

2019 Annual Water System Report



Jeff Hume, Utility Foreman
City of Dauphin
February 19th, 2020
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Water System Information

Name of Public Water System: Dauphin Public Water System

Name of the Legal Owner: City of Dauphin

Contact Person: Jeff Hume, Utility Foreman

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Emergency Phone Number: 204.622-3202

Names of Water Treatment Plant Operators:

Jeff Hume

Randy Hlady

Oblin N. Sofan

Chad McCrady

Jason Lobert

Water Treatment Plant Phone Number: 204.622.3287

Date Completed: February 19th, 2020

Jeff Hume

Utility Foreman, City of Dauphin

February 19th, 2020

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Introduction

The 2019 Annual Report for the City of Dauphin summarized the Water Utility's ability to produce safe potable water and meet the requirements of all provincial regulations

Description of Water System

The City of Dauphin Public Water System (PWS) provides potable drinking water to a population of 8251 residents (2011 Census). Dauphin's PWS also supplies potable water to 2 private water systems in the RM of Dauphin; Eclipse Water Coop and the Dauphin Airport. Treated water produced from the water treatment plant meets all health and aesthetic objectives as stated in the *Guidelines for Canadian Drinking Water Quality*.

Water Supply Source

The City of Dauphin (City) obtains surface water from Edwards Creek. The intake structure is located just south of the southern tip of the Lower Reservoir. Vermillion Reservoir Dam is also used when needed. The intake structure is located approximately 6.5 km from the water treatment plant (WTP) site. Raw water is pumped from the reservoir via the Vermillion Raw Water Pumping Station to the Lower Reservoir located at the WTP site via 300 mm diameter pipe. It is then pumped into the WTP via the Low-lift Pumping Station via 300 mm diameter pipe.

Intake Structures

Edwards Creek is controlled by Parks Canada. The intake structure is located at the south bank of the Lower Reservoir at the WTP site.

The Vermillion Raw Water Reservoir is operated by Manitoba Water Stewardship. The intake structure consists of approximately 45 m of 400 mm diameter cast iron pipe. The pipe opening is screened by a stainless steel mesh. The Vermillion Pumping Station consists of two alternating 50 hp pumps.

Water Treatment Process

The source water for the WTP is Edwards Creek and, if necessary, Vermillion River. Raw water is stored at the WTP in what is referred to as the Lower Reservoir. Raw water is pumped from the Lower Reservoir via the Low Lift Pumping Station and enters the facility on the north side of the building and is split to feed the two process trains. Treated water is stored in two reservoirs: the WTP Reservoir and the Brown Avenue Reservoir and distributed to the consumers via water mains. The Pressure Reducing Station located along Hwy #10 aids in the transfer of the treated water to the City of Dauphin (City) distribution system.

The existing treatment process consists of the following:

- Flash Mixing/Flocculation/Sedimentation, using aluminum sulphate (alum), caustic soda and polymer.
- Ozonation, for disinfection, oxidation and taste & odor.
- Filtration, polishing step using sand and anthracite rapid gravity filters.
- Chlorination with contact time for primary disinfection.
- Chloramination, using chlorine and ammonia for disinfection in the distribution system.
- Fluoridation, using hydrofluosilic acid (HFSA) for consumers' dental health.

These processes are designed to clarify the water and remove microbial contaminants, such as bacteria, and organic materials that are naturally found in surface waters.

Distribution System

The existing water distribution network is made up of pipes of various, age, size and material. The distribution network is made up of pipe ranging from 100 mm to 300 mm diameter, with most of the pipe being 150 mm in diameter. The system is gravity fed.

The City has a very detailed procedure for swabbing and flushing their water main network as required. Between 2002 and 2007 the entire distribution network was flushed annually and one quarter of the network was swabbed annually.

Storage Reservoirs

The water storage system incorporates one (1) raw water and two (2) treated water reservoirs. The table below summarizes their capacities.

Capacity of Reservoirs

	Imperial Units (Imp. Gallons)	Metric Units (ML)	Year Constructed
Edwards Reservoir (Raw)	11,300,000	51.4	
WTP (Treated)	792,000	3.6	1999 & 2001
Brown Avenue (Treated)	1,000,000	4.54	1981

Number of Connections, Population Served and Types of Water Users

The Dauphin distribution system is comprised of 3337 active service connections servicing a population of 8251 residents (2011 Census). All service connections are metered with 88.8% being residential services, 10.8% being commercial services and 0.4% being rural services.

Active Service Connections



- Residential
- Commercial
- Rural

Classification and Certification

The water system facility classifications for the 2018 year:

Class 4 Water Treatment Facility Classification

Class 2 Water Distribution Facility Classification

The water system staff and certification levels for the 2019 year:

Staff Member	Water Treatment	Water Distribution
William P. Brenner, C.E.T.	Class IV	Class II
Jeffrey J. Hume	Class IV	Class III
Randy Hlady	Class III	Class II
Jeff J. Weselowski		Class II
Gary Burla		Class II
Oblin N. Sofan	Class IV	Class II
Chad McCready	Class II	Class II
Jason Lobert	Class III	Class II
Curt Flett	OIT	Class II

Disinfection System in Use

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of potential disease-causing organisms in water. As per the Drinking Water Safety Act the Dauphin PWS is required to ensure a disinfectant residual of at least:

- 0.5 mg of free chlorine per litre of water entering the distribution system following a minimum contact time of 30 minutes
- 0.3 mg of monochloramine per litre of water at all times at any point in the water distribution system

Primary disinfection of the filtered water is accomplished using chlorine gas and aqua-ammonia. Chlorine and ammonia are added to the treated water to produce chloramines. Chlorine gas is added to the water using a Wallace and Tiernan V-Notch gas feeder system. Ammonia is added to the water using a Watson Marlow QDOS peristaltic pump.

Equipment Redundancy and Monitoring Requirements

Chlorine gas is stored in a separate room in 68 kg cylinders. Two banks of two cylinders each are connected to the chlorine feed system at all times and an automatic transfer system is in place.

Each of the two banks of cylinders are capable of supplying the full amount of chlorine required for disinfection at peak demand. Parts and maintenance kits for all chlorination equipment is kept at the WTP at all times.

A spare ammonia pump and parts are stored at the WTP at all times.

Disinfectant Residual Overall Performance/Results

For 2019, the Dauphin PWS has met all regulatory requirements in regard to monitoring and reporting disinfection residuals in the water leaving the water treatment plant as well as in the distribution system.

List of Water Quality Standards

The Province of Manitoba has adopted a number of water quality standards from the *Guidelines for Canadian Drinking Water Quality*, developed by Health Canada. The parameters are health-based and they express the maximum acceptable concentration for a surface water supply source. Concentration values in excess constitute a health-related issue and require corrective actions.

Water Quality Standards		Percent Compliance	Corrective Action Forms
Bacterial			
E. coli	Less than one E. coli bacteria detectable per 100mL in all treated water	100%	N/A
Total coliform	Less than one total coliform bacteria detectable per 100mL in all treated water	100%	N/A
E. coli	Less than one E. coli bacteria detectable per 100mL in all distributed water	100%	N/A
Total coliform	Less than one total coliform bacteria detectable per 100mL in all distributed water	100%	N/A

Water Quality Standards		Percent Compliance	Corrective Action Forms
Disinfection			
Chlorine residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 30 minutes	100%	N/A
	A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system, when free chlorine disinfection is being practiced	100%	N/A
	A monochloramine residual of at least 0.3 mg/L at all times at any point in the water distribution system, when monochloramine disinfection is being practiced	100%	N/A
Physical			
Turbidity	Less than or equal to 0.3 NTU in 95% of the measurements in a month of the effluent from each operating particulate filter.	100%	N/A
	Not exceed 0.3 NTU for more than 12 consecutive hours of filter operation	100%	N/A
	Not exceed 1.0 NTU for any continuous measurement	100%	N/A

Chemical		
Total trihalomethanes (to include: bromodichloromethane, bromoform, chloroform, dibromochloromethane)	Less than or equal to 0.10 mg/L as annual average of quarterly samples	0.032
Manganese	Less than 0.02 mg/L	0.004
Sodium	Less than 200 mg/L	41.5
Total Dissolved Solids	Less Than 500 mg/L	376
Sulfate	Less than or equal to 500 mg/L	146
Aluminum	Less than or equal to 0.100 mg/L	0.041
Lead	Less than or equal to 0.01 mg/L	0.000
Arsenic	Less than or equal to 0.01 mg/L	0.001
Fluoride	Less than or equal to 0.9 mg/L	0.85
Nitrate	Less than or equal to 10 mg/L measured as nitrogen	0.109
Total Haloacetic Acids	Less than or equal to 0.08 mg/L as an annual average	0.026

Monitoring Requirements		Percent Compliance
<i>Bacterial</i>		
Total coliform and E. coli	Bi-weekly sampling program with each set of samples consisting of one raw, one treated, and a minimum of 4 distribution samples.	100%
	Consecutive sample sets must be separated by at least 12 days	100%
<i>Disinfection</i>		
Free chlorine (treated water)	One sample per day at the treated water sampling location established by the Drinking Water Officer	100%
	Continuous sampling of water entering the distribution system following at least thirty minutes of contact time	100%
Total chlorine (treated water)	One sample per day of water entering the distribution system following at least thirty minutes of contact time	100%
Total chlorine (distribution system)	At the same times and location(s) as bacteriological distribution system sampling	100%
Monochloramine (distribution system)	At the same times and location(s) as bacteriological distribution system sampling	100%
<i>Physical</i>		
Turbidity	One raw water sample per day.	100%
	Continuous sampling of the effluent from each operating particulate filter	100%
	A confirmatory sample to be taken daily at a location established by the Drinking Water Officer	100%
<i>Chemistry</i>		
General chemistry (to include arsenic, fluoride, nitrate, and Lead)	One raw and one treated water sample once each year	100%
Trihalomethanes (THMs)	"1" preserved distribution system samples taken on a quarterly basis during February May, August, and November, every year	100%
Total Haloacetic Acid (HAA)	"2" preserved distribution system samples taken on a quarterly basis during February May, August, and November, every year	100%

Reporting Requirements		
Disinfection	Submit original monthly disinfection report forms within seven days after the end of each calendar month	100%
Physical	Submit original monthly turbidity report forms within seven days after the end of each calendar month	100%
Corrective Actions	Submit original corrective action report for minor exceedance's as described in the most recent version of the Office of Drinking Water "Operational Guidelines for Public and Semi-public Water Systems", along with the monthly disinfection, or turbidity report form	100%
Emergency	Immediately notify the Office of Drinking Water of any condition that may affect the ability of the water system to produce or deliver safe drinking water including treatment upsets or bypass conditions, contamination of the source water or treated water, a filtration or disinfection system failure, or a distribution system failure	NA

Water System Failures and Corrective Actions

In 2019, there were no water system failures or associated corrective actions required.

Additional Records Required

As part of Manitoba Health's fluoridation program, water samples are collected on a daily basis at the WTP and City Hall and tested on site. Daily fluoride results are recorded and a 14 day composite sample is submitted by-weekly for analysis. The Dauphin PWS strives to maintain a 0.70 mg/L fluoride level. The operating range for fluoride, as identified by Manitoba Health, is 0.50-0.90 mg/L. In 2019, fluoride levels never exceeded the 0.90 mg/L recommended limit.

Drinking Water Safety Orders and Actions Taken in Response

In 2019, no Drinking Water Safety Orders were issued for the Dauphin Public Water System.

Boil Water Advisories and Actions Taken in Response

In 2019, no Boil Water Advisories or Action were Taken..

Warnings Issued or Charges Laid on the System in Accordance with the Drinking Water Safety Act

In 2019, no Warnings were issued for the Dauphin Public Water System.

Major Expenses Incurred

- Replaced Valve and Actuator at Brown Avenue Reservoir
- Replaced Flow Meter at Water Treatment Plant
- Dredged Vermillion Dam Intake Structure
- Relined Davidson Avenue Distribution piping
- Replaced distribution line on 6th Avenue NE
- Purchase new SUV vehicle

Future System Expansion and/or Increased Production

The City of Dauphin is currently undergoing a study regarding adding Orthophosphates to assist in the reduction of lead at the consumers tap. It is caused by lead service lines associated with homes built prior to 1950 and soldering inside homes built prior to 1990.

Appendix A

Bacteriological Results

Date	Location	Sample Identification	TC	EC
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	200	1
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
01-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	145	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
01-21-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	109	4
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
02-04-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	200	3
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
02-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	62	3
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
03-05-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
03-18-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	78	1
03-18-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
03-18-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
03-18-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
03-18-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0

03-18-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	43	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
04-02-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	1
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
04-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	48	1
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
04-29-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	101	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
05-13-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	50	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
05-27-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	165	1
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
06-10-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0



06-24-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	0
06-24-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
06-24-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
06-24-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
06-24-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
06-24-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
07-08-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
07-22-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	0
07-22-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
07-22-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
07-22-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
07-22-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
08-06-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	200	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
08-19-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	1
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
09-03-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0



09-16-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	0
09-16-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
09-16-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
09-16-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
09-16-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
09-16-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	8
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
09-30-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	>200	1
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
10-15-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	145	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	3	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	1	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	6	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	1	0
10-28-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	1	0
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	145	1
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
11-12-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	165	1
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
11-25-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0



12-09-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	62	0
12-09-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
12-09-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
12-09-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
12-09-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
12-09-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 1 - RAW	165	1
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 2 - TREATED @ WTP	0	0
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Hall	0	0
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ City Shop	0	0
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ PRV Station	0	0
12-23-19	DAUPHIN WATER PLANT	DAUPHIN 3 - DISTRIBUTION @ Brown Avenue	0	0



Appendix B

