate in their next career fair and advised they would provide more details in an email to New Gold.	Naicatchewenin First Nation	No further action required	Aboriginal
10/12/2016	Site Visit	New Gold hosted the Rainy River Future Development Corporation to a RRP mine site tour. There were 8 participants.	Rainy River Future Development Corporation (RRFDC)	No further action required	Public
10/14/2016	Negotiation Meeting	New Gold held a negotiation meeting with the Anishinabe of Wauzhushk Onigum (Rat Portage) First Nation in Winnipeg, Manitoba.	Animakee Wa Zhing 37 First Nation, Major Sobiski Moffatt LLP	Next meeting was scheduled for ???	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
10/17/2016	Report	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
10/17/2016	Negotiation Meeting	New Gold held a Negotiation Meeting with Anishinaabeg of Naongashiing (Big Island) First Nation in Winnipeg, Manitoba.	Anishinaabeg of Naongashiing (Big Island) First Nation	Next meeting was scheduled for ???	Aboriginal
10/18/2016	Meeting	New Gold held a Monthly Joint Implementation Committee Meeting with the Rainy River First Nations and Naicatchewenin First Nation at the New Gold Office in Emo, Ontario.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal
10/19/2016	Ceremony	New Gold held a Fall Ceremony. Approximately 75 participants participated in the ceremony.		No further action required	Aboriginal
10/20/2016	Meeting	New Gold met with Rainy River First Nations and Naicatchewenin First Nation Environmental Monitoring Board. Rainy River First Nations requested New Gold: 1) provide 6 Deer Sampling Kits; 2) copy Kiley Shebagegit on the weekly Spill Report update. 3) Rainy River First Nations and Naicatchewenin First Nation requested New Gold deliver a community information session. New Gold confirm they will liaise with Rainy River First Nations and Naicatchewin First Nation communities to organize a meeting for the last week of November 2016.The 4) The next Environmental Monitoring Board meeting was set for January 2017 in Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	New Gold: 1. Provided 6 Deer Sampling Kits; 2. Added Kiley Shebagegit to the distribution of the Weekly Spill Report; 3. Organized a community information session in November 2016.	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
10/24/2016	Report	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
10/24/2016	Site Visit	New Gold hosted the Nishinawbe Aski Development Fund to a tour of the RRP mine site. There were 5 participants.	Nishinawbe Aski Development Fund	No further action required	Aboriginal
10/28/2016	Meeting	New Gold hosted a Mishkosiimiiniiziibing (Big Grassy River) First Nation and Métis Nation of Ontario Environmental Board (Board) meeting where the RRP and Board mandate were discussed. Next meeting to be held in March 2017.	Mishkosiimiiniiziibing (Big Grassy River) First Nation, Métis Nation of Ontario	No further action required	Aboriginal
10/28/2016	Site Visit	New Gold hosted the Rainy River First Nations to a tour of the RRP mine site. There were 19 participants.	Rainy River First Nations	No further action required	Aboriginal
10/31/2016	Meeting	New Gold met with the Chief of Naicatchewenin First Nation to discuss the weekly Spill Reports.	Naicatchewenin First Nation	Chief Smith will be included on the spill report distribution list.	Aboriginal
11/01/2016	Meeting	New Gold met with Naicatchewenin First Nation and Shooniyaa Wa-Biitong Training and Employment Centre to discuss professional development funding options and course requirements related to a potential photography program. New Gold to follow up with Shooniyaa Wa-Biitong Training and Employment Centre.	Naicatchewenin First Nation, Shooniyaa Wa-Biitong, Tom Thomson Photography	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
11/02/2016	Site Visit	New Gold hosted the Town of Emo public to a tour of the RRP mine site. There were 29 participants.		No further action required	Public
11/05/2016	Presentation	New Gold delivered a project update to members of the Rainy River Federation of Agriculture. The meeting was held at the Emo Legion.	Rainy River Federation of Agriculture	No further action required	Public
11/04/2016	Site Visit	In response to a request from the town of Emo's Seniors, New Gold hosted a Seniors tour of the RRP mine site. There were 23 participants.		No further action required	Public
11/05/2016	Site Visit	New Gold hosted a tour of the RRP mine site for the public of Fort Frances. There were 46 participants.		No further action required	Public
11/08/2016	E-mail	New Gold sent an internal notification email advising of a New Gold staff's Appointment to the Industry Advisory Group of the International Joint Commission's International Rainy-Lake of the Woods Watershed Board.	International Joint Commission	No further action required	n/a
11/10/2016	Meeting	New Gold attended the Rainy River District Stewardship (RRDS) Meeting held at the Emo Ag Research Station. New Gold provided information on the Bobolink Land Management research. RRDS endorsed research results.	Rainy River District Stewardship	No further action required	Public

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
11/10/2016	Report	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
11/10/2016	Meeting	New Gold met with the Rainy River First Nations, Naicatchewenin First Nation and Onikaajigaan Construction to provide environmental monitoring updates. New Gold organized a 2016-11-30 tour of the RRP mine site for the Chiefs of Rainy River First Nations and Naicatchewenin First Nation.	Naicatchewenin First Nation, Rainy River First Nations, Onikaajigan Construction LP	No further action required	Aboriginal
11/11/2016	Site Visit	New Gold hosted the Rainy River First Nations to a tour of the RRP mine site. There was 1 participant.	Rainy River First Nations	No further action required	Aboriginal
11/15/2016	Report	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Rainy River First Nations, Naicatchewenin First Nation	No further action required	Aboriginal
11/15/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal
11/22/2016	Presentation	New Gold met with the Naicatchewenin First Nation to provide a presentation and update on the RRP Environmental Monitoring program. There were 12 participants.	Naicatchewenin First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
11/22/2016	Report	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation Rainy River First Nations	No further action required	Aboriginal
11/23/2016	Presentation	New Gold met with Anishinaabeg of Naongashiing (Big Island) First Nation to deliver a presentation on the environmental monitoring program and its progress to date. There were 11 participants.	Anishinaabeg of Naongashiing (Big Island) First Nation	No further action required	Aboriginal
11/25/2016	Meeting	New Gold held a Quarterly Chiefs Meeting with Mishkosiimiiniiziibing (Big Grassy River) First Nation in Fort Frances.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	Ongoing quarterly meetings are held.	Aboriginal
11/25/2016	Presentation	New Gold met with Naotkamegwanning (Whitefish Bay) First Nation to deliver a presentation on the environmental monitoring program and progress to date. There were 4 participants.	Naotkamegwanning (Whitefish Bay) First Nation	No further action required	Aboriginal
11/28/2016	Meeting	New Gold attended the Mishkosiimiiniiziibing (Big Grassy River) First Nation Participation Agreement Managers Meeting to provide quarterly reports on the Mishkosiimiiniiziibing (Big Grassy River) First Nation environmental monitor.	Mishkosiimiiniiziibing (Big Grassy River) First Nation	No further action required	Aboriginal
11/28/2016	Community Event	New Gold attended the Naicatchewenin First Nation Youth Career Fair on Mining. There were approximately 35 participants.	Naicatchewenin First Nation	No further action required	Aboriginal

Date	Consultation Type	Topics	Stakeholders	Notes on Implementation	Public, Aboriginal, or Public and Aboriginal
11/30/2016	E-mail	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
12/5/2016	E-mail	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
12/14/2016	E-mail	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal
11/15/2016	Meeting	New Gold held a monthly Joint Implementation Committee Meeting with Rainy River First Nations and Naicatchewenin First Nation at the New Gold office in Emo.	Rainy River First Nations, Naicatchewenin First Nation	Ongoing monthly meetings are held.	Aboriginal
12/21/2016	Meeting	New Gold held an Environmental Update for the Seine River First Nation community.	Seine River First Nation	No further action required	Aboriginal
12/23/2016	E-mail	New Gold sent the Weekly Spill Reports by email to Naicatchewenin First Nation and Rainy River First Nations.	Naicatchewenin First Nation, Rainy River First Nations	No further action required	Aboriginal