Ethan Berkowitz, Mayor

2017 SWM07 Stormwater Outfall Monitoring Report

APDES Permit No. AKS-052558

MUNICIPALITY OF ANCHORAGE
WATERSHED MANAGEMENT
SERVICES

INTERIM PROGRESS REPORT

January 2018

WATERSHED MANAGEMENT

2017 SWM07 Stormwater Outfall Monitoring Report
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WATERSHED MANAGEMENT

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1.0 Introduction

1.1 Background

Stormwater discharges within the Municipality of Anchorage (MOA) are regulated through a Municipal Separate Storm Sewer System (MS4) permit. The MOA and the Alaska Department of Transportation and Public Facilities (ADOT) are jointly responsible for ownership and maintenance of the Anchorage MS4. The U.S. Environmental Protection Agency (EPA) issued the MOA and ADOT its first MS4 permit under the National Pollutant Discharge Elimination System (NPDES) in 1999 (Permit No. AKS-052558). The permit was re-issued in October 2009 (EPA 2009) by the EPA and again in 2015 by the Alaska Department of Conservation (ADEC) under the Alaska Discharge Elimination System Permit (APDES) (ADEC 2015).

Throughout the three terms of the permit, MOA and ADOT have been responsible for maintaining minimum control measures designed to prevent and control contaminants entering publicly owned storm sewer systems. The permit identifies a number of objectives for monitoring water quality to be included as part of these control measures. As part of this effort, the permittees are required to conduct regular monitoring of stormwater outfalls. A variety of pollutants are screened for during this monitoring, with particular attention given to any pollutants for which Total Maximum Daily Loads (TMDLs) have been established. Outfall sampling is conducted for both storm flow (wet weather) and non-storm flow (dry weather) discharges. As part of the permit coordination agreement between the permittees, MOA Watershed Management Services (WMS) has taken the lead in administrating the stormdrain monitoring program.

During the second and third terms of the permit, the MOA has performed annual wet weather monitoring at a suite of 10 priority stormwater outfalls. These outfalls represent the variety of land uses that are present in Anchorage and are located within the primary watersheds draining the Anchorage Bowl and for which pollutant TMDLs have been established. As part of the annual reporting of monitoring results, a summary yearly and seasonal trends is performed. During the seven year period that sampling has been conducted, elevated levels of pollutants have been measured at stormdrain outfall SWM07. Primary pollutants of concern at this outfall location are fecal coliform (FC) and total suspended solids (TSS) (MOA and ADOT 2016, 2017).

During 2017, the MOA began an investigation of this outfall to try and determine the sources of the observed pollutants. The ultimate goal of this investigation is to be able to reduce the levels of pollutants measured at this outfall during stormflows, either by the elimination of pollutant sources directly or the implementation of new control measures that serve to reduce pollutants entering the MS4 indirectly. This report summarizes the results of the efforts taken, to date, and outlines a methodology for moving forward with future investigations.

1.2 Basin Characteristics

Stormwater Outfall SWM07 drains MOA Drainage Subbasin 507. The subbasin is approximately 75 acres in size. Geographically, the basin stretches from 12th Avenue southward to Chester Creek and from slightly west of Gambell Street, to just east of Ingra Street. In general terms, the basin drains the “wye”-shaped road split at the terminus of the Seward Highway in the vicinity of the former Cal Worthington Ford and the Sullivan Arena. Figure 1. shows the extent of the basin, as well as some of the other basin characteristics described in this section.

Figure 1. Subbasin 507 Boundaries and 2017 Sample Locations.

The basin consists almost entirely of impervious surfaces consisting of pavement and roofs. Vegetated surfaces are, for the most part, limited to intermittent stretches of grass along roadways. The greatest concentration of vegetation is located in between Ingra and Gambell, south of 15th Avenue. Land use consists almost entirely of commercial development, with many areas (the car dealership, the bank, the Sullivan arena, etc.) having large parking lots. There is a small amount of residential development on the very northern edge of the basin. There is very little open, un-vegetated, unpaved land area within the subbasin.

Topographically, the entire basin slopes from the north to the south. The basin is steepest at the north end, just south of 15th Avenue, but the southward gradient is obvious from any point on the ground. The natural drainage pattern has been reinforced by a constructed storm drain network. From the outfall the storm drain runs upstream and east to an oil and grit separator (OGS). The stormdrain continues uphill to the north and uphill, eventually splitting into three branches. One branch, to the west, drains Gambell Street. One branch, to the east, drains Ingra Street. The third branch, in the middle, drains the area in between the two roads, in the vicinity of First National Bank

of Alaska (FNBA) and the Green Connection. Along the two road ways catchbasins/catchbasin manholes are located on both sides of the roads, spaced every two hundred feet or so. The outfall configuration itself is fairly unique in that the stormdrain pipe projects out from the base of the road embankment. From there, water drops into a hole that flows into a second pipe running perpendicular to the main storm drain (and Chester Creek). This pipe empties into Chester Creek. The end of the outlet pipe is located in the actual creek and is partly filled with sediment and partially submerged (Figure 2.).

Figure 2. SWM07 Outfall Configuration.

1.3 Results of Previous Sampling Efforts

During the seven years that wet weather monitoring has been performed a fairly regular pattern of sample results has been reported for SWM07. Results have been fairly consistent for TSS, total dissolved solids (TDS), FC, 5-day biochemical oxygen demand (BOD_5), and dissolved oxygen (DO). A quick review of the monitoring reports submitted under the third term of the permit demonstrates the consistently of these results (Table 1.)

Table 1. Synopsis of Averaged Water Quality Measurements at SWM07 2015-2017

2015 Monitoring	2016 Monitoring	2017 Monitoring
Highest TSS of Sample Sites	Highest TSS	Highest TSS
Lowest TDS	Low TDS	Lowest TDS
Highest BOD_5	Highest BOD_5	2nd Highest BOD_5
Near Highest DO	Near Highest DO	Near Highest DO
2nd Highest FC	Highest FC	Highest FC

SWM07 has exhibited the highest FC levels in six out the seven years of wet weather monitoring (Figure 3.) Although these levels are elevated beyond the current limits are listed in the Alaska Water Quality Regulations (ADEC 2008 and 2009), the are within what might be expected for an urban areas (EPA 1983). Furthermore, the seasonal variation in fecal coliform concentrations conforms with an earlier WMS report on fecal coliform bacteria in local streams (MOA 2003). Nonetheless, Within the Chester Creek Watershed, a TMDL has been established for fecal coliform bacteria (ADEC 2005). As such, fecal coliform bacteria is pollutant of concern in this watershed.

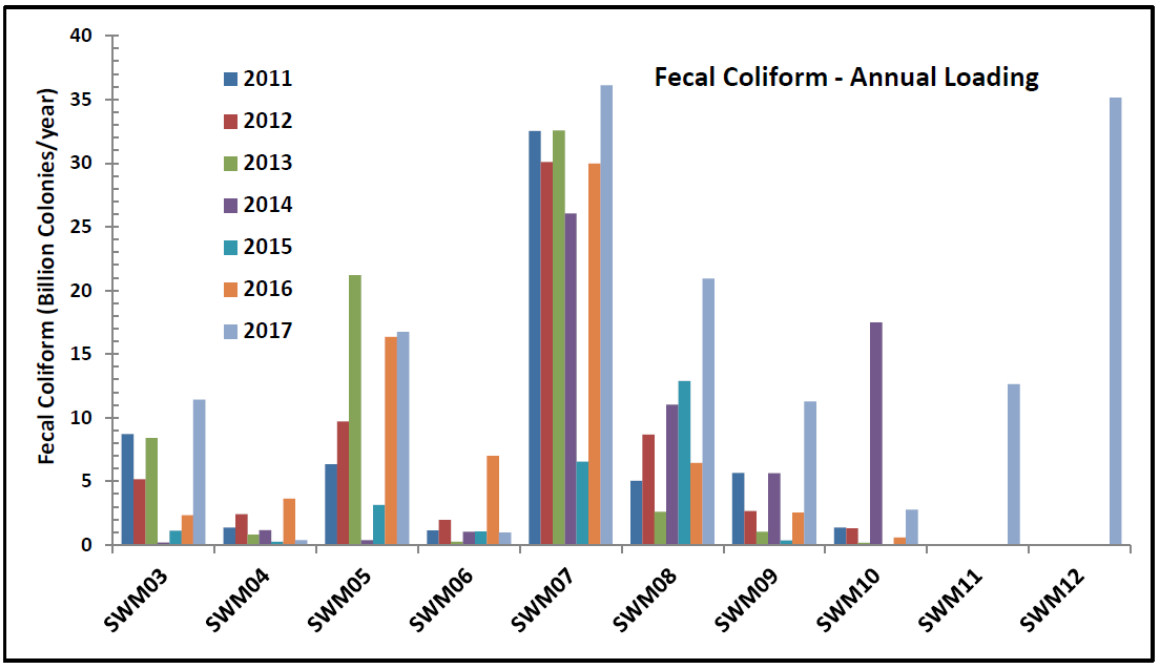

Figure 3. Annual Fecal Coliform Loading 2011-2017

At the broadest level, there is no obvious source for fecal coliform when considering known sources of the pollutant in urban area as described in national literature and various local studies. Zeroing in the narrowest level, there are also elements of the sample results that are equally perplexing. Typically, discharges that are high in BOD_5 are also low in DO. One would certainly not expect that, as is with the case with SWM07, that DO would *higher*, as compared to other wet weather sampling sites. This pattern has been consistent through all years of sampling. While SWM07 is consistently high in FC and TSS it also consistently low in TDS. While there in an established inverse relationship between TSS and hardness, there is not the same type of relationship between TSS and TDS. During the third term of the permit, WMS began sampling for copper. SWM07 is one of the sites where copper has been detected (MOA 2015, 2016, 2017). One known potential source of copper is from automobiles. However relative to other monitoring sites and State Water Quality Standards, SWM07 is not of note in respect to hydrocarbons (MOA 2017), a pollutant where automobiles are a potential primary source. For all of these reasons, the MOA began an investigation in 2017, focused on FC levels, to better understand the water quality monitoring result reported at outfall SWM07.

2.0 2017 Field Investigations

2.1 Field Survey

As an initial step in 2017, WMS staff walked the subbasin to try and locate any obvious sources of FC and to better familiarize themselves with the subbasin characteristics. Attention was also paid to any potential sources of TSS, another pollutant with high levels reported during outfall monitoring of SWM07. Beyond the water quality concerns posed by TSS and turbidity directly, previous studies have documented a relationship between sediment and FC in Anchorage streams (MOA 2003)

No obvious areas were detected. As described earlier in this report, there are no large areas of exposed dirt (such as an unpaved parking lot) present in the basin. There are no large park areas, where dog waste could be a potential concern. Similarly, as chiefly non-residential area with high-speed traffic, this is an area likely to have less on-street dog walking that would be present in the surrounding areas. There is a sidewalk along Gambell and the Chester Creek Bike Trails transects a portion of the basin, but these are extremely small contributing areas for drainage, relative to the basin as a whole.

As documented in the 2017 Monitoring Report and elsewhere in local media, there is a homeless camp immediately to the north of FNBA. This camp is located down gradient of the primary entrances into the storm drain system. To the north of the homeless camp, is Green Connection. During field instigations, no obvious sources of potential contamination such as open composting or uncovered diet piles were noted. This business is also located a relatively long distance away from storm drain inlets. Lastly, during the fall, it was noted that Canada geese were aggregating on the grass wedge between Ingra and Gambell, south of FNBA. At most, geese are only here seasonally and FC results have been relatively consistent at the outfall. These three sources cannot be eliminated as potential sources of FC but at this point seem unlikely to be contributing significantly to reported water quality results.

As a GIS desktop exercise, WMS investigated whether a sanitary sewer cross-connect could be contributing to high FC levels. With several large commercial properties located in the basin and with a large proportion of the basin occupied by the Gambell and Ingra rights of way, there is a relatively low density of sanitary sewer connections within the basin. WMS reviewed Anchorage Water and Wastewater Utility's service connection data and could not locate an occupied property for which no sanitary sewer connection existed. Sanitary sewer/storm sewer cross connection cannot be eliminated as a source of FC but, at this point in the investigation, does not appear to be a likely source.

2.2 Water Quality Sampling Results

During 2017, WMS was able to conduct one round of FC sampling at the SWM07 outfall and at point upstream in the stormdrain system. The results of the sampling are presented in Table 2. and the laboratory analysis reports are included with this report as Appendix A. Sample results were collected in early October following a rainstorm that generated stormwater runoff within the basin. Compared with previous wet weather monitoring results, FC levels measured at the outfall were relatively low.

Table 2. 2017 Fecal Coliform Sample Results

Sample Location	Description	Fecal Coliform (col/100ml)
SW07-01	Subbasin Outfall SWM07	1000
SW07-02	Catchbasin Upstream of Outfall	2200
SW07-03	Manhole Upstream of SW07-02	1270
SW07-04	Catchbasin Upstream of SW07-02	2600
SW07-05	Manhole Upstream of SW07-03	200

Sampling continued upstream in an effort to get a snapshot in time assessment of FC levels within the stormdrain system. Samples were collected at points where contributing flow from all three branches of the stormdrain is present (SW07-1, SW07-2), where flow from the west and middle branches is present (SW07-03), where only flow from the east branch is present (SW07-04), and where only flow from the middle branch is present (SW07-05). Do to traffic and stormdrain access concerns no site was able to be sampled that was isolated to the west branch of the stormdrain system. Based on a non-statistical analysis of this single sampling event it appears the more FC is present in the east branch of the system than in the middle branch. Paradoxically, the middle branch is the most direct path of FC contamination from the homeless camp and where goose feces that were present during the time of sampling.

3.0 Discussion and Future Investigations

During 2018, further investigation is planned to try and help determine sources for the pollutants measured during wet weather monitoring at SWM07. The primary effort will be directed at FC and TSS sources. We hope to also be able to take a more detailed look at some of the other unusual water quality data from SWM07 related to BOD_5/DO and TSS/TDS.

A the most basic level, more field sampling is planned to collect samples from the three branches of the subbasin 507 stormdrain to help determine whether a point source for FC is present. Additional investigation is needed, particularly during rain events, to completely eliminate the Green Connection and the homeless camp as potential sources of pollution.

During 2015, lower than typical FC levels were measured at all wet weather sites. This year was also the only year in the seven years of monitoring in which the average annual loading for FC at SWM07 was not the greatest of the 10 sites. WMS plans to locate at climate records for this year to determine if there was anything, in terms of temperature or precipitation, that stands out as compared to the other years of sampling. It is hoped that this data might provide and answer why FC was lower at both SWM07 and all sites generally during this year. WMS also plans to coordinate with ADOT to review catchbasin and OGS cleaning records for this year to determine if maintenance measures during this year contributed to the lower than normal FC. Optimistically, explaining why FC was “low” during 2015 might explain why FC is “high” at other times.

WMS plans to try and determine if there is a manner in which to try and correlate flow with FC and TSS levels. One of the possible sources of pollutants could be the re-suspension of accumulated sediments within the stormdrain during storm flows. Given the sloping nature of the basin and high amount of impervious surfaces, the potential for large, scouring storm flows exists. The resuspension of FC during high stream flows has been documented previously by WMS (MOA 2003). Perhaps a similar phenomenon is occurring within the subbasin stormdrain network. As a starting point if 2018, WMS plans to review past monitoring reports and determine if the data contains enough information to correlate observed flow with fecal coliform levels. If the data for that assessment exists, additional analysis could hopefully be performed to determine the conditions that existed between sampling efforts within a particular year.

As a logical exercise, correlations between flow and FC levels might help eliminate sanitary sewer cross connects as a potential source of contamination. Flow from sanitary sewers are more consistent than stormflows on a day-to-day basis. Sanitary sewer flow volume is independent of precipitation falling within the subbasin area. FC levels are orders of magnitudes higher in sanitary sewer flows than in storm flows. Stormwater flows would serve to dilute FC concentrations in a storm drain where a sanitary sewer cross-connect was present. If a link can be established

between higher flows and elevated FC levels, it is more likely that a sanitary sewer cross connect can be eliminated as a source of pollution.

4.0 References

EPA 1983. Results of the Nationwide Urban Runoff Program. Water Planning Division, PB 84-18552, Washington, D.C., December 1983.

EPA 2009. Authorization to Discharge under the National Pollutant Discharge Elimination System, Permit No. AKS-052558. Permit Issued to the Municipality of Anchorage and the Alaska Department of Transportation and Public Facilities, 29 October, 2009.

ADEC 2005. Total Maximum Daily Loads (TMDLs) for Fecal Coliform in Chester Creek, University Lake, and Westchester Lagoon, Anchorage, Alaska. Final - May, 2005.

ADEC 2008. Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances. State of Alaska Department of Environmental Conservation.

ADEC 2009. Water Quality Standards, 18 AAC 70. State of Alaska Department of Environmental Conservation (ADEC).

ADEC 2015. Authorization to Discharge under the Alaska Pollutant Discharge Elimination System, Permit No. Anchorage Municipal Separate Storm Sewer System, Individual Permit AKS052558. Permit Issued to the Municipality of Anchorage and the Alaska Department of Transportation and Public Facilities, 26 June 2015.

MOA 2003. Fecal Coliform in Anchorage Streams: Sources and Transport Processes. Document APg03001, September 2003

AWC 2014. Chester Creek Watershed Plan, Draft. Prepared for the Municipal Planning Department and Watershed Management Services. Prepared by Anchorage Waterways Council.

MOA and ADOT 2016. 2015 Annual Report, APDES Permit No. AKS-052558. App H1 Stormwater Outfall Monitoring Report, January 2016

MOA and ADOT 2017. 2016 Annual Report, APDES Permit No. AKS-052558. App H1 Stormwater Outfall Monitoring Report, January 2017

MOA and ADOT 2018. 2017 Annual Report, APDES Permit No. AKS-052558. App H2 Stormwater Outfall Monitoring Report, January 2018

Laboratory Analysis Report

Kristi Bischofberger
MOA-Project Mngmt/Engr-WMS
PO Box 196650
Anchorage, AK 995196650

Work Order:	1177106
	SW07
Client:	MOA-Project Mnmt/Engr
Report Date:	October 06, 2017

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) for which SGS North America Inc. is Provisionally Certified as of 9/21/2017 & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO 17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.

SGS Ref.#	1177106001		
Client Name	MOA-Project Mnmt/Engr	**Printed Date/Time**	10/06/2017 15:59
Project Name/#	SW07	**Collected Date/Time**	10/04/2017 15:00
Client Sample ID	SW07-01	**Received Date/Time**	10/04/2017 16:31
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Micro Lab-Provisionally Certified as of 092117									
Fecal Coliform	1000	100	col/100mL	SM21 9222D	A			10/04/17	K.W

SGS Ref.#	1177106002		
Client Name	MOA-Project Mnmt/Engr	**Printed Date/Time**	10/06/2017 15:59
Project Name/#	SW07	**Collected Date/Time**	10/04/2017 15:15
Client Sample ID	SW07-02	**Received Date/Time**	10/04/2017 16:31
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Micro Lab-Provisionally Certified as of 092117									
Fecal Coliform	2200	100	col/100mL	SM21 9222D	A			10/04/17	K.W

SGS Ref.#	1177106003		
Client Name	MOA-Project Mnmt/Engr	**Printed Date/Time**	10/06/2017 15:59
Project Name/#	SW07	**Collected Date/Time**	10/04/2017 15:30
Client Sample ID	SW07-03	**Received Date/Time**	10/04/2017 16:31
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Micro Lab-Provisionally Certified as of 092117									
Fecal Coliform	1270	9.09	col/100mL	SM21 9222D	A			10/04/17	K.W

SGS Ref.#	1177106004		
Client Name	MOA-Project Mnmt/Engr	**Printed Date/Time**	10/06/2017 15:59
Project Name/#	SW07	**Collected Date/Time**	10/04/2017 15:45
Client Sample ID	SW07-04	**Received Date/Time**	10/04/2017 16:31
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Micro Lab-Provisionally Certified as of 092117									
Fecal Coliform	2600	100	col/100mL	SM21 9222D	A			10/04/17	K.W

SGS Ref.#	1177106005		
Client Name	MOA-Project Mnmt/Engr	**Printed Date/Time**	10/06/2017 15:59
Project Name/#	SW07	**Collected Date/Time**	10/04/2017 16:00
Client Sample ID	SW07-05	**Received Date/Time**	10/04/2017 16:31
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Micro Lab-Provisionally Certified as of 092117									
Fecal Coliform	200	10.0	col/100mL	SM21 9222D	A			10/04/17	K.W

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1177106

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page ____ of ____

Section 1

CLIENT: MOA - WATERSHED MGMT

CONTACT: JEFF URBANUS PHONE NO: 907 343 8023

PROJECT NAME: SW07 PROJECT/ PWSID/ PERMIT#:

REPORTS TO: JEFF URBANUS E-MAIL: urbanus.jd@muni.org

INVOICE TO: KRISTI BISCHOFBERGER P.O. #: QUOTE #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative: Fecal Col	REMARKS/ LOC ID
1A	SW07-01	10/4/17	1500	W	1	GRAB	1	
2A	SW07-02	10/4/17	1515				1	
3A	SW07-03		1530				1	
4A	SW07-04		1545				1	
5A	SW07-05		1600				1	

Section 5

	Date	Time	
Relinquished By: (1)	10/4	1615	Received By:
Relinquished By: (2)	10/4	1630	Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	10/4/17	1631	Received For Laboratory By: Jamie Collie

Section 4 DOD Project? Yes No

Cooler ID: _____

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: _____

or Ambient N/A

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) Hand del.

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

F083-Kit_Request_and_COC_Templates-Blank
Revised 2013-03-24

e-Sample Receipt Form

SGS Workorder #: **1177106**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	n/a	ABSENT
COC accompanied samples?	yes	
yes **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	yes	Ambient
If <0°C, were sample containers ice free?	n/a	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	yes	
	n/a	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	n/a	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	n/a	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1177106001-A	Na2S2O3 for Chlorine Redu	OK			
1177106002-A	Na2S2O3 for Chlorine Redu	OK			
1177106003-A	Na2S2O3 for Chlorine Redu	OK			
1177106004-A	Na2S2O3 for Chlorine Redu	OK			
1177106005-A	Na2S2O3 for Chlorine Redu	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.