

Drainage Planning Collection System Monitoring Protocol

	Responsibility (Role)	Procedure	Record	Maintenance Requirement
1	Information	Drainage Services operates under a registered ISO 14001 environmental management system. This protocol and the procedures and forms referenced in this document are part of this system. System procedures and forms may be updated as described in the attached EP-09 Document Control procedure.		
2	Information	<p>This Protocol covers the collection of flow and/or water quality data from:</p> <ul style="list-style-type: none"> ▪ Representative Combined Sewer Overflow (CSO) sites and storm outfalls during the spring runoff period (January to April); ▪ Representative CSOs and storm outfalls for the majority of events (90% CSO events and 90% of wet weather events) through the use of composite sampling during the summer and fall period (May to December); ▪ Selected stormwater management facilities; ▪ Selected creeks and tributaries; ▪ Wastewater Treatment Plants final effluent channel; and ▪ Open (active) interconnection sites. 		
3	Information	<p>The specific sites in the collection system that will be monitored for flow quality and quantity are as follows:</p> <p>CSO Sites:</p> <ul style="list-style-type: none"> ▪ Rat Creek CSO; ▪ Capilano Hardisty CSO; and ▪ Highlands CSO <p>Storm Sewer Outfalls:</p> <ul style="list-style-type: none"> ▪ 30th Avenue; ▪ Quesnell; 		

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		<ul style="list-style-type: none"> ▪ Groat Road; and ▪ Kennedale. 		
4	Information	<p>The specific sites for collection of water quality samples also include but are not limited to the following:</p> <ul style="list-style-type: none"> ▪ Tributaries: <ul style="list-style-type: none"> - Whitemud Creek; - Gold Bar Creek; - Mill Creek; - Blackmud Creek; - Fulton Creek; - Wedgewood Creek; - Horsehills Creek (mouth); - Sturgeon River (mouth); ▪ Stormwater Management Facilities: <ul style="list-style-type: none"> - Hollick-Kenyon Lake; - Bearspaw Lake; - Castlewood/Canossa Wetland; - Fulton Wetland; - Mill Creek – Roper Pond; and ▪ Wastewater Treatment Plants (Gold Bar and Capital Region) final effluent channel; 		

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5	Information	<p>The list of water quality parameters (routine and additional), the specific monitoring requirements include, is indicated in the following procedure:</p> <ul style="list-style-type: none"> ▪ PEM13 Surface Water Quality Monitoring Procedures for Sample Handling and QA/QC; 	Procedure PSP4, EP-09A Revision Record for PEM13	Annual procedure review.
6	Information	<p>The flow monitoring requirements are indicated in the following procedures:</p> <ul style="list-style-type: none"> ▪ PEM1 Sewer Flow Measurements; ▪ PEM7 Interconnection Monitoring and Reporting. 	Procedures listed, EP-09A Revision Record for PEM1 and PEM7.	Annual procedure review.
7	General Supervisor of Strategic Planning or Senior Environmental Engineer	<p>Ensures that collection system sampling techniques, sample handling and sample delivery methodology, field data collection, weather condition monitoring, and remote flow monitoring techniques are completed as described in the following:</p> <ul style="list-style-type: none"> ▪ “Wastewater Sampling for Process and Quality Control”, Manual of Practice OM-1, Water Pollution Control Federation (Water Environment Federation), 1980; ▪ PEM13 Surface Water Quality Monitoring Operating Procedures for Sample Handling and QA/QC. 	Listed Procedures, associated revision records	
8	General Supervisor of Monitoring and Assessment	<p>Ensures that flow quantity measurements and automatic flow quality sampling are performed in accordance with the following procedures::</p> <ul style="list-style-type: none"> ▪ PEM1 Sewer Flow Measurement; ▪ PEM2 Sewer System & Rainfall Data Collection; ▪ PEM3 Sewer Flow Meter Verification; ▪ PEM4 Sewer Flow Data Quality Assurance, Quality Control: ▪ PEM5 Sewer Flow Meter Calibration; 	Listed Procedures, associated revision records, and flow monitoring database (SHAPES)	

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		<ul style="list-style-type: none"> ▪ PEM7 IC Monitoring Data Collection and Reporting; ▪ PEM10 Sampler Station Maintenance. 		
9	Information General Supervisor of Gold Bar WWTP Laboratory	<p>Samples collected are delivered to Gold Bar WWTP laboratory for analysis. All samples received by the Gold Bar WWTP Lab staff are further handled and tested in accordance with the following:</p> <ul style="list-style-type: none"> ▪ ISO 17025 Procedures; ▪ Gold Bar WWTP Lab Standard Operating Procedures (SAP); ▪ PEM13 Surface Water Quality Monitoring Procedures for Sample Handling and QA/QC. <p>For copies of the Gold Bar WWTP Lab SOPs contact the General Supervisor of Gold Bar Lab or refer to the file copy at Gold Bar WWTP Lab.</p>	Listed Procedures, associated revision records	
10	General Supervisor of Strategic Planning, GS of Monitoring and Assessment	<p>Ensure that collected flow and water quality data are of good quality through the development and implementation of the procedures described below.</p> <p>Proper sample collection and analysis are vital part of the monitoring program, therefore checks needed to catch potential problem are implemented through the Quality Assurance/Quality Control (QA/QC) practice. Some QA/QC practices apply to field operations and many apply to laboratory procedures and are described in the following procedures:</p> <ul style="list-style-type: none"> ▪ PEM13 Surface Water Quality Monitoring Procedures for Sample Handling and QA/QC. ▪ PEM3 Sewer Flow Meter Verification; ▪ PEM4 Sewer Flow Data Quality Assurance, Quality Control. 	Listed Procedures, associated revision records	
11	General Supervisor of GBWWTP Lab, Senior	Collected flow and water quality data from the CSOs overflows and storm sewer discharges is submitted to Alberta Environment (AENV) in the form of the Monthly Report and Annual Report. Reporting requirements are described in detail in the	Monthly EMP reports; Annual EMP	

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	Environmental Engineer, Senior Hydraulic Engineer, Monitoring Technologist.	following procedure: <ul style="list-style-type: none"> ▪ PEM11 Monthly EMP Report; ▪ PEM12 Annual EMP Report; ▪ PEM7 IC Monitoring Data Collection and Reporting. 	Reports; Annual Interconnection Report.	
12	Director – Drainage Planning	Will review this protocol annually to ensure continuing suitability, adequacy and effectiveness. This review will be recorded on revision record EP-09A.	Form EP-09A-Revision Record	Annual Review of the Collection System Monitoring Protocol.