

MS4 MONITORING PROGRAM PLAN

PORT OF ANCHORAGE STORM WATER MANAGEMENT PROGRAM ANCHORAGE, ALASKA



PREPARED FOR:

PORT OF ANCHORAGE
2000 ANCHORAGE PORT ROAD
ANCHORAGE, ALASKA 99501

PREPARED BY:

R&M CONSULTANTS, INC.
9101 VANGUARD DRIVE
ANCHORAGE, ALASKA 99507

15 FEBRUARY 2017

TABLE OF CONTENTS

	Page
Table of Contents.....	ii
List of Tables	ii
List of Appendices.....	ii
Acronyms and Abbreviations.....	iii
1.0 Introduction.....	1
1.1 Project/Task Organization.....	1
1.2 Project Background	2
1.2.1 Port of Anchorage Background.....	3
1.2.2 Port of Anchorage Operators.....	3
1.2.3 Storm Water System and Outfall Characteristics	4
1.2.4 Past Monitoring Programs and Challenges	5
2.0 Monitoring Plan	7
2.1 Dry Weather Inspections.....	7
2.1.1 Ongoing Awareness Program	7
2.1.2 Monitoring Point And Outfall Inspections	7
2.1.3 Inspections And Annual Interviews	8
2.2 Wet Weather Inspections	9
2.2.1 Storm Water Outfall Inspection Plan	9
2.2.2 Industrial and High Risk Inspections.....	11
3.0 Program Amendments.....	13
4.0 References	14

LIST OF TABLES

Table 1-1: Port of Anchorage Shareholders	2
Table 2-1: Outfall and Monitoring Point Descriptions	8
Table 2-2: Outfall Monitoring Point Descriptions.....	10
Table 2-3: Outfall Monitoring Requirements.....	10
Table 2-4: Stakeholder Monitoring Parameters	11

LIST OF APPENDICES

Appendix A – MS4 Jurisdictional Map	1 Pages
Appendix B – Forms	3 Pages

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
AAC	Alaska Administrative Code
ABI	Alaska Basic Industries
ADEC	Alaska Department of Environmental Conservation
AFSC	Anchorage Fueling and Service Company
APDES	Alaska Pollutant Discharge Elimination System
AST	aboveground storage tank
BMPs	Best Management Practices
BOD ₅	biochemical oxygen demand, five day
CaCO ₃	calcium carbonate
CFR	Code of Federal Regulations
cfs	cubic foot per second
CGP	construction general permit
COD	chemical oxygen demand
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
JBER	Joint Base Elmendorf – Richardson
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity units
pH	potential of hydrogen
POL	petroleum, oil, and lubricants
Port	Port of Anchorage
QAPP	Quality Assurance Project Plan
R&M	R&M Consultants, Inc.
SWMP	Storm Water Management Program
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
TDS	total dissolved solids
Tesoro	Tesoro Alaska Petroleum Company
TKN	total kjeldahl nitrogen

ACRONYMS AND ABBREVIATIONS (CONTINUED)

TOTE	Totem Ocean Trailer Express
TSS	total suspended solids
TTLR	tank truck loading rack
UST	underground storage tank
VFA	vehicle fueling area

MS4 MONITORING PROGRAM PLAN

PORT OF ANCHORAGE

STORM WATER MANAGEMENT PROGRAM

ANCHORAGE, ALASKA

1.0 INTRODUCTION

The Municipal Separate Storm Sewer System (MS4) Monitoring Program Plan is designed to allow the Port of Anchorage (Port) and associated Stakeholders to be able to monitor the quality and quantity of water being discharged by the MS4 system. A separate Quality Assurance Project Plan (QAPP) details collection methods and analysis of chemical monitoring data as required by the MS4 Monitoring Program Plan.

1.1 PROJECT/TASK ORGANIZATION

The Port MS4 Monitoring Program Plan from Section 4.1 of the MS4 Permit and Section 9.1 of the 2016 Storm Water Management Program (SWMP) is designed to:

- Assess compliance with the Port MS4 permit
- Measure the effectiveness of the Port SWMP
- Measure the chemical, physical, and biological impacts to the receiving waters resulting from storm water discharges in accordance with the Port QAPP
- Characterize storm water discharges
- Identify sources of specific pollutants
- Detect and eliminate illicit discharges and illegal connections to the MS4.

To that end, the MS4 Monitoring Program Plan includes a description of the various types of monitoring conducted by the Port and its Stakeholders. The Port MS4 permit requires that a number of requirements be met when conducting water quality monitoring:

- All samples will be representative of the monitoring activity
- Monitoring will be conducted according to test procedures approved under 40 CFR Part 136 (adopted by reference at 18 AAC 83), unless otherwise specified
- Monitoring will comply with Industrial and High Risk Runoff Monitoring and Storm Water Discharge Monitoring programs
- Monitoring results will be recorded on a Discharge Monitoring Report form (EPA No. 3320-1), and submitted annually for the previous twelve-month period along with the Detailed Annual Report
- The QAPP will be annually reviewed for adequacy based on permit compliance activities and sampling results. The review will be documented in the Detailed Annual Report

- Based on the Detailed Annual Report, the Port will amend the QAPP whenever there is modification to sampling collection, sample analysis, or other conditions or requirements of the plan. A copy of the amended Monitoring Program Plan and QAPP will be included in the Detailed Annual Report
- If the Port is unable to collect samples due to adverse climatic or tidal conditions, the Port will submit in lieu of sampling data a description of why the samples could not be collected, including documentation of the event. Adverse climatic conditions which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, tsunamis, high tides, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.). The Port is precluded from exercising this waiver more than once during a two year period (MS4 Permit Section 4.1.2.8)
- The Port will continue ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4. All portions (but not necessarily all outfalls) of the MS4 must be screened at least once during the permit term
- Copies of the Monitoring Program Plan and QAPP shall be made available to Alaska Department of Environmental Conservation (ADEC) upon request.

The MS4 permit requires that all records of monitoring information include:

- The date, exact place, and time the samples or measurements were taken;
- The names(s) of the individual(s) who performed the sampling or measurements;
- The date(s) upon which analysis of each sample was performed;
- The names of the individuals who performed each analysis;
- The analytical techniques or methods used; and
- The results of each analysis.

It should also be noted that if the Port or its Stakeholders (See Table 1-1) monitor more frequently than required by the MS4 permit using test procedures approved under 40 CFR Part 136 (adopted by reference at 18 AAC 83), or as otherwise specified by this permit, the results of this monitoring must be included with the data submitted as part of the Detailed Annual Report.

TABLE 1-1: PORT OF ANCHORAGE SHAREHOLDERS

Stakeholder	Type of Activity
Anchorage Fueling and Service Company	Bulk fuel transfer and storage
Tesoro Alaska Petroleum Company	Bulk fuel transfer, storage and blending
Matson	Containerized freight handling
Totem Ocean Trailer Express	Roll-on/Roll-off Containerized freight handling
Delta Western	Methanol transfer and storage
Alaska Basic Industries	Cement transfer and storage

1.2 PROJECT BACKGROUND

Under the National Pollutant Discharge Elimination System (NPDES) storm water program, operators of MS4 systems require permit authorization for storm water discharges. The Port was

issued its own individual MS4 permit under the NPDES by the Environmental Protection Agency (EPA) in 1995. ADEC reissued permit coverage under the Alaska Pollutant Discharge Elimination System (APDES) system effective 1 August 2015. As an MS4 operator, the Port is required to develop a SWMP designed to prevent pollutants from being introduced into surface waters due to storm water runoff. Part of the SWMP is development of this Monitoring Program Plan and the QAPP to detail plans and procedures used to collect, document, and analyze samples in support of the SWMP.

1.2.1 PORT OF ANCHORAGE BACKGROUND

The Port is located in an industrial portion of Anchorage, Alaska, and currently comprises of roughly 220 acres of land. It is bordered by Cook Inlet to the west; Joint Base Elmendorf-Richardson (JBER) to the north and east; and bulk fuel facilities to the south owned by Tesoro Alaska Petroleum Company (Tesoro), and Crowley Maritime Corporation. A site plan is provided as Drawing 1 of Appendix A.

The Port is used regularly by two major cargo carriers that dock several ships from the Pacific Northwest each week. The Port is also used by petroleum tankers and barges that supply jet fuel for operations at Ted Stevens Anchorage International Airport and various petroleum products bound for Western Alaska. Overseas cargo carriers from Japan and Korea use the Port to import and export of various materials including pipe, drilling mud, construction materials, automobiles, cement, and other freight.

Current Port facilities include petroleum, oil, and lubricants (POL) transfer terminals, a POL pipeline valve yard, cargo ship terminals, container cranes, equipment and material staging yards, vehicle transit areas, an administrative building with associated vehicle parking areas, a Security Center, and a maintenance facility. The Port Maintenance Facility consists of a maintenance building/shop, an aboveground storage tank (AST) vehicle fueling area (VFA) including a liquid magnesium chloride storage tank, a used-oil AST, a semi-permanent sand storage tent, and a new marine storage building. The Security Center consists of a security/visitor building and a vehicle screening tent. In 2012, an emergency generator with 150-gallon diesel storage capacity was installed adjacent to the vehicle screening tent. Four underground POL pipelines and a pneumatic cement pipeline are located in utility easements. In addition to the above, the Port is also responsible for maintaining shared areas including transit areas, road right-of-ways, and vacant lease properties.

Storm water from the Port discharges to the Knik Arm. Knik Arm is a branch of Cook Inlet and is a 192-mile long estuary that stretches from the Gulf of Alaska between the Kenai Peninsula and main-land of Southcentral and Southwestern Alaska. Knik Arm begins at the Inlet's northern edge, starting north of Anchorage. Cook Inlet is not listed as impaired by Alaska as of January 4, 2016. However, Cook Inlet is designated as a Tier 2, which is the default designation for waters in Alaska. Tier 2 means Cook Inlet is considered high quality water. Cook Inlet is also critical habitat for the Cook Inlet Beluga Whales.

1.2.2 PORT OF ANCHORAGE OPERATORS

A 220-acre industrial park adjoins the cargo docks of the Port to the east. Approximately 81 acres of the industrial park are under long-term lease to various Port Stakeholders. The majority of the Port's acreage is presently occupied by the two major cargo carriers, Matson and Totem Ocean

Trailer Express (TOTE). Three other Stakeholders include Tesoro, Anchorage Fueling and Service Company (AFSC), and Delta Western, Inc. all of which operate bulk fuel storage facilities. The last Stakeholder is Alaska Basic Industries (ABI) which operates a storage and transfer facility for cement. The Port industrial park also has approximately 31 acres available for the temporary staging and storage of marine cargo.

ANCHORAGE FUELING AND SERVICE COMPANY

The AFSC facility includes a control building, a parking area, an emergency generator intermodal shipping container with a 300-gallon fuel storage tank, a tank truck loading rack (TTLR), a pump station, a bulk fuel tank farm with nine aboveground storage tanks (AST) within a secondary containment area, and an undeveloped wetlands area. Additionally, AFSC operates an underground pipeline system for transporting fuel from the docks to the tank farm, and from the tank farm to Ted Stevens Anchorage International Airport.

TESORO ALASKA PETROLEUM COMPANY

The Tesoro bulk fuel storage facility includes an administrative/operations building, a parking area, an operations area containing a TTLR that drains to a 12,000-gallon underground storage tank (UST), a valve line-up box, a warehouse facility, a bulk fuel tank farm with 19 ASTs within a secondary containment berm, and an underground pipeline system for transporting fuel from the docks to the tank farm.

MATSON

Matson facilities include an administrative/warehouse building, equipment and material staging yards, cargo and vehicle transit areas, container cranes on the docks, two maintenance buildings (one of which contains a vehicle wash bay), a vehicle fueling area (VFA), and vehicle parking areas. Matson facilities also include a portable, inflatable hazardous substance containment unit that can be deployed anywhere on the yard.

TOTEM OCEAN TRAILER EXPRESS (TOTE)

TOTE facilities include an administrative building, a vehicle inspection facility with vehicle wash bays, an operations center (located in the vehicle maintenance building), equipment and material staging yards, a VFA, cargo and vehicle transit areas, a vehicle maintenance building with a vehicle wash bay, inbound and outbound hazardous cargo container areas, and a parking lot.

DELTA WESTERN

Delta Western's facilities include one 50,000-barrel methanol tank with vapor combustion unit, a control building, a dedicated methanol pipe system and marine manifold to transfer methanol from cargo ships through the Port valve yard to the methanol tank, and a truck loading rack and pump to load methanol into transporters (tank trucks).

ALASKA BASIC INDUSTRIES (ABI)

ABI is leasing a portion of the South Backlands area for a cement storage and transfer facility. The cement storage facility has been designed to contain 40,000 tons of cement product. For clarification, there are a number of ABI facilities — cement storage silos, truck and rail container

loading facilities, etc. — located at the greater Port complex, however, only facilities sited within the South Backlands area fall within the jurisdictional boundaries of the Port’s MS4 permit. All other structures, systems, and associated storm water discharges are managed by the Municipality of Anchorage.

1.2.3 STORM WATER SYSTEM AND OUTFALL CHARACTERISTICS

The Port storm water system is permitted and regulated by the APDES program as a Phase I MS4. It consists of seven outfalls that discharge into the Cook Inlet tidelands: Outfalls 001, 002, 003, 004, 005, 006, and 007. The system includes numerous structural controls, such as solid piping, perforated piping, containment berms, drainage valves, catch basins, a sedimentation basin, manholes, sumps, grating, drainage ditches, and curbing. Outfalls 001, 002, and 003 have been included in the Port MS4 monitoring program since permit issuance in 1995. Outfall 006 collects and discharges storm water from a newly constructed area of the Port referred to as the South Backlands; construction in this area of the Port was completed in 2011. Outfall 007 drains the North Extension Area which is part of the Port Modernization Project. This area is covered under the Port’s existing MS4 permit until construction resumes. The locations of these features are delineated on Drawing 1 in Appendix A.

There are two other outfalls that discharge into Cook Inlet located at the Port, the Gaylor Gulch outfall (Outfall 005) and the POL Valve Yard outfall (Outfall 004). Gaylor Gulch drains storm water from JBER to the east; JBER is covered under a separate NPDES authorization. Storm water traveling through Gaylor Gulch discharges into the Gaylor Gulch Weir at the foot of Cherry Hill. The weir is drained by a buried storm drain line that trends north along Terminal Road before turning sharply to the west and traversing Port property to empty into Cook Inlet near Trestle No. 1-A (Drawing 1). Both the weir and the buried line belong to the Port. In the Port MS4’s current configuration, several storm drain catch basins on Port property discharge runoff into this line. Although this commingling of storm water does occur, the quality and quantity of storm water in the line remain the responsibility of JBER. It is roughly estimated that greater than 90 percent of the flow in this line originates on JBER.

The POL Valve Yard has its own storm drain outfall (Outfall 004), which is not interconnected to the Port’s storm drain system. The valve yard is also equipped with a manual discharge valve and oil/water separator.

The Port has adopted the 2016 Discharges from Large and Small Construction Activities Permit, also known as the Construction General Permit (CGP), as a regulatory mechanism to use to require erosion, sediment, and waste controls at construction sites. All discharges from all Alaskan construction sites disturbing more than one acre in Alaska are independently required to be authorized by CGP. This control measure within the MS4 is reduced to a 10,000 square feet requirement and is necessary to enable the Port to effectively and directly control construction site discharges into their storm sewer system.

1.2.4 PAST MONITORING PROGRAMS AND CHALLENGES

During the first four years of the 1995 permit, there was difficulty with the wet weather monitoring program due to the storm drain design, nature, frequency of summer storm events, and tidal influence. The Port proposed to EPA to eliminate the wet weather monitoring program in

1999 and the wet weather was suspended. ADEC has determined it appropriate to reinstate the wet weather monitoring program.

Currently there is a potential off-site point source and a known off-site sheet flow drainage and spring water source that affects the Port's MS4.

The potential off-site point source is storm water from neighboring properties to the south that may be entering the Port's MS4 via the surface drainage ditch located along the eastern boundary of the South Transit Area. The Port is aware of this potential off-site point source, though to date no specific action has been taken.

2.0 MONITORING PLAN

Meeting the MS4 Permit goals requires laboratory analysis of storm water system performance in preventing discharge of pollutants to Cook Inlet waters. Monitoring, sample collection and analytical activities will be performed in support of the following activities prescribed by the 2015 MS4 permit:

- Dry Weather Inspections
- Wet Weather Inspections
- Industrial and High Risk Runoff Monitoring.

Forms for recording inspections of the MS4 system are included in Appendix B. Collection, analysis, and interpretation of samples and the resultant chemical data will be guided by the QAPP which is included as Appendix C of this plan.

2.1 DRY WEATHER INSPECTIONS

The purpose of the Dry Weather Inspection program is to detect the presence of illicit connections, improper discharges, or other pollution issues relating to the storm drain system. The 2015 MS4 Permit requires field tests or laboratory analysis of selected chemical compounds to detect illicit discharge to the MS4 system. The Port has designed a Dry Weather Inspection program that consists of the activities listed below.

- Ongoing Awareness Program
- Monitoring Point Inspections
- Facility Inspections and Annual Interviews.

2.1.1 ONGOING AWARENESS PROGRAM

The ongoing awareness program is a year-round effort. It is designed to encourage all Port Stakeholders and Port users, the general public, and other interested parties to report potential storm water pollution problems or concerns to the Storm Water Pollution Prevention Team as they occur. The goal of the ongoing awareness program is to follow up on all reported potential pollution sources and determine adequate Best Management Practices (BMPs), source reduction and elimination measures, and source control measures to be added to the annual SWMP. The annual education program described in Section 3.0 of the SWMP is designed to keep Port Stakeholders mindful of storm water management practices, encouraging ongoing awareness pertaining to storm water issues at the Port.

2.1.2 MONITORING POINT AND OUTFALL INSPECTIONS

The Port will conduct dry weather inspections for non-storm flows from Outfalls 001 to 007. By 31 July 2020 all of the outfalls within the permit area will be inspected under the dry weather inspection program. Inspection of the monitoring points will occur at least once a year during a period of relatively dry weather at low tide. Relation of the selected monitoring points to outfalls locations are provided in Table 2-1 and outfall locations are shown on Drawing 1 in Appendix A.

TABLE 2-1: OUTFALL AND MONITORING POINT DESCRIPTIONS

Outfall Name	Monitoring Point Name
Outfall 001	Monitoring Point 001
Outfall 002	Monitoring Point 002
Outfall 003	Monitoring Point 003
Outfall 004	None
Outfall 005	None
Outfall 006	None
Outfall 007	None

Monitoring Point and Outfall Inspection is aimed at detecting the presence of solid waste, petroleum sheen on the water, and/or unusual odors. If any of these conditions are encountered, the amount of solid waste (estimated in cubic feet), an odor description, and a relative estimate of the heaviness of the sheen are recorded and reported. An investigation will also be conducted to determine the source of the discharge and the course of action to be taken to mitigate future illicit discharges from that source. Part of the investigation will include determining if an analytical sampling is warranted. Raw data and a narrative review of the screening and a map shall be included in the corresponding Detailed Annual Report from the year the data is collected.

Outfalls are visually inspected and the general condition and functionality of each is noted to ensure that the system is discharging appropriately. The discharge flow rate and condition of the pipe are also noted.

Collection, analysis, and interpretation of samples and the resultant chemical data will be guided by the QAPP which is included as Appendix C of this plan.

It should be noted that the groundwater at the Port has been known to infiltrate the pipes. This can lead to there being a discharge during a period of relatively dry weather.

2.1.3 INSPECTIONS AND ANNUAL INTERVIEWS

Both an unannounced site-wide visual inspection and an interview will be performed at least once annually for each team member and facility, to confirm whether the Port and Port users are adhering to the SWMP. Additionally, at various times throughout the year, drive-by inspections will also be performed. The site-wide visual inspection consists of inspecting the entire Port, excluding the inside of buildings. The site-wide visual inspection and drive-by inspections focus on identifying illicit discharges, solid waste accumulation, maintenance and repair of the storm drain system, identifying on-site and off-site sources of potential pollution, and checking for prohibited outdoor work activities.

An interview will be conducted by the Port’s APDES representative, R&M Consultants, Inc. (R&M), with each storm water pollution prevention team member. In 2015, the interview was conducted via an e-mailed questionnaire sent out to the Port and each Stakeholder.

The interview will focus on the following:

- Identifying and correcting failing best management practices (BMPs)
- Source reduction and elimination measures
- Source control measures
- Changes in programs or standard operating procedures that may have a direct effect on APDES compliance and storm water pollution prevention
- Identifying new spills
- Material and chemical handling practices
- Training
- Disposal and recycling practices.

2.2 WET WEATHER INSPECTIONS

Wet weather inspections are designed to monitor the quality of storm water in representative outfalls and/or in stream monitoring locations to characterize discharges from the MS4 during storm events.

A measurable storm event is defined as follows:

- For rainfall, a storm event that results in an actual discharge from the facility that follows the preceding measurable storm event by at least 72 hours (3 days)
- For snowmelt, an event which produces a measurable discharge from the facility, at some time following snowfall
- No specific storm magnitude (i.e., 0.1 inches or greater measured precipitation) is specified.

The purpose of the wet weather inspection of representative monitoring points is to locate areas in need of additional controls. The inspections will be conducted during measurable storm events at the frequency identified in Table 2-3. Collection, analysis, and interpretation of samples and the resultant chemical data will be guided by the QAPP which is included as Appendix C of this plan.

The outfalls selected by the Port for this monitoring must be representative of major land uses at the Port or from the major Industrial and High Risk Runoff locations identified in by the Industrial and High Risk Monitoring.

The inspection of the quality of the three selected outfalls during storm events will provide information on the quality of runoff to the MS4, a basis for estimating annual pollutant loads, and a mechanism to evaluate reductions in pollutants discharged from the MS4. The inspection frequencies were determined from the 1995 permit.

2.2.1 STORM WATER OUTFALL INSPECTION PLAN

Wet Weather inspection will be conducted using the three monitoring points selected in the MS4 Permit and described in Section 2.1.2. They will be inspected at the frequency described in Table 2-2. Inspections will occur during a storm event at low tide.

TABLE 2-2: OUTFALL MONITORING POINT DESCRIPTIONS

Outfall	Location	Description
001	Transit Area B	Storm water drain for Transit Area B. This area is 52.0 total acres with 16.2 acres of impervious surface.
002	Transit Area D and Transit Area A	Storm water drain for Transit Area D and a portion of Transit Area A. Transit Area D is 43.4 total acres and has 7.8 acres of impervious surface. This portion of Transit Area A has 55 total acres covered by impervious surface. The total acreage of impervious surface draining to outfall 002 is 22.8 acres.
003	Transit Area 12-B	Storm water drain for Transit Area 12-B consists of drainage from the South Transit Area, portions of Tract H, and Lots 7B, 8B, and 8C (Tesoro and AFSC). Area 12-B is 36.7 total acres with 16.8 acres of impervious surface.

TABLE 2-3: OUTFALL MONITORING REQUIREMENTS

Parameter	Monitoring Requirements								
	Sample Location ¹			Sample Frequency ² (Number per year)					Sample Type ³
	001	002	003	Calendar Year					
				2016	2017	2018	2019	2020	
Flow (cfs)	X	X	–	2	2	2	2	2	Grab
Estimated Volume (gallons)	–	–	X	2	2	2	2	2	Grab
Temperature (° C)	X	X	X	2	2	2	2	2	Grab
pH	X	X	X	2	2	2	2	2	Grab
Dissolved Oxygen	X	X	–	1	1	1	1	1	Grab
Biochemical Oxygen Demand, 5-Day (BOD ₅)	X	X	–	1	1	1	1	1	Grab
Chemical Oxygen Demand (COD)	X	X	–	1	1	1	1	1	Grab
Turbidity (NTU)	X	X	–	1	1	1	1	1	Grab
Total Suspended Solids (TSS)	X	X	–	1	1	1	1	1	Grab
Total Dissolved Solids (TDS)	X	X	–	1	1	1	1	1	Grab
Sheen	X	X	X	2	2	2	2	2	Grab
Total Aromatic Hydrocarbons (TAH)	X	X	X	2	2	2	2	2	Grab
Total Aqueous Hydrocarbons (TaqH)	X	X	X	2	2	2	2	2	Grab
Total Phosphorous	X	X	–	–	–	–	1	–	Grab
Nitrate plus Nitrite Nitrogen	X	X	–	1	1	1	1	1	Grab
Total Kjeldahl Nitrogen (TKN)	X	X	–	1	1	1	1	1	Grab
Total Cadmium	X	X	–	–	–	–	1	–	Grab
Total Copper	X	X	–	–	–	–	1	–	Grab
Total Lead	X	X	–	–	–	–	1	–	Grab
Total Zinc	X	X	–	–	–	–	1	–	Grab
Hardness (as CaCO ₃)	X	X	–	–	–	–	1	–	Grab

NOTES:

– = Parameter not collected for that sample location

1. Outfall locations #001, #002, and #003.

2. Sample frequency is represented by (1) once/year or (2) twice/year, i.e., calendar year. Twice per year consists of one sample taken between January and June and one sample taken between July and December, with a minimum of 14 days separation between sampling events.

3. Grab samples may be taken manually or with an automatic water sampler.

2.2.2 INDUSTRIAL AND HIGH RISK INSPECTIONS

According to the 2016 SWMP, each Stakeholder will be responsible for establishing Industrial and High Risk Monitoring sampling locations and developing monitoring programs. The programs will identify, monitor, and control pollutants in storm water discharges to the MS4 from the sources listed below. Refer to the 2016 SWMP Sections 8.1 and 8.4 for additional information.

- Hazardous waste treatment, storage, and disposal facilities that are subject to Emergency Planning and Community Right-to-Know Act (EPCRA) Title III, Section 313
- Bulk storage facilities
- Other industrial or commercial discharges that is determined to contribute a substantial pollutant loading that pertains to the MS4.

STAKEHOLDER MONITORING PLANS

Stakeholders will develop written sampling plans that include, at a minimum, the following:

- Specific sampling locations
- A map showing the sampling locations
- Specific analytical methods to be analyzed
- Analytical testing shall, at a minimum, include the analytes specified in Section B.4 of the QAPP
- Reference to the QAPP for required procedures.

Each Stakeholder will submit their monitoring and sampling plans along with records of any monitoring or sampling activity to the Port for inclusion in the Detailed Annual Report. At a minimum, the self-monitoring program for each Stakeholder will included the collection of quantitative data on the following parameters.

TABLE 2-4: STAKEHOLDER MONITORING PARAMETERS

Parameter
Pollutants limited in an existing APDES permit for the identified facility
Sheen
TAH and TAqH
COD
pH
BOD ₅
TSS
Total Phosphorous
TKN
Nitrate plus nitrite nitrogen
Any of the metals cadmium, copper, lead, and zinc which can be reasonably expected in storm water runoff from the Stakeholder site.
Any information on discharges required under 20 CFR 122.21 (g)(7)(iii)-(iv)

Collection, analysis, and interpretation of samples and the resultant chemical data will be guided by the QAPP which is included as Appendix C of this plan. Each Stakeholder will submit

their procedures and records of any monitoring activity to the Port for inclusion in the Detailed Annual Report.

STAKEHOLDER MATERIAL INVENTORIES

Waste resulting from overstocking and the disposal of outdated materials has previously been identified as a potential high risk discharge. A material inventory for the Port and its Stakeholders has been created to assist in reducing and/or eliminating waste caused by overstocking and disposal of outdated materials. The inventories are included in Appendix G of the SWMP.

3.0 PROGRAM AMENDMENTS

Based on inspection activities or changes to the Port Stakeholders, this Monitoring Program, and the QAPP will be reviewed and amended as part of generation of the Detailed Annual Report to include altered activities or new conditions noted during inspections in monitoring of the MS4 system.

4.0 REFERENCES

- ADEC (Alaska Department of Environmental Conservation). 2015. Alaska Pollutant Discharge Elimination System: Port of Anchorage Municipal Separate Storm Sewer System Individual Permit (AKSo52426). Effective 1 August 2015.
- ADEC. 2016. Oil and Other Hazardous Substances Pollution Control. 18 AAC 75.
- ADEC. 2015. Underground Storage Tanks. 18 AAC 78.
- ADEC. 2012. Alaska Pollutant Discharge Elimination System. 18 AAC 83.
- ADEC. 2012. Water Quality Standards. 18 AAC 70.
- EPA (U.S. Environmental Protection Agency). 2002. Guidance for Quality Assurance Project Plans. EPA QA/G-5
- EPA. 2001. EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5.

APPENDIX A
MS4 JURISDICTIONAL MAP

APPENDIX B
FORMS

Discharge Monitoring Report.....3 pages