TORONTO Water

NORTH TORONTO WASTEWATER TREATMENT PLANT

2016 Annual Report

March 31, 2017

EXECUTIVE SUMMARY

The North Toronto Treatment Plant is one of four wastewater treatment facilities operated by the City of Toronto. Located in the Don Valley, the plant currently serves a population of about 55,000. Treated effluent is discharged to the Don River. The facility normally operates at a controlled flow rate, with a maximum capacity of 45.5 ML/day[1]. Because inflow to the plant is controlled, treatment plant bypasses are not required. The plant operates under Certificate of Approval (C of A) No. 7665-7NWMH2 issued on March 26, 2009.

The average daily influent flow rate was 17.6 ML/day. Average influent concentrations for 2016 were 286 mg/L of Total Suspended Solids (TSS), 197 mg/L of Biological Oxygen Demand (BOD_5), and 5.5 mg/L of Total Phosphorus (TP).

In 2016, the plant met all final effluent parameters regulated under the Certificate of Approval. North Toronto achieved the following effluent quality in 2016:

	Certificate of Approval[1]	2016 Treated Effluent
Total Suspended Solids (TSS)	25 mg/L	3 mg/L
Carbonaceous Biological Oxygen Demand ($CBOD_5$)	25 mg/L	2 mg/L
Total Phosphorus (TP)	1.0 mg/L	0.7 mg/L
Escheria Coli (E. Coli)[2]	200 CFU / 100 mL	10.8 CFU / 100 mL
pH	6.0-9.5	7.1
Total Chlorine Residual (TCR)	0.02	SBS Presence (P)[3]
TSS Loading Rate	1,137.5 kg/day	52.3 kg/day
$CBOD_5$ Loading Rate	1,137.5 kg/day	31.1 kg/day
TP Loading Rate	45.5 kg/day	12.1 kg/day

[1] Referenced from C of A No. 7665-7NWMH2 issued on March 26, 2009.
[2] Geometric Mean
[3] Sodium Bisulphite (SBS) Presence (P) detected. The presence of Bisulphite Residual confirms a TCR of 0.0 mg/l.

Sludge (raw sludge and waste activated sludge) generated at the North Toronto Treatment Plant is transferred to the North Toronto Trunk Sewer and then conveyed by gravity to the Ashbridges Bay Treatment Plant via the Coxwell Sanitary Trunk Sewer (STS) for further treatment and disposal. An average of 0.48 ML/day (0.96% TS) of co-settled sludge was transferred in 2016.

The capital projects at the plant in 2016 included Combined Sewer Overflow (CSO) Tank improvements and electrical upgrades. In addition to routine maintenance, annual calibration of effluent monitoring equipment was completed.

Annual ferrous chloride consumption was 47,946 kg as Fe. The total sodium hypochlorite volume used to disinfect the final effluent in 2016 was 108.7 m^3. The total sodium bisulphite volume used for dechlorination in 2016 was 33.1 m^3. Total annual consumption for potable water and hydro in 2016 was 55,900 m^3 and 2.75M kWh, respectively.

The plant operating costs for 2016 totalled $1.94M. In 2016, the North Toronto Treatment Plant had 10 employees. As of March 31, 2017, there was one health and safety incident and 13 lost time days due to work related injuries.

[1] Rated capacity of treatment plant was incorrectly reported in previous annual reports and has been corrected as shown.

TABLE OF CONTENTS

APPENDICES

APPENDIX A – Glossary of Abbreviations

APPENDIX B – Plant Schematic

APPENDIX C – Plant Performance Charts:

- Influent Flows 2015 - 2016
- Influent TSS and BOD_5 Concentrations
- Influent TP and TKN Concentrations
- Effluent TSS and $CBOD_5$ Concentrations
- Effluent TP and Ammonia Concentrations
- Effluent pH
- Effluent E.Coli Concentration

APPENDIX D – Influent and Effluent Metal Concentrations

APPENDIX E – Analytical Testing Summary

APPENDIX F – Influent Flow Meter Calibration Records

LIST OF TABLES

1. INTRODUCTION

The North Toronto Treatment Plant is one of four wastewater treatment facilities operated by the City of Toronto under the responsibility of the Wastewater Treatment section of Toronto Water. The plant is located in the Don Valley on a 27.2 ha site serving a sewershed of approximately 3,060 ha, and a connected population of approximately 55,000.

Commissioned in 1929, North Toronto was one of the first plants in North America to use the biological activated sludge process. The plant operates at a controlled uniform rate and is rated for 45.5 ML/day[2]. Wastewater in excess of the controlled rate is diverted to the North Toronto Trunk Sewer and then conveyed by gravity to the Ashbridges Bay Treatment Plant via the Coxwell STS.

Major treatment processes include screening and grit removal, primary treatment, secondary treatment, phosphorus removal, effluent disinfection and dechlorination. Treated effluent is discharged to the Don River. Co-settled sludges (raw sludge and waste activated sludge) are transferred to the Ashbridges Bay Treatment Plant for disposal via the Coxwell STS. Numerous auxiliary systems are required for proper operation of many plant processes including: potable water, process water, heating, ventilation and air conditioning, electrical power distribution, gas, chemicals, instrument air, etc.

The Ministry of the Environment and Climate Control (MOECC) has classified the North Toronto Treatment Plant as a Class III wastewater treatment facility under Regulation 129/04. The facility operates under the C of ANo. 7665-7NWMH2 issued on March 26, 2009.

This report is a summary of plant operation and performance in 2016. In addition to a discussion of effluent quality and the plant's success in meeting treatment objectives, the report contains summaries of 2016 plant operations, maintenance, chemicals and utilities, costs and human resources.

[2] Rated capacity of treatment plant was incorrectly reported in previous annual reports and has been corrected as shown.

2. OPERATIONS

2.1 Influent Quality

The plant operates at a controlled uniform rate. Wastewater in excess of the controlled rate is diverted to the North Toronto Trunk Sewer and then conveyed by gravity to the Ashbridges Bay Treatment Plant via the Coxwell STS.

A summary of annual flow and influent parameter concentrations is shown in Table 1. The plant experienced a 12% decrease in influent flow from 2015 to 2016, as two primary clarifiers were taken out of service for four months. A comparison of monthly influent flow rates and characteristics for 2016 is illustrated in Appendix C.

Table 1: Influent Parameters

Parameter	2016	2015	2014	2013
Influent Flow [ML/day]	17.6	20.0	23.2	24.4
Total Annual Flow [ML]	6,422	7,281	8,481	8,703
Influent TSS [mg/L]	286	268	229	212
Influent BOD_5 [mg/L]	197	206	169	149
Influent TP [mg/L]	5.5	5.5	4.4	4.0

Influent concentrations for eleven (11) select metals have been included in Appendix D and presented against the sewer Bylaw limits for comparison purposes only.

2.2 Preliminary Treatment

Wastewater enters the Head House, which provides a grit and screenings removal operation. There is one automatic climber type bar screen, with bars spaced at 1.27 centimetre openings. The bar screen removes rags and large pieces of debris from the wastewater. Grit channels located downstream of the screen remove sand, gravel and similar heavy inorganic material by gravity separation. The grit and screenings are collected and hauled to a sanitary landfill site.

The quantity of grit and screenings removed by the grit channels and mechanical bar screen averaged approximately 306.6 kg/day in 2016.

2.3 Primary Treatment

After the grit channels, the next step in the wastewater treatment process is Primary Clarification where the velocity of flow entering the clarifier tanks is reduced, allowing the heavier solids in the wastewater to settle to the bottom by gravity. Sludge collectors in the tanks sweep the settled sludge into a sludge hopper located on the bottom of the tank, from where the sludge is pumped to the Ashbridges Bay Treatment Plant via Coxwell STS. There are four square Primary Clarifiers, each with dimensions of 15.2 m x 15.2 m x 3.5 m.

Table 2 contains a summary of key primary treatment effluent parameter concentrations in 2016.

A portion of waste activated sludge from the Final Clarifiers is diverted to the primary clarifiers to co-settle with the raw sludge.

Table 2: Primary Treatment Effluent Parameters

Parameter	2016	Primary Removal Efficiency	2015	Primary Removal Efficiency
TSS [mg/L]	100	64%	116	57%
$CBOD_5$ [mg/L]	89	43% [1]	89	45% [1, 2]

[1]C of A No. 7665-7NWMH2 issued on March 26, 2009 condition 9 requires BOD_5 monitoring for influent flows and $CBOD_5$ monitoring for effluent flows. Therefore removal efficiency calculation assumes *influent* $CBOD_5$ = *influent* BOD_5 * 0.8.
[2]Quantity was incorrectly reported in 2015 and has been corrected as shown.

2.4 Secondary Treatment

In the activated sludge process, effluent from the Primary Clarifiers is mixed with Return Activated Sludge from the Final Clarifiers and aerated. The activated sludge is made up of naturally occurring bacteria and other micro-organisms. The micro-organisms use oxygen and dissolved organics in the wastewater for their metabolic functions and in doing so purify the wastewater. There are eight aeration Tanks, each with dimensions of 99.4 m x 3.96 m x 3.2 m. Aeration Tanks No. 1 to 4 are part of the original plant construction in 1929. Aeration Tanks No. 5 to 8 were added in 1932.

The mixed liquor from the Aeration Tanks flows to large quiescent Final Clarifiers where the activated sludge is allowed to settle. A controlled quantity of this sludge is "returned" to the Aeration Tanks to repeat the treatment process, and excess quantities are removed as Waste Activated Sludge to the Primary Clarifiers. There are five Final Clarifiers, two tanks with dimensions of 19.8 m x 19.8 m x 3.2 m, and three tanks with dimensions of 19.8 m x 19.8 m x 4.87 m. Final Clarifiers #1 and #2 are part of the original plant construction in 1929. Final Clarifiers No. 3 to 5 were added in 1932.

A summary of key aeration basin parameters is shown in Table 3.

Table 3: Secondary Treatment Process Parameters

Parameter	2016	2015	2014
Aeration Loading [kg $CBOD_5$/ m^3·day] [1]	0.15	0.17	0.17
Mixed Liquor Suspended Solids [mg/L]	2,439	2,317	2,434

[1]Quantity was incorrectly reported in 2015 and has been corrected as shown.

2.5 Final Effluent Quality and Disinfection

Through operating and maintaining preliminary, primary and secondary treatment processes, final effluent is treated to meet Condition (6)(2)(c) of C of A. Treated effluent is disinfected with Sodium Hypochlorite and dechlorinated with Sodium Bisulphite (SBS) before it is discharged into the Don River. As required by Condition (9)(5) of C of A, SBS is being monitored as a surrogate to Total Chlorine Residual (TCR). Presence of Bisulphite residual confirms that chlorine has been removed to a level of 0.0 mg/L TCR.

In 2016, the North Toronto Treatment Plant encountered no abnormal operating problems, and continued to produce a high quality effluent which surpassed requirements of the plant's C of A. This was achieved through continuous improvement in operations and maintenance of the treatment process, and infrastructure delivery. The plant also met Federal Government effluent monitoring requirements, including un-ionized ammonia and acute toxicity.

A summary of key final effluent parameters, limits and objectives is shown in Table 4, Table 5 and Table 6. Details of the final effluent characteristics are presented in graphical form in Appendix C.

Table 4: Annual Average Final Effluent Parameter Limits and Performance

Parameter	C of A Limit[1]	2016	Removal Efficiency	2015	Removal Efficiency
TSS [mg/L]	25	3	99%	4	99%
$CBOD_5$ [mg/L]	25	2	99% [2]	2	99% [2]
pH	6.0 - 9.5	7.1	-	7.4	-
TSS Loading Rate [kg/day]	1,137.5	52.3	-	71.3	-
$CBOD_5$ Loading Rate [kg/day]	1,137.5	31.1	-	42.9	-
TP Loading Rate [kg/day]	45.5	12.1	-	13.4	-

[1]Referenced from condition 7 of C of A No. 7665-7NWMH2 issued on March 26, 2009.
[2]C of A No. 7665-7NWMH2 issued on March 26, 2009 condition 9 requires BOD_5 monitoring for influent flows and $CBOD_5$ monitoring for effluent flows. Therefore a correction factor of $CBOD_5 = 0.8*BOD_5$ has been applied for removal efficiency calculations and reporting.

Table 5: Monthly Average Final Effluent Parameter Limits and Performance

Parameter	C of A Limit[1]	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
TP [mg/L]	1.0	0.7	0.9	0.6	0.6	0.8	0.7	0.5	0.7	0.6	0.9	0.7	0.6
E-Coli[2] [CFU/100mL]	200	2.1	38.5	10.9	34.1	1.0	1.0	1.3	16.1	5.3	15.3	3.0	1.0
TCR[3] [mg/L]	0.02	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)	SBS (P)

[1]Referenced from condition 7 of C of A No. 7665-7NWMH2 issued on March 26, 2009.
[2]Monthly Geometric Mean
[3]SBS Presence (P) detected. The presence of Bisulphite Residual confirms a TCR of 0.0 mg/L.

Table 6: Annual Average Final Effluent Parameter Objectives and Performance

Parameter	C of A Objective[1]	2016
TSS [mg/L]	15	3
$CBOD_5$ [mg/L]	15	2
TP [mg/L]	0.9	0.7
pH	6.0-8.5	7.1
TCR [mg/L]	0.0	SBS (P)[2]
E.Coli[3][CFU/100 mL]	150	10.8

[1]Referenced from condition 6 of C of A No. 7665-7NWMH2 issued on March 26, 2009.
[2]SBS Presence (P) detected. The presence of Bisulphite Residual confirms a TCR of 0.0 mg/L.
[3]Arithmetic Mean of Monthly Geometric Means.

Secondary treatment effluent concentrations for eleven (11) select metals have been included in Appendix D.

2.6 Bypasses, Spills and Abnormal Events

2.6.1 Bypasses

Because inflow to the plant is controlled, treatment plant bypasses are not required.

2.6.2 Spills and Abnormal Events

There were no instances of spills and abnormal events in 2016.

2.7 Solids Handling

All sludge (raw sludge and waste activated sludge) generated at the North Toronto Treatment Plant is transferred to the Ashbridges Bay Treatment Plant for further treatment. The sludge generated during 2016 averaged 0.48 ML/day (0.96% TS). The flow projections for 2017 do not exceed the rated plant capacity of 45.5 ML/day and are expected to generate a sludge volume that will be +/-5% of the given volume for 2016.

2.8 CSO Overflow

The North Toronto Combined Sewer Detention System operates under Environmental Compliance Approval 2854-9H4JKF, issued May 2, 2014. The CSO Tanks provide holding capacity for combined sewer overflows resulting from wet weather flow conditions. After a wet weather event, the collected CSO is pumped to the Ashbridges Bay Treatment Plant for treatment. Under excessive flow conditions, the CSO Tanks will overflow into the outfall to the Don River. CSO Tank upgrades commenced in 2014 and the tanks have been out of service since then. The CSO tank construction is in its final stage with anticipated completion in 2017.

2.9 Complaints

There were no odour or noise complaints received in 2016.

2.10 Effluent Quality Assurance or Control Measures

Analytical tests to monitor required parameters are performed by the Toronto Water Laboratory which is accredited to ISO/IEC 17025 by Canadian Association for Laboratory Accreditation Inc. (CALA).

3. CAPITAL PROJECTS AND STUDIES

As part of the Toronto Water Capital Program, North Toronto Treatment Plant commenced or continued with the following capital works projects in 2016:

- CSO Tank Improvements
- Electrical Upgrades Project
- New Coxwell Bypass

4. MAINTENANCE

The North Toronto Treatment Plant performed a variety of scheduled, preventative, predictive and breakdown maintenance on a diverse spectrum of equipment. The main goal of maintenance activities is to ensure equipment availability to meet plant process operation requirements.

The following is a summary of significant maintenance accomplishments over the past year. These activities are considered to be Minor Modifications and were carried out as per Condition 11, as required by conditions 10(6)(c) and (j) of the C of A.

4.1 Effluent Monitoring Equipment Calibration and Maintenance Records

Flow to the plant is measured by effluent flow meters. The annual calibration of flow meters and on-line analysers for regulated parameters was completed in 2016, and found to be within acceptable limits. Calibration records are attached in Appendix F. The pH/temperature meter was calibrated in-house by the plant technician on November 4th, 2016.

4.2 North Toronto Work Area

The North Toronto work area includes all major and auxiliary processes. In addition to routine maintenance, the following maintenance was completed at the North Toronto Treatment Plant in 2016:

Process specific maintenance projects:

- Aeration System Improvements:
  - Replaced blown air stones and repaired damaged stone seats in Aeration Tanks
  - Repaired various leaks and gaskets in the air piping system
  - Installed a new type of air distribution system unit in Aeration Tank No. 3 as a test unit trial
  - Installed dissolved oxygen (D.O.) sensors to improve monitoring and air demand balancing
  - Installed new D.O. sensors head unit for Aeration Tanks No. 7 and 8
  - D.O. sensors in all 8 Aeration Tanks were linked and connected to the plant's SCADA system
  - Operations Coordination Engineers involved in plant's process improvement studies
- Rebuilt two Drop Shaft Screens (the inlet screens to the plant)
- Bar Screen checks and repairs completed
- Rebuild of Primary Clarifier No. 3 Drive, and checks to scrapers and concrete structure.
- Overhauled Primary Pumps No. 1 and 2
- Overhauled Primary Macerator Grinder No. 2
- Replaced Sodium Bisulphite Pump No. 4
- Replaced pump discs on one Sodium Hypochlorite Pump
- External mechanical float system renewed for Sodium Hypochlorite Storage Tanks
- Replaced Ferrous Pump
- Overhauled Waste Activated Sludge Pump No. 4
- Boiler tubes inspected and repaired by outside contractor
- New automatic composite sampler installed for final effluent
- Chimney repairs completed by outside contractor

General area maintenance projects:

- Renovated washroom in the Administration building for use by female workers
- New large concrete pad fabricated behind the Old Filter Building to accommodate a future outdoor storage cage

5. CHEMICALS AND UTILITIES

5.1 Chemicals

Several chemicals are used for a variety of treatment processes at the plant. Major process chemicals are discussed below and include:

- Ferrous Chloride (Nutrient Removal)
- Sodium Hypochlorite (Disinfection)
- Sodium Bisulphite (Dechlorination)

5.1.1 Ferrous Chloride for Nutrient Removal

Ferrous chloride consumption for nutrient removal (i.e. phosphorus) during 2016 was approximately 47,946 kg as Fe. This is an 8.5% increase from 2015. Ferrous chloride is applied to the distribution conduits to the aeration tanks, at which primary effluent and return activated sludge are mixed. The average ferrous chloride dosage rate was 7.7 mg/L as Fe during the year.

Ferrous chloride for nutrient removal was purchased at a cost of $800 per tonne Fe, plus applicable taxes.

5.1.2 Sodium Hypochlorite for Disinfection

Sodium hypochlorite is used for disinfection of the final effluent. In 2016, approximately 108.7 m^3 was consumed for this purpose, representing a 17.1% decrease in consumption from 2015.

Sodium Hypochlorite was purchased at an average cost of $129 per 1,000 L, plus applicable taxes.

5.1.3 Sodium Bisulphite for Dechlorination

Sodium Bisulphite was used as a dechlorination agent. The total sodium bisulphite usage in 2016 was 33.1 m^3, representing a 33.7% decrease in consumption from 2015. This resulted from the decreased flows that were directed through the plant.

Sodium Bisulphite was purchased at an average cost of $265 per tonne, plus applicable taxes.

5.2 Utilities

A summary of utility consumption for the previous two years at North Toronto Treatment Plant is provided in Table 7, below.

Table 7: Utility Consumption

Utility	2016	2015	2014
Water [m^3 / month]	4,658	3,758	3,674
Hydro [kWh / month]	229,183	231,830	207,484

5.2.1 Water

Total potable water consumption increased 23.9% from 2015 to an annual use of 55,900 m^3. Total cost for potable water was $203,007. The average unit cost of water was $3.63 per cubic meter.

5.2.2 Hydro

Total energy consumption decreased 1.1% from 2015 to an annual use of 2.75M kWh. Total cost for hydro was $398,591. The average unit cost power was $0.14 per kWh.

6. OPERATIONS AND MAINTENANCE COSTS

Plant operations and maintenance costs are broken down into five (5) categories: Salaries and Benefits, Materials and Supplies, New Equipment, Services and Rents and Other Charges. Materials & Supplies is further segregated into Utilities (power and water), Machine and Equipment Parts, Chemicals and Other Materials and Supplies. The total cost of plant operation in 2016 was $1.94M. A breakdown of 2016 annual operations and maintenance costs is shown in Table 8 and illustrated in Figure 1.

Table 8: Operations and Maintenance Cost Breakdown

Operating Cost	2016	2015
Salaries and Benefits	$1,024,845	$820,569
Materials and Supplies		
Utilities	$652,809	$531,641
Machine and Equipment Parts	$49,817	$43,809
Chemicals	$80,436	$111,660
Other Materials and Supplies	$59,357	$76,840
New Equipment	$9,871	$27,025
Services and Rents	$38,719	$65,103
Other Charges	$26,863	$21,891
TOTAL PROGRAM COST:	**1,942,716**	**1,698,538**

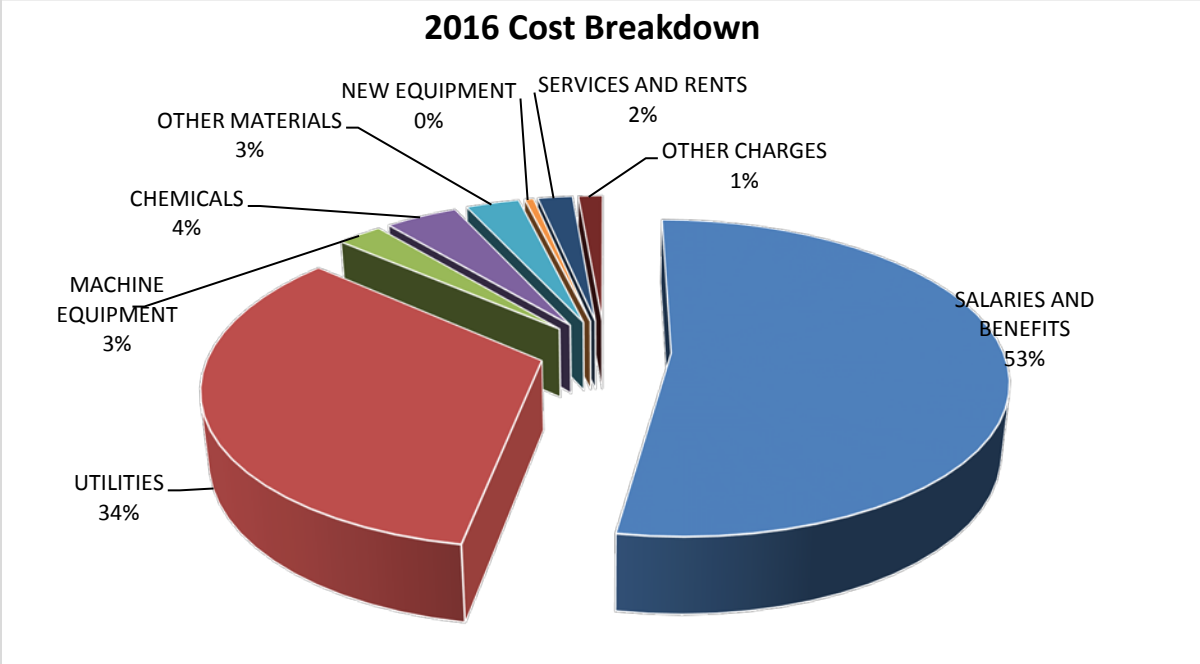


Figure 1: North Toronto Treatment Plant Operations and Maintenance Cost Breakdown for 2016

7. HUMAN RESOURCES

7.1 Staffing

In 2016, the North Toronto Treatment Plant had 10 positions. Plant Staffing is shown in Table 9:

Table 9: Plant Staffing

Position Title	Number
Supervisor, Operational Support	1
EICT	1
Plant Technicians	1
Development Plant Technicians	2
Industrial Millwrights	4
Wastewater Plant Worker	1

7.2 Occupational Health & Safety

Continuous efforts are made in maintaining a safe working environment at the North Toronto Treatment Plant facility. The Joint Health and Safety Committee assists management in resolving issues through monthly meetings and Plant Audits.

Plant Health and Safety statistics for the North Toronto Treatment Plant in 2016 were as follows:

Incident	0
First Aid	0
Medical Aid	0
Lost Time	1
Recurrence	0
Total	**1**

As of March 31, 2017, there were 13 lost time days due to work related injuries in 2016.

7.3 Staff Training and Development

Toronto Water's Strategic Planning and Workforce Development team has developed a comprehensive Operator Training Program that expands the abilities of the operational staff, resulting in better service to the public. All North Toronto Treatment Plant operating staff and skilled trades staff attended the training. Plant Technicians are consistently taking training to meet their mandatory 40 hours of training for the year.

The training in 2016 included:

a) Technical and Health and Safety Training:

- 2015 Ontario Electrical Safety Code (26th Edition) New And Amended Requirements General Level 1
- 2015 Ontario Electrical Safety Code (26th Edition) New And Amended Requirements General Level 2
- Arc Flash Awareness For Non-Electrical Personnel
- Backflow Prevention Awareness (2016-2018)
- Conductors (2016-2018)

- Confined Space Awareness
- Confined Space Entry and Rescue Training Awareness
- Electrical Safety For Maintenance Staff (2016-2018)
- Emergency First Aid Level 'A' CPR (2016-2018)
- Emergency Response Information For Employees With Disabilities (May Tailgate)
- Equipment: Inspect It Before You Use It (August Tailgate)
- Fall Protection Awareness
- Fundamentals Of Ladder Safety Awareness
- Hot Work Permit System Awareness (2016-2018)
- Level "C" CPR Renewal (2016-2018)
- Lifting Safely - Posture Matters (February Safety Tailgate)
- Lock Out, Tag Out and Test Awareness (2016-2018)
- Lockout, Tag Out And Test Awareness
- Mathematics For Operators: Module 1 (2016-2018)
- Rigging Safety Awareness (2016-2018)
- Safety In A High Voltage Environment (2016-2018)
- Scaffolding Awareness Course (2016-2018)
- Slip-Free, Trip-Free, Fall-Free (November Tailgate)
- Transportation Of Dangerous Goods (2016-2018)
- Wastewater Laboratory Procedures (2016-2018)
- Workplace Hazardous Materials Information System Training
- Worker Health And Safety Awareness In 4 Steps
- Working At Heights (2016-2018)

b) Other Training:

- Accessibility for Ontarians with Disabilities Act – Ontario Human Rights Commission
- Conflict Of Interest - Part 2
- Conflict Resolution And Negotiation Skills
- Customer Service Essentials For Administrative Support And Frontline Staff
- Fraud Prevention And Whistleblower Protection - Part 2
- Parks Annual Health and Safety Orientation
- Positive Space Toronto - Module 1
- Protecting Privacy On The Job
- The Toronto Public Service By-Law E-learning
- West Nile
- Workplace Innovation: Critical Thinking And Creative Problem Solving

7.4 Utility Operator Certification

Toronto Water has incorporated the requirement of a Class 1 operating licence into the job profiles of the skilled trades in the Water and Wastewater Treatment facilities.

Table 10 summarizes the status of operator certification at the North Toronto Treatment Plant for 2016.

Table 10: Wastewater Treatment Certificates

Class Level	Licensed
Class IV	2
Class III	1
Class II	1
Class I	5
O.I.T.	0
TOTAL	**9**

7.5 MOECC Correspondence

Table 11 summarizes the correspondence submitted to the MOECC for North Toronto Treatment Plant.

Table 11: Correspondence submitted to the MOECC for North Toronto Treatment Plant

Date	Type	Description
June 24, 2016	Meeting minutes regarding a meeting between City and MOECC on North Toronto CSO Tank Expansion.	Communication with Loralyn Wild, MOECC Water Inspector, regarding updated meeting minutes.
September 16, 2016	North Toronto CSO Tank Project - Update on Construction Status and Progression to Stage 2.	Report on Contractor's Progress - Progression to Stage 2.
September 21, 2016	Updated Wet Weather Management Plan for CSO Tank.	Provided Melissa Hills, MOECC Water Inspector, with updated Wet Weather Management Plan as per Interim Approval Letter issued on July 14th, 2015.
December 15, 2016	North Toronto CSO Tank Project - Update on Construction Status and Completion of Stage 2.	Report on Contractor's Progress – Completion of Stage 2.
Consent Letters		
N/A	N/A	N/A
Notice of Start-up		
N/A	N/A	N/A
MOE Inspection		
No Inspection.		

Appendix A

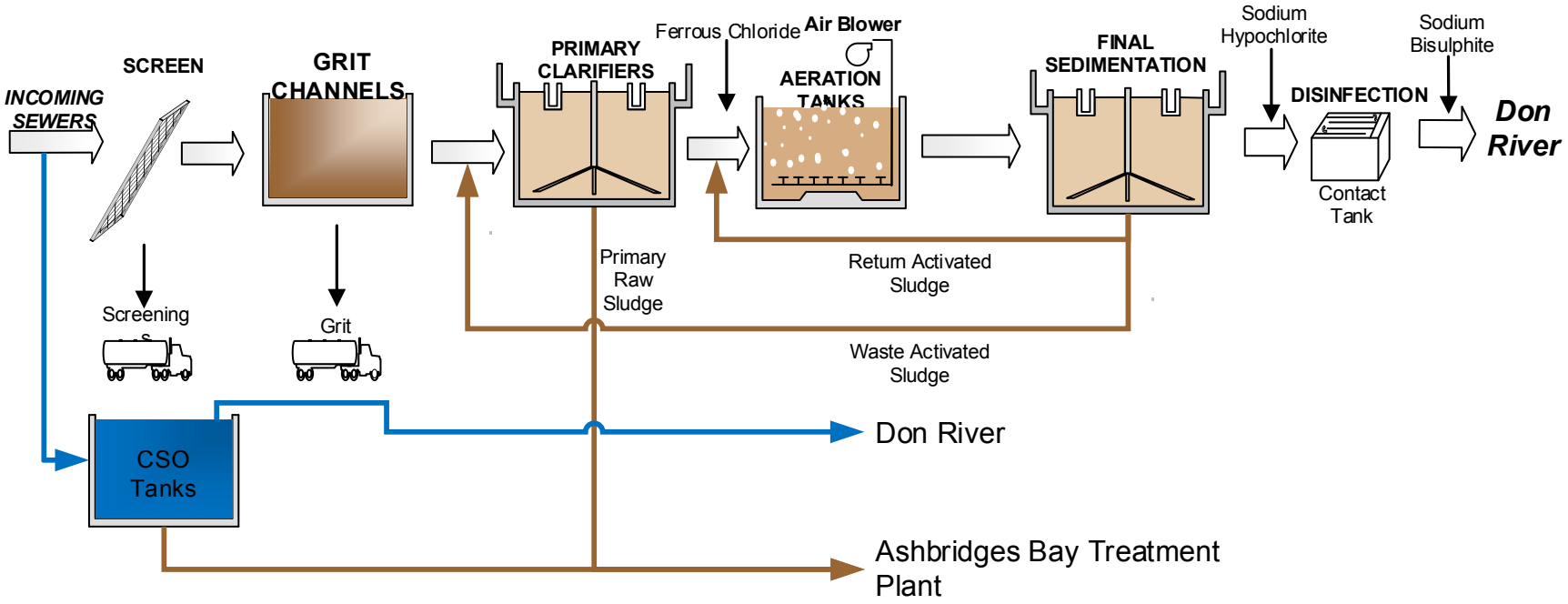
Glossary of Abbreviations

Glossary of Abbreviations

ABTP	Ashbridges Bay Treatment Plant
BOD_5	Five-Day Biological Oxygen Demand (in some instances this may be referred to as BOD)
$CBOD_5$	Five-Day Carbonaceous Biological Oxygen Demand
CEU	Continuing Education Units
CFU	Colony Forming Units
C of A	Certificate of Approval
CPR	Cardiopulmonary Resuscitation
CSO	Combined Sewer Overflow (Tank)
DAF	Air Flotation
D.O.	Dissolved Oxygen
ECA	Environmental Compliance Approval
E. Coli	Escheria Coli
ha	Hectare
HCTP	Highland Creek Treatment Plant
HTP	Humber Treatment Plant
HP	Horsepower
HRT	Hydraulic Retention Time
kg	Kilogram
kg/day	Kilogram per day
kWh	Kilowatt-hour
kWh/month	Kilowatt-hour per month
MWh	Megawatt-hour
m	Metre
m^3	Cubic metre
m^3/month	Cubic metre per month
M	Million
MCC	Motor Control Centre
mA	milliamps
mg/L	Milligrams per litre
mL	Millilitre
ML	Megalitre
ML/day	Megalitre per day
MOECC	Ministry of Environment and Climate Change
No.	Number
P	Presence
MTI	Mid-Toronto Interceptor Forcemain
NTTP	North Toronto Treatment Plant
SBS	Sodium Bisulphite
SCADA	Supervisory Control and Data Acquisition
STS	Sanitary Trunk Sewer
SS	Suspended Solids
TCR	Total Chlorine Residual
TP	Total Phosphorus
TS	Total Solids
TSS	Total Suspended Solids
TVS	Total Volatile Solids
TWAS	Thickened Waste Activated Sludge
µg/L	micrograms per litre
WAS	Waste Activated Sludge

Appendix B

Plant Schematic

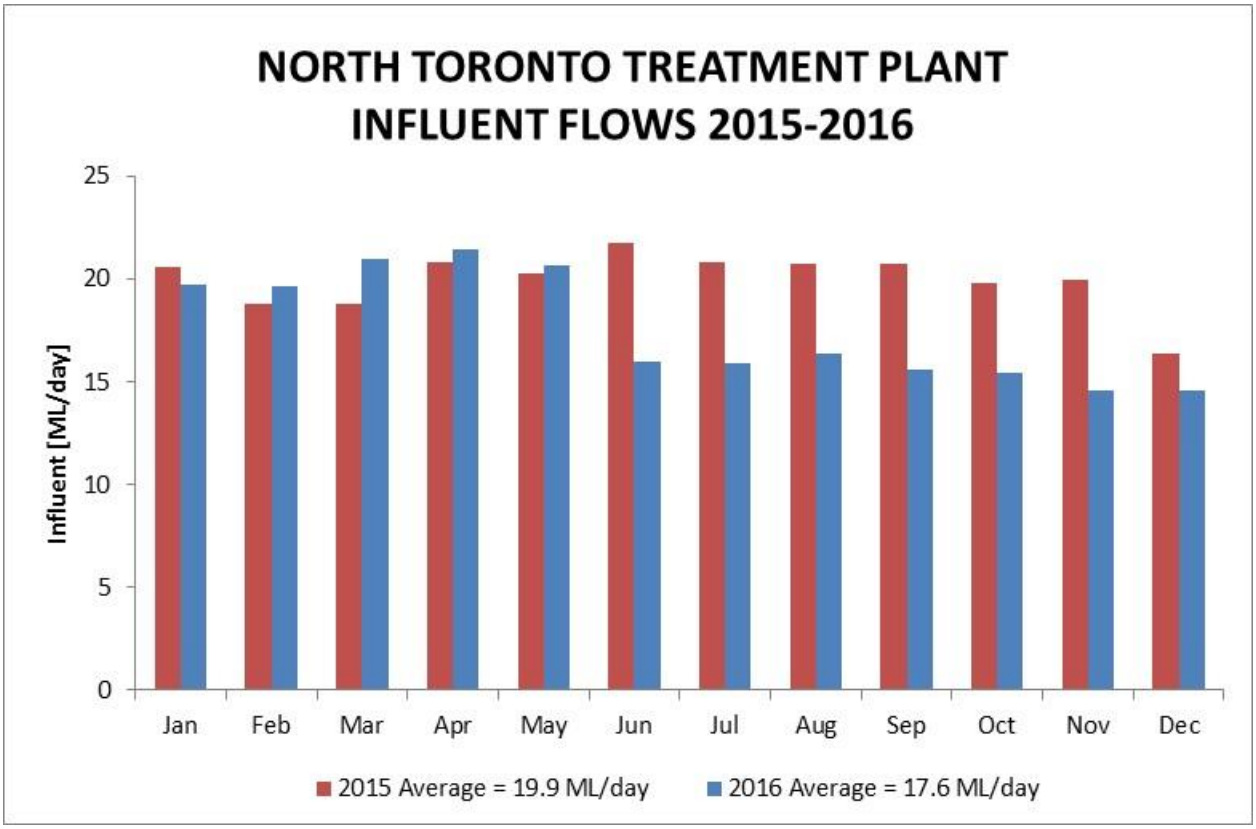


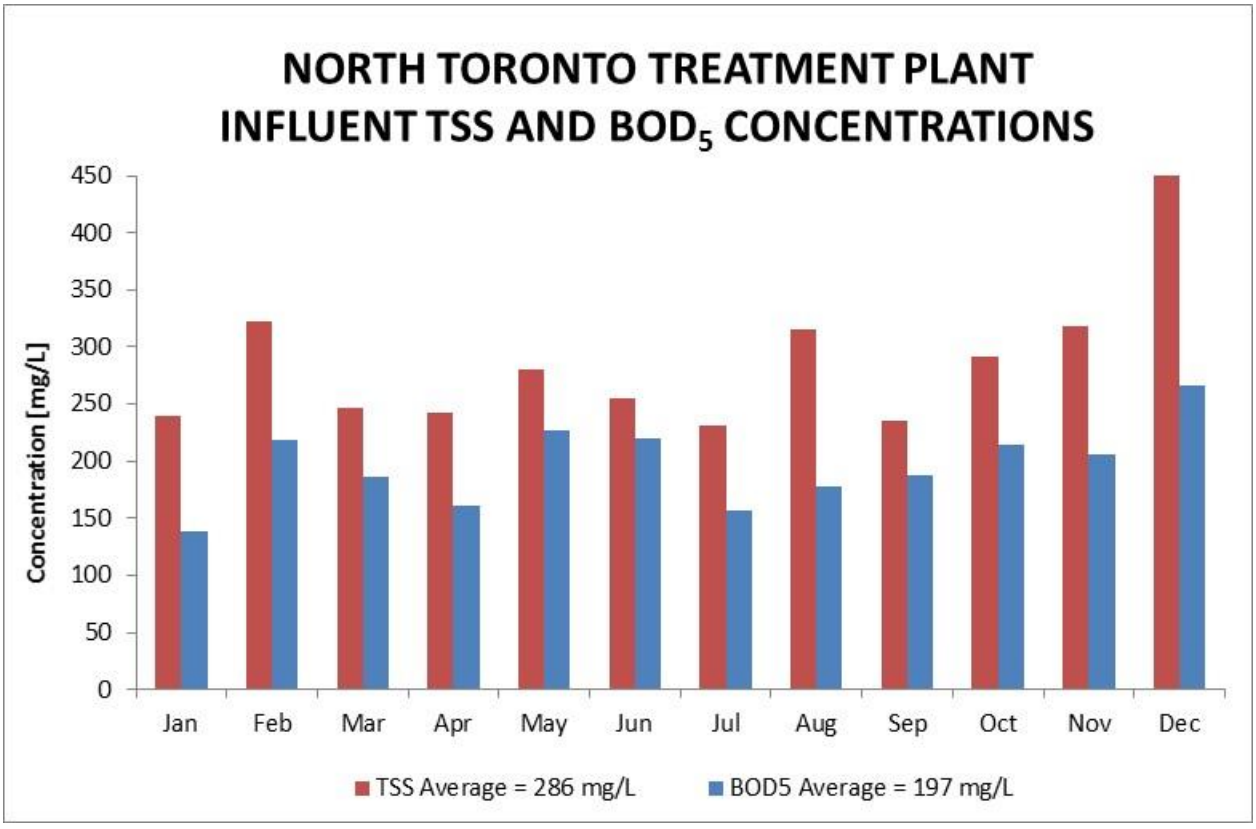
Process Flow Diagram for North Toronto Wastewater Treatment Plant

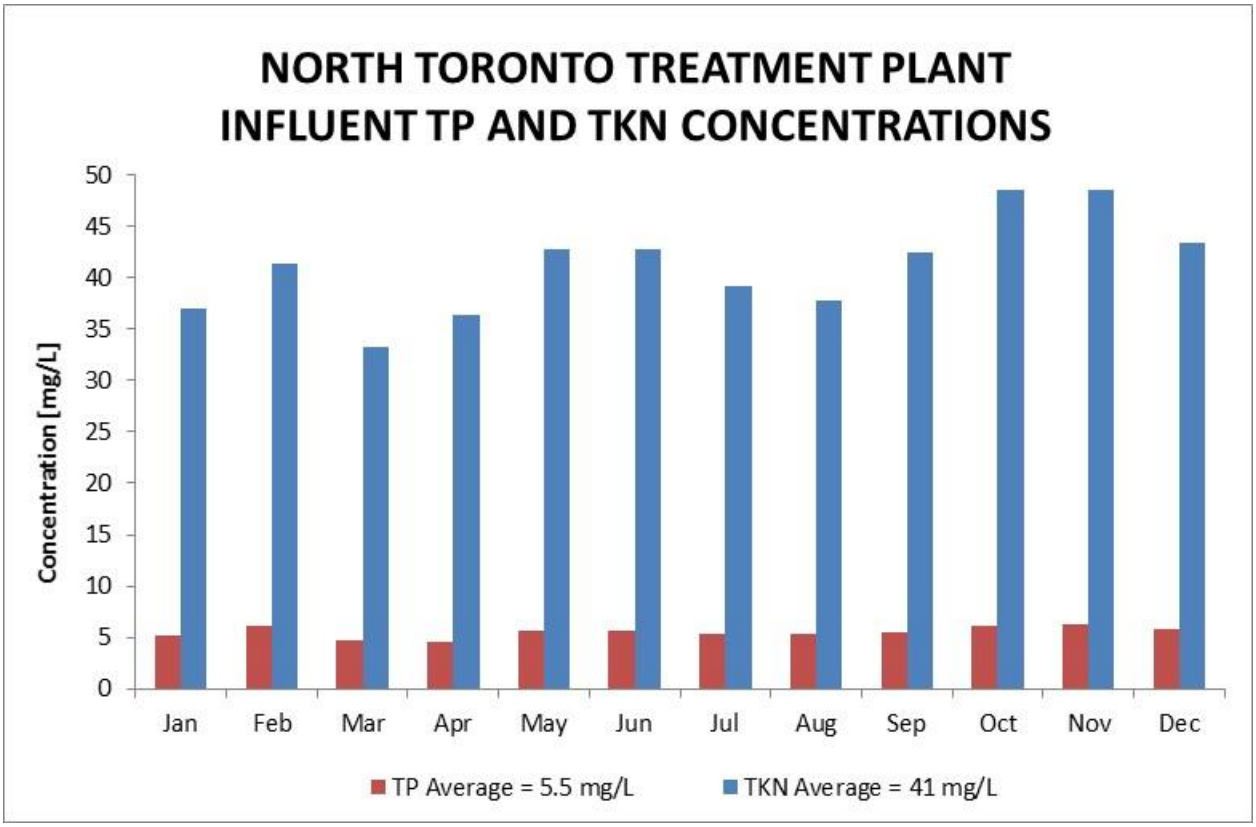
Appendix C

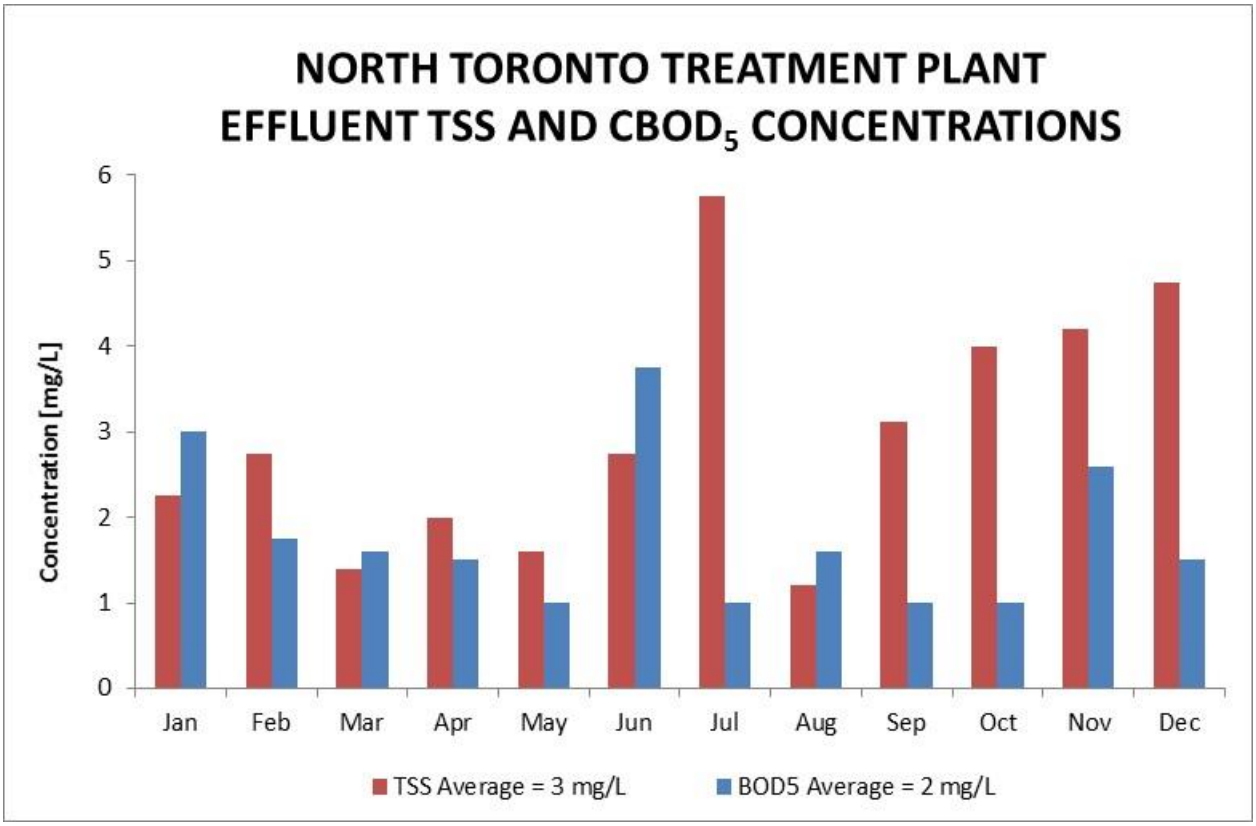
Plant Performance Charts

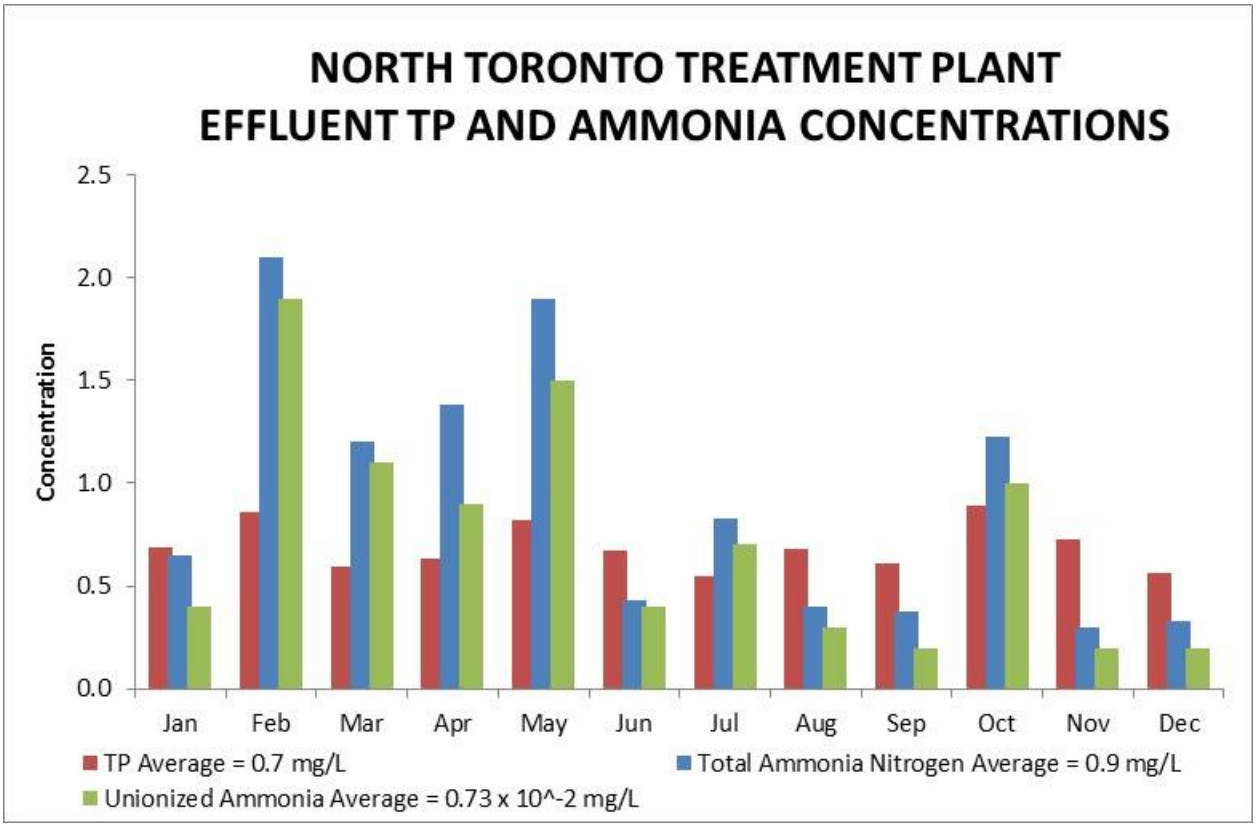
- **Influent Flows 2015 - 2016**
- **Influent TSS and BOD_5 Concentrations**
- **Influent TP and TKN Concentrations**
- **Effluent TSS and $CBOD_5$ Concentrations**
- **Effluent TP and Ammonia Concentrations**
- **Effluent pH**
- **Effluent E.Coli Concentration**

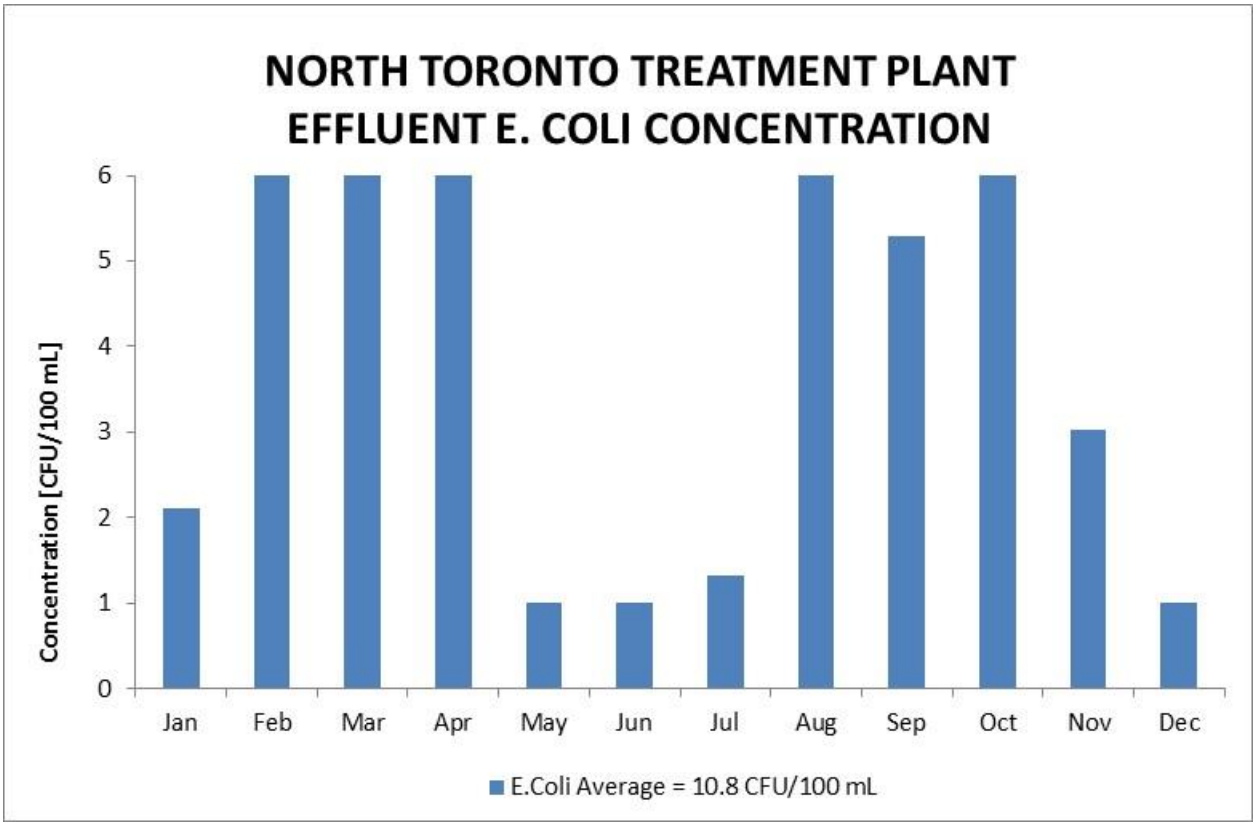

NORTH TORONTO TREATMENT PLANT
INFLUENT FLOWS 2015-2016
Influent [ML/day]
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2015 Average = 19.9 ML/day
2016 Average = 17.6 ML/day

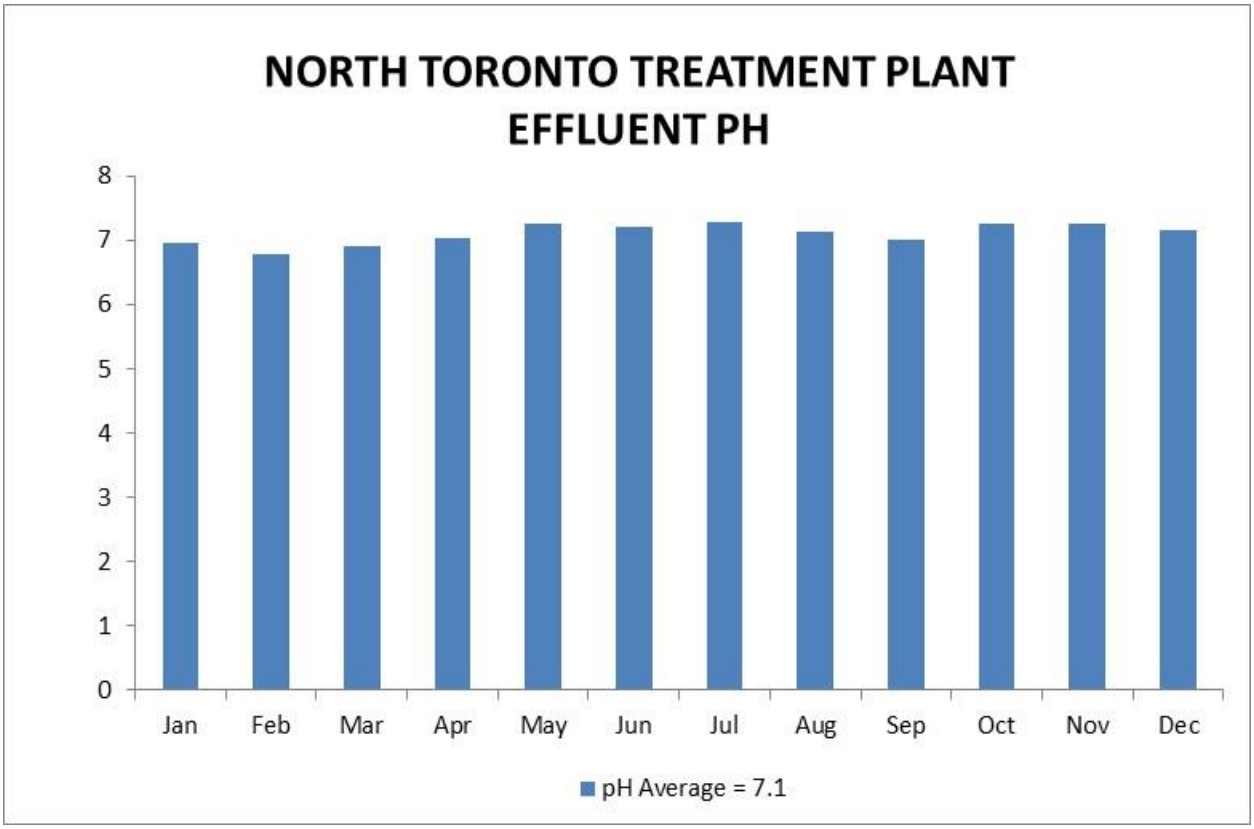

NORTH TORONTO TREATMENT PLANT
INFLUENT TSS AND BOD5 CONCENTRATIONS
Concentration [mg/L]
450
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TSS Average = 286 mg/L
BOD5 Average = 197 mg/L


NORTH TORONTO TREATMENT PLANT
INFLUENT TP AND TKN CONCENTRATIONS
Concentration [mg/L]
50
45
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TP Average = 5.5 mg/L
TKN Average = 41 mg/L


NORTH TORONTO TREATMENT PLANT
EFFLUENT TSS AND CBOD5 CONCENTRATIONS
Concentration [mg/L]
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TSS Average = 3 mg/L
BOD5 Average = 2 mg/L


NORTH TORONTO TREATMENT PLANT
EFFLUENT TP AND AMMONIA CONCENTRATIONS
Concentration
2.5
2.0
1.5
1.0
0.5
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TP Average = 0.7 mg/L
Total Ammonia Nitrogen Average = 0.9 mg/L
Unionized Ammonia Average = 0.73 x 10^-2 mg/L


NORTH TORONTO TREATMENT PLANT
EFFLUENT E. COLI CONCENTRATION
Concentration [CFU/100 mL]
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
E.Coli Average = 10.8 CFU/100 mL


NORTH TORONTO TREATMENT PLANT
EFFLUENT PH
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
pH Average = 7.1

Appendix D

Influent and Effluent Metal Concentrations

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: January 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0140	mg/L	0.0400	
	Iron	0.0857	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0389	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0368	mg/L	0.0400	
INFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.102	mg/L	2.0000	
	Iron	0.756	mg/L		
	Lead	<0.005	mg/L	1.0000	
	Manganese	0.0415	mg/L	5.0000	
	Mercury	<0.00006	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.0988	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 25-Feb-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: February 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0154	mg/L	0.0400	
	Iron	0.114	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0518	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0418	mg/L	0.0400	
INFLUENT	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	0.00446	mg/L	4.0000	
	Copper	0.128	mg/L	2.0000	
	Iron	1.18	mg/L		
	Lead	0.00677	mg/L	1.0000	
	Manganese	0.0579	mg/L	5.0000	
	Mercury	0.00009100	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.133	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 18-Mar-2016 /

Approved By: TP Chief Chemist /

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: March 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
Monthly Metals at Dee - FINAL EFFLUENT Lab Basement	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0137	mg/L	0.0400	
	Iron	0.131	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0427	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0356	mg/L	0.0400	
Monthly Metals at Dee. - INFLUENT	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.110	mg/L	2.0000	
	Iron	0.934	mg/L		
	Lead	<0.005	mg/L	1.0000	
	Manganese	0.0491	mg/L	5.0000	
	Mercury	0.0001350	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.105	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 03-May-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: April 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0119	mg/L	0.0400	
	Iron	0.117	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0412	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0351	mg/L	0.0400	
INFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.0932	mg/L	2.0000	
	Iron	0.927	mg/L		
	Lead	<0.005	mg/L	1.0000	
	Manganese	0.0472	mg/L	5.0000	
	Mercury	0.0001910	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.107	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 16-May-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: May 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0112	mg/L	0.0400	
	Iron	0.146	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0477	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0368	mg/L	0.0400	
INFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.111	mg/L	2.0000	
	Iron	0.975	mg/L		
	Lead	0.00792	mg/L	1.0000	
	Manganese	0.0490	mg/L	5.0000	
	Mercury	0.0001060	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.126	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 29-Jun-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: June 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT- Monthly Metals at Dee	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0183	mg/L	0.0400	
	Iron	0.254	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0388	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0447	mg/L	0.0400	
INFLUENT- Monthy Metals at Dee	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.117	mg/L	2.0000	
	Iron	0.790	mg/L		
	Lead	0.00653	mg/L	1.0000	
	Manganese	0.0454	mg/L	5.0000	
	Mercury	0.0001160	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.128	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 29-Jul-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: July 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0173	mg/L	0.0400	
	Iron	0.148	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0500	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0369	mg/L	0.0400	
INFLUENT - Monthly @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	0.00511	mg/L	4.0000	
	Copper	0.110	mg/L	2.0000	
	Iron	1.74	mg/L		
	Lead	0.0107	mg/L	1.0000	
	Manganese	0.0726	mg/L	5.0000	
	Mercury	0.0001590	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.144	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 30-Aug-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: August 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Meatls @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0114	mg/L	0.0400	
	Iron	0.105	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0190	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0342	mg/L	0.0400	
INFLUENT - Monthly Meatls @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	0.00476	mg/L	4.0000	
	Copper	0.155	mg/L	2.0000	
	Iron	1.64	mg/L		
	Lead	0.00924	mg/L	1.0000	
	Manganese	0.0627	mg/L	5.0000	
	Mercury	0.00008900	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.165	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 03-Oct-2016 /

Approved By: TP Chief Chemist /

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894 #
Fax: 416-397-0342 #

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: September 2016 (

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES /
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Metals at Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0158	mg/L	0.0400	
	Iron	0.345	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0258	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0393	mg/L	0.0400	
INFLUENT - Monthly Metals at Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.121	mg/L	2.0000	
	Iron	0.850	mg/L		
	Lead	0.00602	mg/L	1.0000	
	Manganese	0.0417	mg/L	5.0000	
	Mercury	0.0001490	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.120	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 31-Oct-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: October 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
EFFLUENT Monthly Metals	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0189	mg/L	0.0400	
	Iron	0.365	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0266	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0416	mg/L	0.0400	
INFLUENT Monthly Metals	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.123	mg/L	2.0000	
	Iron	0.843	mg/L		
	Lead	0.00672	mg/L	1.0000	
	Manganese	0.0461	mg/L	5.0000	
	Mercury	0.00007500	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.129	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 01-Dec-2016 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: November 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0198	mg/L	0.0400	
	Iron	0.422	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0292	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0483	mg/L	0.0400	
INFLUENT	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.142	mg/L	2.0000	
	Iron	0.878	mg/L		
	Lead	0.00675	mg/L	1.0000	
	Manganese	0.0502	mg/L	5.0000	
	Mercury	0.0001050	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.160	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 04-Jan-2017 /

Approved By: TP Chief Chemist /

TORONTO Water

Central Laboratory (
545 Commissioners Street, #
Toronto,Ontario, M4M 1A5 #

Tel: 416-392-2894
Fax: 416-397-0342

TORONTO WATER LABORATORY

Treatment Plant Monthly Metal Analysis for: December 2016

DESCRIPTION	NAME	RESULT	UNITS	LIMITS	NOTES
North Toronto Treatment Plant					
FINAL EFFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	0.0200	
	Cadmium	<0.004	mg/L	0.0080	
	Chromium	<0.004	mg/L	0.0800	
	Copper	0.0209	mg/L	0.0400	
	Iron	0.502	mg/L		
	Lead	<0.005	mg/L	0.1200	
	Manganese	0.0604	mg/L	0.0500	
	Mercury	<0.00006	mg/L	0.0004	
	Nickel	<0.005	mg/L	0.0800	
	Zinc	0.0491	mg/L	0.0400	
INFLUENT - Monthly Metals @ Dee.	Arsenic	<0.01	mg/L	1.0000	
	Cadmium	<0.004	mg/L	0.7000	
	Chromium	<0.004	mg/L	4.0000	
	Copper	0.140	mg/L	2.0000	
	Iron	1.26	mg/L		
	Lead	0.00797	mg/L	1.0000	
	Manganese	0.126	mg/L	5.0000	
	Mercury	0.00008700	mg/L	0.0100	
	Nickel	<0.005	mg/L	2.0000	
	Zinc	0.149	mg/L	2.0000	

Notes: All Results in mg/L. These samples are monthly composites. /

Underlined Results have exceeded respective Sanitary or Storm Sewer Bylaw limits of the Sewer Use Bylaw Chapter 681 of the Toronto Municipal Code. limits. /

Date Report Printed: 16-Jan-2017 /

Approved By: TP Chief Chemist /

Appendix E

Analytical Testing Summary

Toronto Water Laboratory LIMS Sample and Result Counts **From:** 01/03/2016 **To:** 12/31/2016
Client **Number of Samples:** 1338
North Toronto Treatment Plant

	ALK pH DS COND	BOD	CBOD	Chlorine	ECOLI	Ferric Chloride	IONS	Mercury	METALS	NH3 (as N)	P	pH_15	SPGR	Sulphite	TKN (as N)	Toxicity	TS	TSS	Un-ionized NH3 (as N)	**TOTAL**
COMBINED SEWER OVERFLOW	0	1	8	0	9	0	0	0	0	9	10	0	0	0	9	0	0	11	0	**57**
CUSTOM SAMPLE POINT	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
FINAL EFFLUENT	66	0	52	54	55	0	504	12	110	51	151	29	0	49	51	12	0	56	25	**1,277**
INFLUENT	0	52	0	0	0	0	0	12	108	51	151	0	0	0	51	0	0	56	0	**481**
MIXED LIQUOR COMPOSITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293	0	**293**
NTTP FE SAMPLE	0	0	0	0	0	64	0	0	0	0	0	0	6	0	0	0	0	0	0	**70**
PRIMARY EFFLUENT	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	0	**107**
RAW SLUDGE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291	0	0	**291**
RETURN SLUDGE 1&2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	168	0	**168**
RETURN SLUDGE 3-4&5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	169	0	**169**
TOTAL	**66**	**53**	**112**	**54**	**67**	**64**	**504**	**24**	**218**	**111**	**312**	**29**	**6**	**49**	**111**	**12**	**291**	**808**	**25**	**2,916**

Ions include: Cl, SO4, NO3, NO2, Br, Ca, Mg, Na, K
Metals by ICP include: Cd, Cr, Cu, Ni, Pb, Zn, Al, Mn, Fe, B
Volatile Total Solids (VS) are done on 80% of Total Solids
Volatile Suspend Solids (VSS) are done on 2% of the Total Suspended Solids samples

Toronto Water Laboratory &
545 Commissioners Street, !
Toronto,Ontario, M4M 1A5 !

Tel: 416-392-2894 !
Fax: 416-397-0342 !

TORONTO WATER LABORATORY

Sampling Point: TNT01 INFLUENT &

Group: BOD	Minimum	Maximum	Average	Units	Reporting Limit
Biochemical Oxygen Demand (BOD)	61.00	330.00	187.13	mg/L	<2

Group: METALS	Minimum	Maximum	Average	Units	Reporting Limit
Arsenic	0.010000	0.01000	0.01000	mg/L	<0.01
Cadmium	0.004000	0.00400	0.00400	mg/L	<0.004
Chromium	0.004000	0.00510	0.00430	mg/L	<0.004
Copper	0.093200	0.15500	0.11578	mg/L	<0.004
Iron	0.756000	1.74000	1.11775	mg/L	<0.02
Lead	0.005000	0.01070	0.00701	mg/L	<0.005
Manganese	0.041500	0.07260	0.05318	mg/L	<0.004
Nickel	0.005000	0.00500	0.00500	mg/L	<0.005
Zinc	0.098800	0.16500	0.12585	mg/L	<0.02

Group: Mercury	Minimum	Maximum	Average	Units	Reporting Limit
Mercury	0.000100	0.00020	0.00013	mg/L	<0.00003

Group: NH3(as N)	Minimum	Maximum	Average	Units	Reporting Limit
Ammonia(as N)	15.00	37.00	28.14	mg/L	<0.05

Group: P	Minimum	Maximum	Average	Units	Reporting Limit
Phosphorus (HACH)	2.70	9.50	5.33	mg/L	<0.08

Group: TKN(as N)	Minimum	Maximum	Average	Units	Reporting Limit
Total Kjeldahl Nitrogen	24.00	46.20	38.61	mg/L	<0.2

Group: TSS	Minimum	Maximum	Average	Units	Reporting Limit
Total Suspended Solids	108.00	524.00	260.80	mg/L	<2
Volatile Suspended Solids				%	

Sampling Point: TNT02 PRIMARY EFFLUENT

Group: CBOD	Minimum	Maximum	Average	Units	Reporting Limit
Carbonaceous Biochemical Oxygen Demand	17.00	154.00	88.95	mg/L	

Group: TSS	Minimum	Maximum	Average	Units	Reporting Limit
Total Suspended Solids	40.00	264.00	102.00	mg/L	<2
Volatile Suspended Solids				%	

Sampling Point: TNT03 FINAL EFFLUENT

Group: ALK pH DS COND	Minimum	Maximum	Average	Units	Reporting Limit
Alkalinity	55.20	76.30	68.93	mg/L	<1.6
Conductivity	799.00	847.00	821.71	µS/cm	<1.5
pH	7.60	7.90	7.71	SU	<0.10

Group: CBOD	Minimum	Maximum	Average	Units	Reporting Limit
Carbonaceous Biochemical Oxygen Demand	2.00	9.00	2.60	mg/L	<2

Group: Chlorine	Minimum	Maximum	Average	Units	Reporting Limit
Total Residual Chlorine	0.40	1.20	0.75	mg/L	<0.01

Group: ECOLI	Minimum	Maximum	Average	Units	Reporting Limit

Printed on: 02/22/2017

Comment &					
EColi	0.00	1,500.00	96.44	CFU/100 mL	
Group: IONS	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Bromide	0.200000	2.75000	2.49865	mg/L	<0.1
Calcium	54.400000	189.00000	85.63514	mg/L	<0.2
Chloride	104.000000	1,540.00000	193.62162	mg/L	<0.2
Hardness (Calculation)	192.000000	745.00000	281.29730	mg/L	<1
Magnesium	12.800000	66.20000	16.40270	mg/L	<0.1
Nitrate(as N)	0.275000	19.30000	13.26230	mg/L	<0.01
Nitrite(as N)	0.055000	1.76000	0.58873	mg/L	<0.002
Potassium	6.750000	270.00000	16.11973	mg/L	<0.05
Sodium	64.000000	1,030.00000	123.43243	mg/L	<0.4
Sulfate	39.500000	129.00000	47.05676	mg/L	<0.2
Group: METALS	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Aluminium	0.050000	0.05000	0.05000	mg/L	<0.05
Arsenic	0.010000	0.01000	0.01000	mg/L	<0.01
Cadmium	0.004000	0.00400	0.00400	mg/L	<0.004
Chromium	0.004000	0.00400	0.00400	mg/L	<0.004
Copper	0.011200	0.01830	0.01415	mg/L	<0.004
Iron	0.085700	0.25400	0.13759	mg/L	<0.02
Lead	0.005000	0.00500	0.00500	mg/L	<0.005
Manganese	0.019000	0.05180	0.04126	mg/L	<0.004
Nickel	0.005000	0.00500	0.00500	mg/L	<0.005
Tin	0.010000	0.01000	0.01000	mg/L	<0.01
Zinc	0.034200	0.04470	0.03774	mg/L	<0.02
Group: Mercury	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Mercury	0.000100	0.00010	0.00010	mg/L	<0.00003
Group: NH3(as N)	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Ammonia(as N)	0.05	3.20	1.09	mg/L	<0.05
Group: P	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Phosphorus (HACH)	0.27	1.40	0.68	mg/L	<0.08
Group: Sulphite	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Sulphite_P_A				mg/L	
Group: TKN(as N)	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Total Kjeldahl Nitrogen	0.73	6.18	1.84	mg/L	<0.2
Group: TSS	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Total Suspended Solids	2.00	6.00	2.44	mg/L	<2
Volatile Suspended Solids				%	
Group: Toxicity	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
96h_ Mortality	0.00	0.00	0.00		
96h_LC50	100.00	100.00	100.00	%	
Un-ionized Ammonia	0.00	0.01	0.00	mg/L	
Group: Un-ionized NH3(as N)	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Ammonia(as N)Un-ionized (Calculation)	0.00	0.03	0.01	mg/L	<0.001
Group: pH_15	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
pH_15C	7.20	7.70	7.45	SU	

Sampling Point: TNT05 RAW SLUDGE

Group: TS	Minimum	Maximum	Average	Units	Reporting Limit &

Total Solids	0.20	3.70	1.06	%
Volatile Total Solids	63.60	90.00	75.54	%

Sampling Point: TNT19 MIXED LIQUOR COMPOSITE

Group: TSS	Minimum	Maximum	Average	Units	Reporting Limit
Total Suspended Solids	1,740.00	3,460.00	2,446.73	mg/L	<2
Volatile Suspended Solids	64.20	81.00	73.10	%	

Sampling Point: TNT20 RETURN SLUDGE 1&2

Group: TSS	Minimum	Maximum	Average	Units	Reporting Limit
Total Suspended Solids	2,690.00	7,350.00	5,036.96	mg/L	<2
Volatile Suspended Solids	64.50	71.00	68.07	%	

Sampling Point: TNT21 RETURN SLUDGE 3-4&5

Group: TSS	Minimum	Maximum	Average	Units	Reporting Limit
Total Suspended Solids	2,500.00	7,400.00	5,258.80	mg/L	<2
Volatile Suspended Solids	64.40	70.70	67.56	%	

Sampling Point: TNT22 COMBINED SEWER OVERFLOW

Group: BOD	Minimum	Maximum	Average	Units	Reporting Limit
Biochemical Oxygen Demand (BOD)	10.00	10.00	10.00	mg/L	
Group: CBOD	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Carbonaceous Biochemical Oxygen Demand	9.00	120.00	54.86	mg/L	<2
Group: ECOLI	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
EColi	131,000.00	2,360,000.00	1,263,444.44	CFU/100 mL	
Group: NH3(as N)	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Ammonia(as N)	1.90	17.00	7.86	mg/L	<0.05
Group: P	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Phosphorus (HACH)	0.95	3.60	2.08	mg/L	<0.08
Group: TKN(as N)	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Total Kjeldahl Nitrogen	4.80	25.70	13.58	mg/L	<0.2
Group: TSS	**Minimum**	**Maximum**	**Average**	**Units**	**Reporting Limit**
Total Suspended Solids	56.00	308.00	179.11	mg/L	<2
Volatile Suspended Solids				%	

Sampling Point: TNT28 NTTP FE SAMPLE

Group: Ferric Chloride	Minimum	Maximum	Average	Units	Reporting Limit
Absolute Difference	0.00	0.01	0.01		
Bill of Lading #	82,355,551.00	82,438,203.00	82,401,629.50		
Specific Gravity	1.22	1.30	1.26		
Supplier Specific Gravity	1.23	1.30	1.26		

Note: Averages are based on raw data

Note: Minimum values are normally reported as < the reporting limit for that parameter.

Note: Average is calculated for ECOLI, if Geometric Mean is required ask the lab for a separate data file.

Appendix F

Flow Meter Calibration/Maintenance Record

6415 Northam Drive
Mississauga, ON L4V 1J2
TEL: (905) 678-2882
FAX: (905) 293-9774

VERIFICATION / CALIBRATION REPORT

Report No.: 011418-0001
Date: October 3,2016

SITE: North Toronto Treatment Plant 21 Redway Road Toronto M4H 1P6
PROCESS AREA: Final Effluent Flow ← METER.
INSTR. TAG: TNT-DCL-FIT-0002
MANUFACTURER: Siemens OCM III
MODEL: 7ML-1002-0AA05
SERIAL No.: PBD/A6070683
INSTR. RANGE: 0 to 109,999.8 cubic meters / day

SERVICE DATE: September 29,2016
TECHNICIAN: John Yaworski
JOB REFERENCE: 011418

Input	(Parameters)	Output	(Signal)	(Process)
Type:	Head (Meters)	Type or EGU:	mA	cubic meter /day
Min:	0.0000	Min:	4.00	0.00
Max:	0.59744	Max:	20.00	109999.8
open channel type	rectangular weir without end contractors			
exponent	1.5			
constant	9928 (m3/hr)			

			Before Calibration		After Calibration	
Input (meters)	Calc flow (cu m /day)	Calc. O/P (mA)	Actual ma Output	Error (%Rng)	Actual ma Output	Error (%Rng)
0.163	15680.30	6.28	6.24	-0.25%	6.24	-0.25%
0.184	18806.14	6.74	6.72	-0.10%	6.72	-0.10%
0.299	38956.49	9.67	9.55	-0.73%	9.55	-0.73%
0.395	59151.89	12.60	12.47	-0.84%	12.47	-0.84%
0.501	84494.73	16.29	16.15	-0.88%	16.15	-0.88%
0.518	88831.63	16.92	16.80	-0.76%	16.80	-0.76%

Calibration Equipment			
Type:			
Manufacturer:			
Model:			
Serial No.:			
Last Cal. Date:			

Comments: Unable to stop plant flow to perform zero calibration.
Calculated flow for the rectangular weir without end contractors on the Siemens OCM III was found within range.
Unit did not require any calibration.

UNIT PARAMETERS:
P1 Dimensional Units ---- Meters
P3 Primary Element ---- Exponential Device
P4 Method of Calculation ---- Ratiometric
P5 Flow Units ---- Cubic Meters / Day
P6 Flow at Max Head ---- 109999.8 Cubic Meters / Day
P7 Height at Max Head ---- 0.59744 Meters
P15 Relay 1 Assignment ----- De-energize on Echo Loss
P18 Relay 2 Assignment ----- Not In Service
P21 Relay 3 Assignment ----- Not In Service
P27 MA Damping -----,10 Sec
P29 Fail Safe Timer ---- 60 Seconds
P30 Fail Safe Analog Mode ---- Hold Last Value
P33 Flow Rate Display ---- 2 Decimal Places
P39 Data Logging Rate ---- 15 Minutes
P46 Range at Zero Head ----- 1.437 Meters
P47 Blanking Distance ----- 0.610169 Meters
U0 Exponent ---- 1.5

VERIFICATION / CALIBRATION SUCCESSFULL

TNT Request for Services

Date Sept. 19/2016

Issued by: Sam Mallia
Tele: 392-9194

Please clean, inspect and calibrate:

☐ Raw Sewage Meter
Located in the Rack House

Note:
DIFFERENTIAL PRESSURE TRANSMITTER HAS BEEN CALIBRATED. D. PRESSURE LINES WAS FAULTY INSIDE THE CHAMBER (VENTURI) FAIL READINGS

Attention to this matter is required:

Immediately	
As soon as possible	
When scheduling permits	
Other:	

Description of Work Performed:

Totalizer at 20 mA : **c/min**

TX in WC	Before mA	After mA	% Error	Chart Recorder In (mA)	Chart Recorder Display

Comments: SIGNAL TO TRANSMITTER VERY POOR, SO CALIBRATION TESTING COULD NOT BE PERFORMED PROPERLY UNTIL VENTURI IS REPAIRED

Work Performed by: : (Position) : EICT

AMANDO GAN.		SEPTEMBER 2016
Please print name	Signature	Date

TNT Request for Services

Date Done June 22 /16 Issued by: Sam Mallia

Please clean, inspect and calibrate:

☐ Return 1-2-3 Meter
☐ Return 6-7-8 Meter
Located in the aeration basement

☐ Waste Flow Meter
In the aeration gallery

Note:

Attention to this matter is required:

Immediately	
As soon as possible	
When scheduling permits	
Other:	

Description of Work Performed:

Return Flow 1-2-3		**Return Flow 6-7-8**		**Waste Flow 4-5**	
0 – 10 mA = 0-315 L/sec		4 - 20 mA = 0- 260 L/sec		0 – 10mA = 0- 52 L/sec	
mA	L/sec	mA	L/sec	mA	L/sec
4	0	4	0	0	0
12	158	12	130.1	5	26.58
20	315.2	20	260.4	10	53.1

Comments: OK

Work Performed by: (Position) : EICT

AMANDO GAN		22 JUNE 2016
Please print name	Signature	Date

TNT Request for Services

Date DONE July 27

Issued by: Sam Mallia
Tele: 392-9194

Please clean, inspect and calibrate:

☐ By-Pass Chamber Flow Recorder
Located in the Boiler Room

☐ Primary Raw Sludge Meter
(Pump # 1 & Pump #2)
In Primary Pump House

☐ Gas Flow Recorder
Located in the Boiler Room

Note: _____

Attention to this matter is required:	
Immediately	
As soon as possible	
When scheduling permits	
Other:	

Description of Work Performed:

By-Pass Chamber Flow 0 – 164000 m^3 / day Calibration Checked		Gas Flow 0 – 75.45 L/sec		Primary Pump # 1 4 – 20 mA = 0 -		Primary Pump # 2	
In 4 mA	Display 0	mA	L/sec	mA	L/sec	mA	L/sec
4	0			4	0	4	0
8	41.1	0		12	7.9	12	7.8
12	82		5	20	15.8	20	15.79
16	122.5						
20	164						

Comments: PRIMARY PUMP HOUSE, SIMULATE THE FLOW WITH PORTABLE FLOWMETER

Work Performed by: (Position) : EICT

AMANDO GAN		27 JULY 2016
Please print name	Signature	Date

Effluent Monitoring Equipment Calibration and Maintenance Record

Entity Number	Entity Name	Activity	Date/Time Activity Performed	Activity Performed By
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	01/05/2016 10:21	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	02/05/2016 10:55	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	03/10/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	04/08/2016 12:20	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	05/03/2016 12:24	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	06/07/2016 7:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	07/08/2016 12:20	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	08/10/2016 12:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	09/06/2016 8:21	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Bi sulphate Analyzer-ORP-sensor check-Monthly, Ref: TNT-DIS-941 for TNT-DCL-AIT-0001	11/29/2016 11:30	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	01/08/2016 13:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	01/15/2016 12:44	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	01/22/2016 12:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	01/28/2016 12:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	02/05/2016 10:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	02/10/2016 9:10	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	02/24/2016 14:43	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	02/25/2016 12:37	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	03/02/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	03/10/2016 13:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	03/10/2016 13:35	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	03/21/2016 8:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	04/06/2016 7:51	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	04/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	04/15/2016 12:12	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	04/26/2016 7:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	04/29/2016 7:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	05/05/2016 14:36	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	05/12/2016 14:26	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	05/24/2016 13:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	05/30/2016 9:19	Area Supervisor
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	06/17/2016 7:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	06/20/2016 8:04	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	06/24/2016 14:18	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	07/06/2016 14:27	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	07/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	07/14/2016 12:22	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	07/21/2016 12:23	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	07/29/2016 12:02	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	08/12/2016 13:46	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	08/19/2016 12:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	08/25/2016 7:58	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	08/29/2016 10:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	09/07/2016 8:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	09/09/2016 12:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	09/23/2016 12:32	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	09/26/2016 14:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	10/21/2016 15:04	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	10/28/2016 14:03	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	10/28/2016 14:23	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/02/2016 8:11	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/10/2016 14:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/14/2016 14:55	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/22/2016 7:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/29/2016 10:31	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/29/2016 11:39	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	11/29/2016 11:47	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	12/14/2016 13:28	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Check the Analyzer sensor, Ref: DIS-936	12/29/2016 14:45	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	01/08/2016 13:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	01/15/2016 12:44	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	01/22/2016 12:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	01/28/2016 12:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	02/05/2016 10:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	02/10/2016 9:10	Millwright

Effluent Monitoring Equipment Calibration and Maintenance Record

Entity Number	Entity Name	Activity	Date/Time Activity Performed	Activity Performed By
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	02/24/2016 14:43	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	02/25/2016 12:37	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	03/02/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	03/10/2016 13:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	03/10/2016 13:35	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	03/21/2016 8:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	04/06/2016 7:51	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	04/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	04/15/2016 12:12	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	04/26/2016 7:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	04/29/2016 7:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	05/05/2016 14:36	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	05/12/2016 14:26	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	05/24/2016 13:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	05/30/2016 9:19	Area Supervisor
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	06/17/2016 7:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	06/20/2016 8:04	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	06/24/2016 14:18	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	07/06/2016 14:27	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	07/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	07/14/2016 12:22	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	07/21/2016 12:23	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	07/29/2016 12:02	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	08/12/2016 13:46	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	08/19/2016 12:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	08/25/2016 7:58	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	08/29/2016 10:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	09/07/2016 8:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	09/09/2016 12:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	09/23/2016 12:32	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	09/26/2016 14:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	10/21/2016 15:04	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	10/28/2016 14:03	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	10/28/2016 14:23	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/02/2016 8:11	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/10/2016 14:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/14/2016 14:55	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/22/2016 7:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/29/2016 10:31	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/29/2016 11:39	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	11/29/2016 11:47	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	12/14/2016 13:28	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Clean the Bi sulphite chemical analyzer, Ref: DIS-939	12/29/2016 14:45	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	01/08/2016 14:16	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	02/08/2016 7:23	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	03/11/2016 14:30	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	04/08/2016 14:11	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	05/06/2016 14:59	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	06/14/2016 8:04	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	07/20/2016 15:16	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	08/09/2016 9:17	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	09/20/2016 15:23	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning and Calibration of Cl/ORP analyzer Sample Probe, Ref: TNT-FPW-1A6 for TNT-DCL-AIT-0002	12/02/2016 14:53	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	01/06/2016 14:23	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	01/15/2016 15:01	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	01/22/2016 15:00	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	01/29/2016 13:38	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	02/03/2016 7:25	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	02/12/2016 12:12	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	02/19/2016 11:00	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	02/25/2016 9:42	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	03/04/2016 14:05	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	03/07/2016 15:16	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	03/18/2016 19:33	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	03/21/2016 14:58	EICT

Effluent Monitoring Equipment Calibration and Maintenance Record

Entity Number	Entity Name	Activity	Date/Time Activity Performed	Activity Performed By
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	04/01/2016 15:00	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	04/07/2016 18:59	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	04/15/2016 14:32	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	04/22/2016 14:55	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	04/27/2016 14:44	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	05/04/2016 18:59	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	05/13/2016 14:51	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	05/20/2016 15:03	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	05/26/2016 15:20	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	06/03/2016 8:33	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	06/09/2016 8:00	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	06/17/2016 12:34	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	06/23/2016 7:49	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	06/30/2016 14:29	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	07/06/2016 7:38	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	07/12/2016 7:36	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	07/19/2016 7:27	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	07/26/2016 7:44	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	08/03/2016 19:03	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	08/09/2016 9:09	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	08/17/2016 7:36	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	08/25/2016 18:52	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	09/01/2016 7:51	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	09/08/2016 18:57	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	09/14/2016 8:02	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	09/22/2016 8:17	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	09/28/2016 15:02	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	10/05/2016 19:01	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	10/13/2016 15:17	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	10/18/2016 19:02	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	10/27/2016 8:08	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	11/02/2016 8:20	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	11/10/2016 14:53	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	11/14/2016 14:40	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	11/22/2016 8:08	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	11/29/2016 10:46	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	12/09/2016 16:56	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	12/20/2016 7:55	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Cleaning of the Cl/ORP analyzer sample probe- weekly, Ref: TNT-DIS-0004 for TNT-DCL-AIT-0002	12/29/2016 7:27	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Hypochlorite and Sulphite Analyzer Calibration-Annual, Ref: TNT-DIS-0002 for TNT-DCL-AIT-0001	07/11/2016 14:08	Millwright
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Hypochlorite and Sulphite Analyzer Calibration-Annual, Ref: TNT-DIS-0002 for TNT-DCL-AIT-0002	07/11/2016 14:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Hypochlorite and Sulphite Analyzer probe Replacement-Annual, Ref: TNT-DIS-0003 for TNT-DCL-AIT-0001	10/26/2016 8:32	EICT
TNT-DCL-AIT-0002	Transmitter, Analyzer Indicating, ORP	Hypochlorite and Sulphite Analyzer probe Replacement-Annual, Ref: TNT-DIS-0003 for TNT-DCL-AIT-0002	10/27/2016 8:32	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	01/08/2016 13:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	01/15/2016 12:44	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	01/22/2016 12:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	01/28/2016 12:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	02/05/2016 10:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	02/10/2016 9:10	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	02/24/2016 14:43	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	02/25/2016 12:37	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	03/02/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	03/10/2016 13:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	03/10/2016 13:35	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	03/21/2016 8:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	04/06/2016 7:51	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	04/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	04/15/2016 12:12	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	04/26/2016 7:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	04/29/2016 7:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	05/05/2016 14:36	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	05/12/2016 14:26	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	05/24/2016 13:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	05/30/2016 9:19	Area Supervisor
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	06/17/2016 7:50	Millwright

Effluent Monitoring Equipment Calibration and Maintenance Record

Entity Number	Entity Name	Activity	Date/Time Activity Performed	Activity Performed By
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	06/20/2016 8:04	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	06/24/2016 14:18	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	07/06/2016 14:27	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	07/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	07/14/2016 12:22	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	07/21/2016 12:23	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	07/29/2016 12:02	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	08/12/2016 13:46	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	08/19/2016 12:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	08/25/2016 7:58	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	08/29/2016 10:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	09/07/2016 8:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	09/09/2016 12:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	09/23/2016 12:32	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	09/26/2016 14:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	10/21/2016 15:04	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	10/28/2016 14:03	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	10/28/2016 14:23	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/02/2016 8:11	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/10/2016 14:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/14/2016 14:55	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/22/2016 7:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/29/2016 10:31	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/29/2016 11:39	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	11/29/2016 11:47	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	12/14/2016 13:28	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the analyzer peristaltic pump for signs of wear, Ref:TNT-CLB-23	12/29/2016 14:45	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	01/08/2016 13:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	01/15/2016 12:44	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	01/22/2016 12:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	01/28/2016 12:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	02/05/2016 10:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	02/10/2016 9:10	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	02/24/2016 14:43	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	02/25/2016 12:37	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	03/02/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	03/10/2016 13:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	03/10/2016 13:35	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	03/21/2016 8:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	04/06/2016 7:51	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	04/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	04/15/2016 12:12	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	04/26/2016 7:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	04/29/2016 7:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	05/05/2016 14:36	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	05/12/2016 14:26	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	05/24/2016 13:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	05/30/2016 9:19	Area Supervisor
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	06/17/2016 7:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	06/20/2016 8:04	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	06/24/2016 14:18	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	07/06/2016 14:27	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	07/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	07/14/2016 12:22	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	07/21/2016 12:23	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	07/29/2016 12:02	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	08/12/2016 13:46	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	08/19/2016 12:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	08/25/2016 7:58	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	08/29/2016 10:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	09/07/2016 8:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	09/09/2016 12:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	09/23/2016 12:32	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	09/26/2016 14:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	10/21/2016 15:04	EICT

Effluent Monitoring Equipment Calibration and Maintenance Record

Entity Number	Entity Name	Activity	Date/Time Activity Performed	Activity Performed By
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	10/28/2016 14:03	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	10/28/2016 14:23	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/02/2016 8:11	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/10/2016 14:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/14/2016 14:55	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/22/2016 7:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/29/2016 10:31	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/29/2016 11:39	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	11/29/2016 11:47	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	12/14/2016 13:28	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Inspect the sample pump tubing, Ref: DIS-940	12/29/2016 14:45	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Scheduled restoration of Analyzer-Sodium bi sulphate peristaltic tube, Ref DIS-30A1 for TNT-DCL-AIT-0001	10/28/2016 13:51	Maintenance Planner and Scheduler
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Verification check of the Analyzer-Sodium bi sulphate , Ref: TNT-DIS-30A2 for TNT-DCL-AIT-0001	10/28/2016 13:51	Maintenance Planner and Scheduler
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	01/08/2016 13:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	01/15/2016 12:44	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	01/22/2016 12:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	01/28/2016 12:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	02/05/2016 10:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	02/10/2016 9:10	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	02/24/2016 14:43	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	02/25/2016 12:37	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	03/02/2016 13:38	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	03/10/2016 13:31	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	03/10/2016 13:35	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	03/21/2016 8:08	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	04/06/2016 7:51	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	04/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	04/15/2016 12:12	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	04/26/2016 7:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	04/29/2016 7:52	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	05/05/2016 14:36	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	05/12/2016 14:26	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	05/24/2016 9:19	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	05/24/2016 13:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	06/17/2016 7:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	06/20/2016 8:04	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	06/24/2016 14:18	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	07/06/2016 14:27	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	07/08/2016 12:17	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	07/14/2016 12:22	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	07/21/2016 12:23	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	07/29/2016 12:02	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	08/12/2016 13:46	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	08/19/2016 12:47	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	08/25/2016 7:58	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	08/29/2016 10:30	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	09/07/2016 8:15	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	09/09/2016 12:57	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	09/23/2016 12:32	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	09/26/2016 14:50	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	10/03/2016 14:23	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	10/21/2016 15:04	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	10/28/2016 14:03	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/01/2016 8:11	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/08/2016 14:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/14/2016 14:55	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/22/2016 7:42	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/28/2016 10:31	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/29/2016 11:39	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	11/29/2016 11:47	EICT
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	12/14/2016 13:28	Millwright
TNT-DCL-AIT-0001	Transmitter, Analyzer Indicating, Residual Sulphite	Visual inspection of the overflow assembly, Ref: DIS-939 for TNT-DCL--AIT-0001	12/29/2016 14:45	EICT