

APPENDIX C

CONDITION 3 SUPPORTING DOCUMENTATION





#### Memorandum

Re:	Monthly Surface Water Quality Results Summary – May 2015
Date:	June 24 <sup>th</sup> , 2015
From:	Nigel Fisher, Manager, Environment
То:	Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

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 2015 was applicable to the stage of project development;

- None of the approved works were constructed or operating;
- The plant site and crusher area sediment pond 1 was under construction; and
- Surface water sampling was conducted on May 14, within 7 days of permit issuance.

#### 1.0 Plant Site and Crusher Area Sediment Pond 1

The plant site and crusher area sediment pond commenced construction on May 17, 2015. Prior to that time sediment and erosion control measured 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. The release was to a vegetated area west of Roen Road.

There was one externally reportable spill during this time. This occurred on the plant site on May 26, 2015 when 130 L of hydraulic oil was spilled to native material. Clean up was successful per report to yourself on June 5, 2015.

#### 2.0 Surface Water Sampling

Surface water sampling was conducted on May 14, 2015. 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; and
- SW26 and SW27, 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 constructed.

Sampling was conducted at the remaining sites following MISA protocols.



#### 2.1 Summary of Analysis

There were no exceedances of the ECA approval during the month. Exceedances in PWQO and CEQG were noted at multiple sites in both the Pinewood and Rainy Rivers for turbidity, aluminum, iron and cobalt (Table 5-1). These reflect historic sampling results in the same systems (where sampling has previously occurred) with the exception of T-AI at SW10, which, while the concentration was greater than the aforementioned guidelines, was lower than historic values.

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

- D-Cu was shown to exceed the 40% RPD limit in the Field Duplicate sample (60.9%). Measured results for D-Cu were 0.0015 (MISA indicator <T) and 0.0008 (MISA indicator <W) mg/L in the sample and field duplicate, respectively. As a result, no implications to data quality are expected based on this exceedance.</li>
- Hold times for the field blank were exceeded (see section 4).

#### 3.0 Non-Routine Procedures

With the one exception, 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. The field blank was analyzed separately from the other samples, however, no data integrity issues were identified during the QA/QC review of the analysis of the field blank.

#### 4.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.



Table 4-1: Summary of Surface Water Sampling Resu	Its Where PWQO or CEQG
Were Exceeded	

Site	Water Body	Parameter	Sample Concentration (mg/L)	PWQO (mg/L)	CEQG (mg/L)	MISA Qualifier	Historic Avg (mg/L)	Historic Max (mg/L)	Historic Min (mg/L)	Historic Median (mg/L)
SW3	Pinewood River	Turbidity	5.56	2.26		-	13.55	84.3	0.7	8.62
SW3	Pinewood River	T-AI	0.322	0.075	0.1	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.47	0.3	0.3	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-AI	0.17	0.075	0.1	-	0.8	32.3	0.292	0.1915
SW15	Pinewood River	T-AI	1.54	0.075	0.1	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Co	0.00101	0.0009		<t< td=""><td>0.00066</td><td>0.00346</td><td>0.00007</td><td>0.0005</td></t<>	0.00066	0.00346	0.00007	0.0005
SW15	Pinewood River	T-Fe	1.91	0.3	0.3	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-AI	0.25	0.075	0.1	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.35	0.3		-	-	-	-	-
SW21	Pinewood River	T-AI	0.129	0.075	0.1		-	-	-	-
SW22	Pinewood River	T-AI	0.088	0.075		-	-	-	-	-
SW16	Rainy River	T-AI	0.284	0.075	0.1	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.38	0.3	0.3	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-AI	0.21	0.075	0.1	-	0.23	1.71	0.05	0.13

#### Memorandum

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

From: Nigel Fisher, Manager, Environment

**Date:** June 24<sup>th</sup>, 2015

Re: Monthly Surface Water Quality Results Summary – June 2015

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 2015 was applicable to the stage of project development;

- None of the approved works were constructed or operating;
- The plant site and crusher area sediment pond 1 was under construction; and
- Surface water sampling was conducted on June 9, 2015.

#### 1.0 Plant Site and Crusher Area Sediment Pond 1

The plant site and crusher area sediment pond commenced construction on May 17, 2015. Prior to that time sediment and erosion control measured 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. The release was to a vegetated area west of Roen Road.

#### 2.0 Surface Water Sampling

Surface water sampling was conducted on June 9, 2015. 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; and
- SW26 and SW27, 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 constructed.

Sampling was conducted at the remaining sites following MISA protocols.

#### 2.1 Summary of Analysis

There were two exceedances of the ECA approval during the month, both for total suspended solids (TSS). SW15 (Pinewood river at Hwy 619 crossing) exceeded the 30 day average concentration limit of 15 mg/L TSS (27.5 mg/L), while SW27 (Loslo creek downstream of Hwy 600) exceeded the maximum concentration limit of 30 mg/L TSS (89 mg/L). As no project activities occurred within the vicinity of either sample site, it is assumed that these are natural levels, as is supported by historic levels at SW15 and SW13, which is a baseline sample location on Loslo creek upstream of SW27 (see table 5.1).



Exceedances in PWQO and CEQG limits were noted at multiple sites in both the Pinewood and Rainy Rivers for aluminum and iron as well as in Loslo creek for aluminum and iron (Table 5-1). Copper was shown to exceed the CEQG limit at SW15. These reflect historic sampling results in the same systems (where sampling has previously occurred) with the exception of parameters at SW15 and SW17, where concentrations were greater than the historic values. Both SW15 and SW17 (Rainy River at Worthington Rd # 4 near Rainy River, ON) are located more than 20 km from the RRP site, with numerous other potential inputs and as such it is not possible to define these exceedances as related to activities at the RRP.

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 of both parameters greater than three times the detection limit. As a result, no implications to data quality are expected based on this exceedance.

#### 3.0 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.

#### 4.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

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	Turbidity	6.02	2.101	-	-	-	13.55	84.3	0.7	8.62
SW3	Pinewood River	T-AI	0.259	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-AI	0.178	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.43	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	TSS	27.5	-	-	15 (30D)	-	24.6	243	2	12
SW15	Pinewood River	T-AI	1.26	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Cu	0.0031	-	0.0024	-	<t< td=""><td>0.0022</td><td>0.0076</td><td>0.001</td><td>0.002</td></t<>	0.0022	0.0076	0.001	0.002
SW15	Pinewood River	T-Fe	1.59	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-AI	0.242	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.48	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	Turbidity	5.8	4.015	-	-	-	-	-	-	-
SW21	Pinewood River	T-AI	0.131	0.075	0.1		-	-	-	-	-
SW21	Pinewood River	T-Fe	0.36	0.3	0.3	-	-	-	-	-	-
SW27	Loslo Creek	TSS	89	-	-	30 (Max)	-	-	-	-	-
SW27	Loslo Creek	T-AI	0.586	0.075	0.1	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	1.0	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-Al	0.267	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW16	Rainy River	T-Fe	0.45	0.3	0.3	-	-	0.44	3.28	0.06	0.25
SW17	Rainy River	T-AI	0.318	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.49	0.3	0.3	-	-	0.33	1.95	0.08	0.24

Table 4-1: Summary of Surface Water Sampling Results Where PWQO or CEQG Were Exceeded

#### Memorandum

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

From: Nigel Fisher, Manager, Environment

Date: August 6, 2015

Re: Monthly Surface Water Quality Results Summary – July 2015

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 July 2015 was applicable to the stage of project development;

- Construction on the plant site pond was completed at the end of July and work subsequently commenced on the process plant overburden pile pond;
- Surface water sampling was conducted on July 21 and 22, 2015; and
- Construction discharge sampling for the Plant Site Sediment Pond was conducted on 29 July, 2015 from water starting to naturally collect in the upstream pond (i.e., not the polishing pond).

#### 1.0 Plant Site and Crusher Area Sediment Pond 1

The plant site and crusher area sediment pond commenced construction on May 17, 2015. Prior to that time sediment and erosion control measured 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 July. No discharge occurred from any works during July.

#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the plant site pond on July 29. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. No parameters were found to have concentrations greater than the monthly average limits listed in the ECA, with concentrations generally an order of magnitude less than the monthly average limits.

#### 3.0 Surface Water Sampling

Surface water sampling was conducted on July 21 and 22, 2015. 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; and



• SW26 and SW27, 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 constructed.

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 turbidity, total iron and aluminum at some sites in the Pinewood and Rainy Rivers (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 of both parameters greater than three times the detection limit. As a result, no implications to data quality are expected based on this exceedance.
- Dissolved concentrations of copper and zinc exceeded total concentrations in several samples, including trip blank, field blank and field duplicate samples. 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 and no copper or zinc concentrations were found to be greater than PWQO or CEQG 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.

Surface water sampling site SW15 (immediately adjacent to the Pinewood River crossing of highway 619) and an associated field duplicate were sampled on 22 July, 2015 rather than 21 July 2015 with the other sampling sites due to road resurfacing work which was occurring directly overhead of the sampling location, precluding safe access and increasing the potential for sample contamination.

#### 5.0 Bypass or Upset Summary

No bypass or upset conditions occurred during the reporting period.

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	Turbidity	3.96	1.66	-	-	-	13.55	84.3	0.7	8.62
SW3	Pinewood River	T-AI	0.202	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.670	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	Turbidity	11.1	3.74	-	-	-	18.24	6.38	2.5	6.16
SW10	Pinewood River	T-AI	0.647	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	1.23	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	Turbidity	24.6	3.96	-	-	-	21.3	127	1.81	15.5
SW15	Pinewood River	T-AI	0.773	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.31	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Al	0.183	0.075	0.1	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.790	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.61	0.3	0.3	-	-	-	-	-	-
SW22	Pinewood River	T-Fe	0.39	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.209	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	Turbidity	6.85	4.95	-	-	-	6.81	31.0	1.5	4.7
SW17	Rainy River	T-AI	0.23	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.4	0.3	0.3	-	-	0.33	1.95	0.08	0.24

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

#### Memorandum

Re:	Monthly Surface Water Quality Results Summary – August 2015
Date:	September 29, 2015
From:	Cailey Anderson, Site Environmental Manager (Acting)
То:	Director, Ministry of Environment and Climate Change C/O Ray Boivin, Senior Environmental Officer, Kenora Area, MOECC

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 August 2015 was applicable to the stage of project development;

- Construction on the plant site pond was completed at the end of July and work subsequently commenced on the process plant overburden pile pond;
- Surface water sampling was conducted on August 25, 2015; and
- Construction discharge sampling for the Plant Site Sediment Pond was conducted on August 5, 10, 13, and 20, 2015 from water in the upstream pond (i.e., not the polishing pond). A sample was taken from the polishing pond on August 31, 2015.

#### **1.0 Plant Site and Crusher Area Sediment Pond 1**

The plant site and crusher area sediment pond commenced construction on May 17, 2015. Prior to that time sediment and erosion control measured 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 July. No discharge occurred from any works during August.

#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the plant site pond on August 5, 10, 13, 20, and 31. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. Un-ionized ammonia and total suspended sediment were found to have concentrations greater than the monthly average limits listed in the ECA. No discharge has taken place and treatment will occur. Dry ice will be used to reduce the pH which will decrease un-ionized ammonia. Flocculant and cycling of water will reduce the total suspended sediment.



#### 3.0 Surface Water Sampling

Surface water sampling was conducted on August 25, 2015. 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; and
- 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 constructed.

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 turbidity, total iron and aluminum at some sites in the Pinewood and Rainy Rivers (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 of both parameters greater than three times the detection limit. As a result, no implications to data quality are expected based on this exceedance.
- Dissolved concentrations of aluminum exceeded total concentrations in SW21. 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 and the aluminum concentration was found to be less than PWQO or CEQG 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, or mechanism 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.

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	Turbidity	7.64	2.97	-	-	-	13.55	84.3	0.7	8.62
SW3	Pinewood River	T-AI	0.258	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.570	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	Turbidity	3.76	2.97	-	-	-	18.24	6.38	2.5	6.16
SW10	Pinewood River	T-AI	0.116	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.660	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	Turbidity	26.5	15.00	-	-	-	21.3	127	1.81	15.5
SW15	Pinewood River	T-Al	1.35	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.95	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Fe	0.790	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.410	0.3	0.3	-	-	-	-	-	-
SW22	Pinewood River	T-Fe	0.390	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.237	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-AI	0.144	0.075	0.1	-	-	0.23	1.71	0.05	0.13

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

# newg and Rainy River Project

#### Monthly Surface Water Quality Results Summary Per section 13(3) of ECA 5781-9VAJQ2J





#### Memorandum

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

From: Cailey Anderson, Manager, Environment

**Date:** October 12, 2015

Re: Monthly Surface Water Quality Results Summary – September 2015

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 2015 was applicable to the stage of project development;

- Construction on the plant site pond was completed at the end of July and work subsequently commenced on the process plant overburden pile pond;
- Surface water sampling was conducted on September, 2015; and
- Construction discharge sampling for the Temporary Plant Site Sediment Pond was conducted on September 8, 14, 15, 23, and 28, 2015 from the North Polishing Pond.

#### **1.0 Plant Site and Crusher Area Sediment Pond 1**

The Temporary Plant Site Sediment Pond 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 and a discharge took place on September 17, 2015. Table 2 displays the effluent results at the time of discharge.

#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the Temporary Plant Site Sediment Pond on September 8, 14, 15, 23, and 28. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. Effluent results did not exceed the effluent limits prescribed in the ECA 5781-9VAJQ2J.

#### **3.0 Surface Water Sampling**

Surface water sampling was conducted on September 16, 2015. 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; and



• 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 turbidity, total iron, total aluminum, and un-ionized ammonia at some sites in the Pinewood River, the Rainy River, 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 of both parameters greater than three times the detection limit. As a result, no implications to data quality are expected based on this exceedance.
- Dissolved concentrations of zinc exceeded total concentrations in the field blank. 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 and the aluminum concentration was found to be less than PWQO or CEQG 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 1: 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)
SW2	West Creek	T-AI	0.126	0.075	0.1	-	-	0.1304	0.621	0.0262	0.0805
SW2	West Creek	T-Fe	0.710	0.3	0.3	-	-	0.6142	2.07	0.111	0.3745
SW3	Pinewood River	Turbidity	12.1 NTU	2.31 NTU	-	-	-	13.55	84.3	0.7	8.62
SW3	Pinewood River	Un-ionized Ammonia	0.053384	0.02	0.019	-	-	-	-	-	-
SW3	Pinewood River	T-AI	0.317	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.660	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW3	Pinewood River	T-Zn	0.215	0.02	-	-	-	0.006224	0.0217	0.0030	0.0042
SW10	Pinewood River	Turbidity	6.80 NTU	2.96 NTU	-	-	-	18.24	6.38	2.5	6.16
SW10	Pinewood River	T-AI	0.153	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.620	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	Turbidity	37.2 NTU	15.00 NTU	-	-	-	21.3	127	1.81	15.5
SW15	Pinewood River	T-AI	1.20	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.75	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-Fe	0.420	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.350	0.3	0.3	-	-	-	-	-	-
SW22	Pinewood River	T-Fe	0.450	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.189	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-AI	0.131	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)	Process Plant and Crusher Area Sediment Pond 1 (mg/L)
Total Suspended Solids	30	15	6.5
Total Arsenic	0.034	0.017	0.0019
Total Copper	0.028	0.014	0.0034
Total Nickel	0.094	0.047	0.0017
Total Lead	0.030	0.015	0.0002
Total Zinc	0.348	0.174	0.0030
Un-ionized Ammonia	0.2	0.1	0.005
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethal (not greater than 50% m	ortality in undiluted effluent)	Pass
pH of the efflu	ent maintained between 6.0 to 9.5, inclusive, at a	all times	7.19



#### Memorandum

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

From: Dave Hall, Manager, Environment

**Date:** November 30, 2015

Re: Monthly Surface Water Quality Results Summary – October 2015

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 2015 was applicable to the stage of project development;

- Construction on the Plant Site and Crusher Area Sediment Pond 1 was completed at the end of July;
- Surface water sampling was conducted on October 27, 2015; and
- Construction discharge sampling for the Plant Side and Crusher Area Sediment Pond 1 was conducted on October 5, 13, 19, 26, and 27, 2015 from the Plant Site and Crusher Area Polishing Pond.

#### **1.0 Plant Site and Crusher Area Sediment Pond 1**

The Plant Site and Crusher Area Sediment Pond 1 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 and a discharge took place on October 19, 2015. Table 1 displays the effluent results at the time of discharge.

#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the Plant Site and Crusher Area Sediment Pond 1 on October 5, 13, 19, 26, and 27, 2015. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. Effluent results did not exceed the effluent limits prescribed in the ECA 5781-9VAJQ2J.

#### **3.0 Surface Water Sampling**

Surface water sampling was conducted on October 27, 2015. 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; and
- 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, total aluminum, total copper, total cobalt, and total lead at some sites in the Pinewood River, the Rainy River, and Loslo Creek (Table 2). 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 of both parameters greater than three times the detection limit. As a result, no implications to data quality are expected based on this exceedance.
- Dissolved concentrations of zinc exceeded total concentrations in the field blank. 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 and the aluminum concentration was found to be less than PWQO or CEQG 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. The period between sampling dates (September 15, 2015 to October 27, 2015) was greater than 40 days. This occurred due to the appropriate sampling equipment arriving late.

#### **5.0 Bypass or Upset Summary**

No bypass or upset conditions occurred during the reporting period.



#### Table 1: Summary of Effluent Results for Construction Phase Works Discharge 19-Oct-15

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	Process Plant and Crusher Area Sediment Pond 1 (mg/L)		
Total Suspended Solids	30	15	10.0		
Total Arsenic	0.034	0.017	0.0016		
Total Copper	0.028	0.014	0.0029		
Total Nickel	0.094	0.047	0.0018		
Total Lead	0.030	0.015	0.00008		
Total Zinc	0.348	0.174	0.0040		
Un-ionized Ammonia	0.2	0.1	0.011		
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethal (not greater than 50% m	nortality in undiluted effluent)	Pass		
pH of the efflu	ent maintained between 6.0 to 9.5, inclusive, at	all times	7.76		



#### 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-Fe	0.320	0.3	0.3	-	-	-	-	-	-
SW3	Pinewood River	T-Al	0.234	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.570	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-AI	0.127	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.45	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-AI	1.07	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	1.54	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW20	Pinewood River	T-AI	0.184	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.530	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.310	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.096	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-AI	1.38	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Co	0.00096	0.0009	-	-	-	0.0005	0.005	0.0001	0.0005
SW17	Rainy River	T-Cu	0.0027	-	0.002	-	-	0.0016	0.01	0.001	0.0013
SW17	Rainy River	T-Fe	1.72	0.3	0.3	-	-	0.35	1.95	0.08	0.24
SW17	Rainy River	T-Pb	0.001	-	0.001	-	-	0.0009	0.01	0.0001	0.001



Monthly Surface Water Quality Results Summary Per section 13(3) of ECA 5781-9VAJQ2J



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#### Memorandum

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

From: Dave Hall, Manager, Environment

**Date:** December 29, 2015

Re: Monthly Surface Water Quality Results Summary – November 2015

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 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 November 18, 2015; and
- Construction discharge sampling for the Plant Site and Crusher Area Temporary Treatment Ponds was conducted on November 5, 6, 7, 8, 9, and 16, 2015.

#### **1.0 Plant Site and Crusher Area Sediment Pond 1**

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 utilized in November and a discharge took place on November 5, 7, 8, and 9, 2015. Table 1 displays the effluent results at the times of discharge.

#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the Plant Site and Crusher Area Temporary Sediment Ponds on November 5, 6, 7, 8, 9, and 16, 2015. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. Effluent results for total suspended solids exceeded for the November 5 discharge. This was determined to be a sampling error and the sampling procedure was reviewed with all environmental staff to ensure sample quality is maintained in the future. All other discharges did not exceed the effluent limits prescribed in the ECA 5781-9VJQ2J.

#### **3.0 Surface Water Sampling**

Surface water sampling was conducted on November 18, 2015. The following sites were not sampled for the given reasons;

# newg and Rainy River Project

- SW23, SW24, SW28 and SW29 do not require sampling as of yet as the triggering milestones have not yet been reached with construction; and
- 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.
- SW3 was inaccessible due to heavy construction activity occurring on the Highway 600 realignment.

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, and dissolved aluminum at some sites in the Pinewood River, the Rainy River, Loslo Creek, and West Creek (Table 2). 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 and zirconium exceeded total concentrations in the field blank. 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 1: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	November 5, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	November 7, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	November 8, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	November 9, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)
Total Suspended Solids	30	15	63.0	6.5	7.0	6.0
Total Arsenic	0.034	0.017	0.0016	0.0016	0.0017	0.0017
Total Copper	0.028	0.014	0.0040	0.0026	0.0027	0.0026
Total Nickel	0.094	0.047	0.0025	0.0016	0.0015	0.0015
Total Lead	0.030	0.015	0.0005	0.0002	0.0001	0.0001
Total Zinc	0.348	0.174	0.0055	0.0400	0.0400	0.0380
Un-ionized Ammonia	0.2	0.1	<0.001	0.004	0.004	0.004
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Toxicity ow Trout Non-acutely lethal (not greater than Daphnia 50% mortality in undiluted effluent)		Pass	Pass	Pass	Pass
pH of the efflue	ent maintained betwe nclusive, at all times	een 6.0 to 9.5,	6.28	7.71	7.76	7.77



#### 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-AI	0.0955	0.075	-	-	-	-	-	-	-
SW27	Loslo Creek	T-Fe	0.320	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-AI	0.230	0.075	0.1	-	-	0.11	0.62	0.02	0.08
SW2	West Creek	T-Fe	0.450	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW10	Pinewood River	T-AI	0.393	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.700	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-AI	0.571	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	0.840	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW15	Pinewood River	D-Al	0.093	0.075	-	-	-	0.04	0.20	0.01	0.03
SW20	Pinewood River	T-AI	0.301	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.560	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-AI	0.098	0.075	-	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.320	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-AI	0.0785	0.075	-	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.213	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-AI	0.152	0.075	0.1	-	-	0.23	1.71	0.05	0.13



Monthly Surface Water Quality Results Summary Per section 13(3) of ECA 5781-9VJQ2J



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#### Memorandum

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

From: Dave Hall, Manager, Environment

Date: February 1, 2016

Re: Monthly Surface Water Quality Results Summary – December 2015

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 December 17 and 21, 2015; and
- Construction discharge sampling for the Plant Site and Crusher Area Temporary Treatment Ponds was conducted on December 8 and 10, 2015.
- Construction discharge sampling for In-Pit Sump 3 was conducted on December 13, 2015.

#### 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 utilized in December and a discharge took place on December 8 and 10, 2015. Table 1 displays the effluent results at the times of discharge.

#### 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 as all water that collected was from natural overland flow and precipitation. A discharge took place on December 13, 2015. Table 1 displays the effluent results at the time of discharge.



#### 2.0 Effluent Sampling and Results

Effluent sampling was conducted from the Plant Site and Crusher Area Temporary Sediment Ponds on December 8 and 10, 2015 and on December 13, 2015 from In-Pit Sump 3. The sampling was to provide indication of performance of works relative to predicted performance and allow for water treatment to be tailored based on inputs. All discharges did not exceed the effluent limits prescribed in the ECA 5781-9VJQ2J.

#### 3.0 Surface Water Sampling

Surface water sampling was conducted on December 17 and 21, 2015. 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.
- SW15 and SW21 due to unsafe ice conditions at the sampling site.

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 2). 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 SW22a. 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 1: Summary of Effluent Results for Construction Phase Works Discharge

Effluent Parameter	Daily Maximum Concentration (mg/L)	Monthly Average Concentration (mg/L)	December 8, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	December 10, 2015 Process Plant and Crusher Area Temporary Sediment Ponds (mg/L)	December 13, 2015 In-Pit Sump 3 (mg/L)
Total Suspended Solids	30	15	3.5	11.5	4.5
Total Arsenic	0.034	0.017	0.0017	0.0018	0.0018
Total Copper	0.028	0.014	0.0027	0.0030	0.0007
Total Nickel	0.094	0.047	0.0017	0.0018	0.0007
Total Lead	0.030	0.015	0.0001	0.0004	0.0002
Total Zinc	0.348	0.174	0.139	0.0940	0.0040
Un-ionized Ammonia	0.2	0.1	<0.001	<0.001	<0.001
Acute Toxicity (Rainbow Trout and Daphnia Magna)		(not greater than undiluted effluent)	Pass	Pass	Pass
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			7.32	7.36	7.75



#### 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-Fe	0.420	0.3	0.3	-	-	-	-	-	-
SW2	West Creek	T-Fe	0.340	0.3	0.3	-	-	0.56	2.07	0.11	0.40
SW3	Pinewood River	T-AI	0.219	0.075	0.1	-	-	0.36	2.77	0.0508	0.2625
SW3	Pinewood River	T-Fe	0.710	0.3	0.3	-	-	1.11	6.97	0.064	0.6885
SW10	Pinewood River	T-AI	0.189	0.075	0.1	-	-	0.8	32.3	0.292	0.1915
SW10	Pinewood River	T-Fe	0.550	0.3	0.3	-	-	1.70	42.3	0.287	0.623
SW15	Pinewood River	T-AI	0.571	0.075	0.1	-	-	0.68	4.95	0.05	0.46
SW15	Pinewood River	T-Fe	0.840	0.3	0.3	-	-	1.07	5.99	0.09	0.92
SW15	Pinewood River	D-AI	0.093	0.075	-	-	-	0.04	0.20	0.01	0.03
SW20	Pinewood River	T-AI	0.169	0.3	0.3	-	-	-	-	-	-
SW20	Pinewood River	T-Fe	0.470	0.3	0.3	-	-	-	-	-	-
SW21	Pinewood River	T-AI	0.098	0.075	-	-	-	-	-	-	-
SW21	Pinewood River	T-Fe	0.320	0.3	0.3	-	-	-	-	-	-
SW22a	Pinewood River	T-AI	0.0785	0.075	-	-	-	-	-	-	-
SW22a	Pinewood River	T-Fe	0.480	0.3	0.3	-	-	-	-	-	-
SW16	Rainy River	T-AI	0.184	0.075	0.1	-	-	0.31	2.65	0.04	0.17
SW17	Rainy River	T-AI	0.219	0.075	0.1	-	-	0.23	1.71	0.05	0.13
SW17	Rainy River	T-Fe	0.380	0.075	0.1	-	-	0.35	1.95	0.08	0.24



Monthly Surface Water Quality Results Summary Per section 13(3) of ECA 5781-9VJQ2J



TSX/NYSE AMEX:NGD

## newg € d Rainy River Project

Tait Quarry/Hwy 600 Environmental Inspection Form											
Date of Inspection: 2015_12_14				Time of Inspection: 9:30							
Inspection Conducted By: Garnet Cornel	, Natha	an Baire	d	Weather: Overcast -5C							
Persons Present/Organization: Garnet (N	IG), Nat	than Ba	aird (NG	5)							
Work Activity Underway and Scope of In removal by the Pinewood River. No inspe	spectio ection c	n: Brin occurre	ging roa d South	ad to grade and removing side cast material. The scope of the inspection was to ensure side cast ma n of the bridge.	terial						
6	IN C	OMPLIA	NCE?		Remedial						
STANDARD	Yes	No	N/A		Action?						
A – Aggregate Permit #: 625581			r								
A1. Dust Mitigation (ESA)	$\boxtimes$			No issues at time of inspection.	No						
A2. Noise Levels (ESA)	$\boxtimes$			Excavator, dozer, haul/rock truck activity on Tait Rd and Hwy 600 realignment during inspection.	No						
A3. TSSA Liquid Fuels Handling Code					No						
A4. Wetland and Bird Nest Protection From ARA Application	$\boxtimes$			No concerns.	No						
A5. Spills Contingency Plan	$\boxtimes$			Signed and returned to New Gold.	No						
A6. Blasting Monitoring Reports Complete and Available.	$\boxtimes$			Received.	No						
A7. Signage Present and Correct (Aggregate Resources Act Permit #625851)	$\boxtimes$			Sign present.	No						
A8. Signage Present and Correct (No Trespassing, Danger – Open Excavation)	$\boxtimes$			Sign present.	No						
A9. Compliance Assessment Report	$\boxtimes$			Completed: 2015-09-30 (NEW GOLD)	No						
B – CEAA Conditions	1	1									
B1. 3.3/3.8 Geochemical Sampling and Segregation Underway and Effective	$\boxtimes$			Program confirmed NAG rock – sampling conducted by geology department.	No						
B2. Blasting Design Protects Fish	$\boxtimes$				No						
B3. 3.5/3.6 Stream Crossings Meet Fisheries Guidelines and MTO Drainage Standards	$\boxtimes$			ESC plan submitted and received.	No						
B4. 4.6 (Migratory bird protection and lighting considerations for Nighthawk)	$\boxtimes$				No						
B5. 5.2 (BMP applied for dust management)	$\boxtimes$			No issues at time of inspection.	No						
B6. 6.4 (Status of reclamation)		$\boxtimes$		No seeding (Spring) has been applied. Road still under construction. Side cast material being removed/stockpiled.	No						
B7. 7 (Archaeology sites respected)	$\boxtimes$				No						
C – PTTW: 3270 l/min 24/7365 for the P	urpose	s of De	wateri	ng							
C1. Permit available at site	$\boxtimes$			Permits located in Veert Tait Office and Veert Site Office.	No						
C2. Calibration records on file			$\square$		No						
C3. Pumping records complete			$\boxtimes$		No						
C4. All Water Taken no Directly Discharged to Environment (Except Dust)			$\boxtimes$		No						
C5. Any Complaints Noted/Reported			$\boxtimes$		No						
C14. Machinery Operation (Above high water mark)			$\boxtimes$		No						
D – ECA: 20,000m <sup>2</sup> Pond for 70,000m <sup>3</sup> W	/ith 8,0	00m <sup>3</sup> l	Retaine	d at all Time, 95m <sup>3</sup> /h Discharge							
D1. Laydown area sump and pump present for 950m3 and 41m3/hr capacity pump				Sump not installed. No water accumulation issues.	No						
pumping system available 400mm above pond bed with splash pad at end of hose					No						
maintenance, remedial actions and inspections recorded					No						
D4. EPSC measures in place, maintained			$\boxtimes$		No						

D5. Any excess build-up of sediment/vegetation in the works?			$\boxtimes$		No
D6. Discharges free from floating settleable			$\boxtimes$		No
D7. Flow measuring devise present,					Nie
calibrated for batch pumping					NO
D8. Discharge records available			$\boxtimes$		No
D9. Water quality records up to date			$\boxtimes$		No
E – Work Permit #: FF-11-2015/2016 (Co	onstruc	tion o	f Water	Crossing Across Crown Lands)	<b></b>
E1. Permit available at site.	$\boxtimes$			Veert office.	No
E2. Construction machinery above high water mark.	$\boxtimes$			Bridge construction complete.	No
E3. Any filling or disruption above the high water mark shall be contained or stabilized.	$\boxtimes$				No
E4. All stockpiled materials must be contained. (ESC)		$\boxtimes$		Stockpiled material in process of being hauled.	Ongoing
E5. No staging pads are permitted within flood plain.	$\boxtimes$				No
E6. Exposed mineral soil within 100m of waterbody graded to 3:1 slope.			$\boxtimes$		No
E7. Preserve the low vegetative cover within 100m. (e.g. grasses, shrubs) Unless effective mitigation techniques are in place. (FSC)	$\boxtimes$				No
E8. No obstruction of watercourses.	$\boxtimes$				No
E9. Machinery maintenance away from water.	$\boxtimes$				No
E10. <b>Upon Completion:</b> Removal of all construction materials, equipment and refuse from site.				Road still under construction.	No
F – Summary					
F1. Immediate Areas of Concern	Stock	pile rem	ioval. drin trav	s at light plants	
F2. Action Required	Contin	nue hau	ling stoc	kpiles along road.	
G – General Comments	LIISUI	e an ngi			
Ensure drip trays are placed under parked "lea	ky" equ	ipment.	We not	ced the light plant North of the Pinewood River bridge did not have a spill kit placed at it.	
Emergency spill kit at fuel tanks was used. This	spill kit	is only 1	to be use	ed in an emergency. Make sure it is restocked appropriately as there were spill pads missing.	

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Station	Discharge Coordinates (UTM)	Discharge Date	pH_Field	Temp_Field	DO_Field	Colour	Conductivity	Hardness	pH_Lab	TSS	TDS	Turbidity	Alkalinity (Total as CaCO3)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	7.45	18.94		5.3	606	275	7.70	17.5	380	12.9	217
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	7.76	8			647	273	7.98	10.0			218
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	6.28	7.63			629	297	7.10	63.0			224
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	7.71	5.29			563	275	8.15	6.5			218
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	7.76	5.05			567	271	8.15	7.0			221
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	7.77	5.57			577	279	8.18	6.0			227
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	6.79	1.58		5.2	629	298	7.70	11.0	375	7.61	230
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	6.91	1.96			602	281	7.36	11.5			229
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	7.63	3.25			616	298	7.99	1.0			328
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	7.33	1.85			688	341	7.75	4.5			344

## newgold Rainy River Project

Station	Discharge Coordinates (UTM)	Discharge Date	Acidity as CaCO3	Total Ammonia-N	Ammonia - U	Bromide (Br)	Chloride (Cl)	Fluoride (F-)	Nitrate (N)	Nitrite (N)	Total Kjeldahl Nitrogen (TKN)	Orthophosp hate (P)	Total Dissolved Phosphate As P	Total Phosphate as P
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	6.0	2.06	0.021		2.68	0.152	10.6	1.13		0.003		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15		1.17	0.011		2.73							
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15		1.28	0.001		2.65							
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15		0.566	0.004		2.37							
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15		0.596	0.004		2.34							
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15		0.546	0.004		2.36							
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	10.2	0.604	0.001		3.02	0.181	8.36	0.314		0.003		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15		0.474	0.001		3.23		5.58					
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15		0.080	0.001		7.28							
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15		0.004	0.001		5.94		0.025					

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Station	Discharge Coordinates (UTM)	Discharge Date	Sulfate (SO4)	DOC	тос	Cyanide, Free	Total Cyanide (CN)	T. Aluminum (Al)	T. Antimony (Sb)	T. Arsenic (As)	T. Barium (Ba)	T. Beryllium (Be)	T. Bismuth (Bi)	T. Boron (B)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	73.3	5.6	5.4			0.186	0.00207	0.0019	0.0499	0.00002	0.00002	0.308
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	76.0						0.00198	0.0016				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	73.5						0.00183	0.0016				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	62.6						0.00121	0.0016				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	62.6						0.00127	0.0017				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	62.7						0.00121	0.0017				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	71.7	4.7	4.9			0.250	0.00136	0.0018	0.0533	0.00001	0.00002	0.182
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	65.7						0.00098	0.0018				
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	33.0						0.00011	0.0022				
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	28.7						0.00008	0.0018				

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Station	Discharge Coordinates (UTM)	Discharge Date	T. Cadmium (Cd)	T. Calcium (Ca)	T. Chromium (Cr)	T. Cobalt (Co)	T. Copper (Cu)	T. Iron (Fe)	T. Lead (Pb)	T. Lithium (Li)	T. Magnesium (Mg)	T. Manganese (Mn)	T. Mercury (Hg)	T. Molybdenu m (Mo)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.000020	59.8	0.0012	0.00083	0.0034	0.28	0.00015	0.0306	32.3	0.0141	0.000002	0.0147
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	0.000020			0.00072	0.0029		0.00008					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	0.000030			0.00099	0.0040		0.00047					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	0.000015			0.00058	0.0026		0.00015					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	0.000010			0.00057	0.0027		0.00014					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	0.000015			0.00055	0.0026		0.00011					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.000020	67.7	0.0009	0.00077	0.0032	0.24	0.00019	0.0228	33.1	0.0583	0.000002	0.0130
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	0.000020			0.00071	0.0030		0.00035					
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	0.000005			0.00007	0.0009		0.00005					
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	0.000005			0.00006	0.0007		0.00020					

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Station	Discharge Coordinates (UTM)	Discharge Date	T. Nickel (Ni)	T. Phosphorus (P)	T. Potassium (K)	T. Selenium (Se)	T. Silicon (Si)	T. Silver (Ag)	T. Sodium (Na)	T. Strontium (Sr)	T. Tellurium (Te)	T. Thallium (Tl)	T. Tin (Sn)	T. Titanium (Ti)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.0017		6.49	0.0022		0.00002	13.7	0.267	0.00004	0.000016	0.00006	
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	0.0018											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	0.0025											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	0.0016											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	0.0015											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	0.0015											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.0019		6.29	0.0034		0.00001	13.2	0.255	0.00004	0.000018	0.00008	
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	0.0018											
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	0.0008											
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	0.0007											

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Station	Discharge Coordinates (UTM)	Discharge Date	T. Tungsten (W)	T. Uranium (U)	T. Vanadium (V)	T. Zinc (Zn)	T. Zirconium (Zr)	D. Aluminum (Al)	D. Antimony (Sb)	D. Arsenic (As)	D. Barium (Ba)	D. Beryllium (Be)	D. Bismuth (Bi)	D. Boron (B)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.00019	0.00680	0.00255	0.0030	0.00032	0.005	0.00200	0.00176	0.0495	0.00001	0.00002	0.256
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15				0.0040			0.00194	0.00168				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15				0.0055			0.00191	0.00142				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15				0.0400			0.00130	0.00164				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15				0.0400			0.00129	0.00164				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15				0.0380			0.00129	0.00158				
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.00015	0.00772	0.00175	0.0705	0.00102	0.001	0.00133	0.00175	0.0516	0.00001	0.00002	0.181
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15				0.0940			0.00099	0.00165				
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15				0.0020			0.00011	0.00193				
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15				0.0040			0.00007	0.00155				

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Station	Discharge Coordinates (UTM)	Discharge Date	D. Cadmium (Cd)	D. Calcium (Ca)	D. Chromium (Cr)	D. Cobalt (Co)	D. Copper (Cu)	D. Iron (Fe)	D. Lead (Pb)	D. Lithium (Li)	D. Magnesium (Mg)	D. Manganese (Mn)	D. Mercury (Hg)	D. Molybdenu m (Mo)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.000015	57.4	0.0007	0.00062	0.0026	0.01	0.00001	0.0300	32.0	0.0056	0.000002	0.0142
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	0.000020			0.00064	0.0024		0.00001					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	0.000025			0.00064	0.0025		0.00001					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	0.000005			0.00051	0.0021		0.00002					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	0.000010			0.00049	0.0021		0.00003					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	0.000005			0.00049	0.0021		0.00001					
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.000020	67.4	0.0004	0.00063	0.0026	0.01	0.00002	0.0234	31.5	0.0513	0.000002	0.0122
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	0.000020			0.00060	0.0026		0.00009					
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	0.000005			0.00006	0.0006		0.00001					
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	0.000005			0.00004	0.0006		0.00009					

## newgold Rainy River Project

Station	Discharge Coordinates (UTM)	Discharge Date	D. Nickel (Ni)	D. Phosphorus (P)	D. Potassium (K)	D. Selenium (Se)	D. Silicon (Si)	D. Silver (Ag)	D. Sodium (Na)	D. Strontium (Sr)	D. Tellurium (Te)	D. Thallium (Tl)	D. Tin (Sn)	D. Titanium (Ti)
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.0014		7.09	0.0024		0.00002	13.5	0.253	0.00001	0.000012	0.00002	
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15	0.0014											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15	0.0015											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15	0.0013											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15	0.0013											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15	0.0013											
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.0015		6.16	0.0036		0.00001	12.6	0.240	0.00002	0.000014	0.00006	
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15	0.0014											
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15	0.0007											
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15	0.0007											

Station	Discharge Coordinates (UTM)	Discharge Date	D. Tungsten (W)	D. Uranium (U)	D. Vanadium (V)	D. Zinc (Zn)	D. Zirconium (Zr)	Total Oil & Grease
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	17-Sep-15	0.00018	0.00630	0.00185	0.0025	0.00004	0.2
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	19-Oct-15				0.0030		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	05-Nov-15				0.0040		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	07-Nov-15				0.0370		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Nov-15				0.0375		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	09-Nov-15				0.0360		
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	08-Dec-15	0.00017	0.00736	0.00095	0.0680	0.00008	0.2
Process Plant and Crusher Area Temporary Sediment Ponds <b>Discharge</b>	426012E 5410720N	10-Dec-15				0.0940		
In Pit Sump 3 Discharge	424982E 5409309N	7-Dec-15				0.0015		
In Pit Sump 3 Discharge	424982E 5409309N	13-Dec-15				0.0065		

	ct		ENV-PRCD-003
		Site Procedure	for Construction Dewatering and Monitoring
Author:	Approver:	Revision Number:	Creation Date: November 7, 2015
Manager Environment	Construction Director	V1.0	Date Last Modified: November 7,
November 7, 2015	November 7, 2015		2015
			Review Frequency: 1 Year

The use of portable water pumps on the Rainy River Project to de-water construction work areas including; but not limited to: de-watering for diversion channels, temporary sumps, sediment traps/pond and culvert installations must adhere to the information provided in this policy and procedure. Furthermore all water taking must be tracked and recorded daily for each pump location and data needs to be submitted to New Gold Environment as per the New Gold Water Taking Procedure. Any sediment release into a stream or pond is considered a REPORTABLE SPILL and your Supervisor is to be contacted immediately and the requirements of New Golds Spill Reporting Procedure are to be implemented.

This document contains information on the following:

- Selecting appropriate locations for water pump discharge locations;
- Environmental requirements for setting up a portable pump system;
- Operational monitoring requirements; and
- Removal of pumps.

#### Choosing Appropriate Location for Water Discharge

- 1. Review aerial photos and/or maps to find a location that will drain away from work area and has adequate vegetation to act as a natural buffer prior to draining to natural watercourses on the project site.
- 2. Conduct field review with New Gold Environmental Department to receive approval for location. If applicable New Gold will provide a maximum daily water taking rate as per Ministry of Environment and Climate Change approval guidelines.

#### Note: By-Pass Pumping Systems for Culvert Installation

Pump around systems for culvert installations will require an Erosion Sediment Control plan to be provided to New Gold Environmental Department 1 week prior to culvert installation.

Within 48 hours of culvert installation the construction contractor MUST have upstream and downstream plug locations marked in field with pickets and labeled "plug". New Gold Environmental Department will then assess the area and conduct a final fish salvage program if necessary.

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Before and after construction photos of crossing location (upstream and downstream) will be taken by New Gold Environment.

#### Environmental Set-Up Requirements for Portable Water Pumps

- 1. All pumps must be placed in plastic drip tray on level ground.
- 2. Pump intakes in waterways require fish screens as per Department of Fisheries and Oceans Regulations. Sump excavations do not require fish screens.
- 3. Fuel cans and oil to be stored in a separate spill tray, 50m from any water (waterway or wet excavation).
- 4. Rock splash pads MUST be designed to attached specifications outlined in In some circumstances the use of a silt sock instead of a rock splash pad may be acceptable.

All installations require final approval from New Gold Environmental prior to the commencement of pumping.

#### Environmental Monitoring During Operation

- 1. A minimum of 1 documented inspection per 12 hr shift is required and must be submitted to rainyriver.enviro@newgold.com daily.
- 2. Inspection must be completed using attached form.
- 3. All water taking must be tracked and recorded daily for each pump location and data needs to be submitted to New Gold Environment every 7 days as per the New Gold Water Taking Procedure.

#### Removal of Pump

- 1. Splash pads may remain in place during the duration of construction and are to be removed when de-watering is complete
- 2. Removal of pump from a work area is to be documented on final inspection form.

#### Reference Documents

- New Gold Spill Reporting Procedure
- New Gold Water Taking Procedure
- OPSS 518 : Construction specification for control of water from dewatering operations
- OPSS 517 : Construction specifications for dewatering of pipeline utility and associated structure excavation
- Typical Splash Pad Drawing Figure 1 attached



Figure 1; Typical Splash Pad drawing to be followed for all construction de-watering splash pads





Teeple Diversion and Fish Habitat Construction - Oct 2015

	Project	ENV-PRCD-002 Site Procedure for Tracking Water Related to PTTW and ECA					
Author:	Approver:	<b>Revision Number:</b>	Creation Date: July 12, 2015				
Manager Environment Approved July 12	Construction Director Approved July 12	V1.0	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.

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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<sup>3</sup>/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
- 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 <u>rainyriver.enviro@newgold.com</u> 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; Summ	ary 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)	1	15,074	21,706,000	90		
2133-9VUPVZ	Loslo Creek (CWPD3)	1	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		

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#### 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	Estimated rate (I/min)
(litres/day) (PTTW only)	(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				Elow measuring device /truck ID:								
Person Penerting				Flow measuring device/truck ID:								
Ferson Ne	taking and dos	crintion.			•							
Source of taking and description;												
Discharge Location:												
PTTW to E	CA approved wate	er treatment		PTTW Bypass with enhanced protection measures								
PTTW bypa	ass with sediment	and erosion control		PTTW consumptive Taking								
ECA pumping (section 7.5 of ECA approval)			Other (specify);									
	For flow	<i>i</i> pumping		For water truck dust suppression					All			
Day of	Pump flow	Duration	Siz	e of	Duration to Nun		nber of		Daily Tot	「otal		
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	RECORD MUST BE MADE DAILY; IF NO TAKINGS OCCUR - WRITE 'NO TAKINGS'											
	NOTI							τακι	NG			
	SEND REPORT AT LEAST WEEKLY BY 0700 WEDNESDAY To: RainyRiver Enviro@newgold.com											

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