U.S. AIR FORCE

STORM WATER MANAGEMENT PLAN

Joint Base Elmendorf-Richardson

Municipal Separate Storm Sewer System

Permit Number AKS053651

2/2/2021

Template Version October 2018

ABOUT THIS PLAN

This installation-specific Environmental Management Plan (EMP) is based on the U.S. Air Force's (AF) standardized Storm Water Management Plan (SWMP) template. This plan is not an exhaustive inventory of all storm water requirements and practices. Where applicable, external resources, including Air Force Instructions (AFIs); AF Playbooks; federal, state, local, and Final Governing Standards (FGS); and permit requirements are referenced.

Each section of this plan begins with standardized, AF-wide "common text" language that addresses AF and Department of Defense (DoD) policy and federal requirements. This common text language is restricted from editing to ensure that it remains standard throughout all plans. The common text language is maintained and updated by the designated Office of Primary Responsibility (OPR) with assistance from the Office of Collateral Responsibility (OCR), as appropriate. Immediately following the AF-wide common text sections are Installation sections. The Installation sections contain installation-specific content to address state, local, and installation-specific requirements. Installation sections are unrestricted and are maintained and updated by AF environmental Sections and/or installation personnel.

This document is optimized to be accessed and viewed electronically. The eDASH website at https://cs2.eis.af.mil/sites/10040 is the primary communication tool for AF EMPs.

This AF standardized template may differ in format and organization from other templates developed by regulatory agencies or other organizations. If applicable, a cross-reference table of sections is included below to simplify review.

This SWMP is prepared to comply with requirements from the Alaska Pollutant Discharge Elimination System (APDES) Permit No. AKS053651, applicable to the installation's Municipal Separate Storm Sewer System (MS4).

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CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Responsible Official Certification

Printed Name: _____ Date: _____

Signature: _____ Title: _____

DOCUMENT CONTROL

Standardized SWMP Template

In accordance with (IAW) the Air Force Civil Engineer Center (AFCEC) Environmental Directorate (CZ) Business Rule (BR) 08, *EMP Review, Update, and Maintenance*, the standard content in this SWMP template is reviewed periodically, updated as appropriate, and approved by the Water Quality Subject Matter Expert (SME).

This version of the template is current as of 10/02/2018 and supersedes the 2015 version.

NOTE: Installations are not required to update their SWMPs every time this template is updated. When it is time for installations to update their SWMPs, they should refer to the eDASH EMP Repository to ensure they have the most current version.

Installation SWMP

Record of Updates

The SWMP is updated as changes to requirements and management practices occur, including those driven by changes in applicable regulations and permits.

Record of Updates

Change No.	Nature of Change	Date of Change	Approved By:
0	Annual plan update and update to USAF Template	February 2021	

Record of Review

The SWMP must be reviewed and revised on an annual basis, or as required by the permit. The plan is approved by the Environmental, Safety, and Occupational Health Council (ESOHC) and other organizations, as required. Formatting and administrative changes do not require additional review and approval.

Record of Review

Review Date	Review Participants	Notes/Remarks	Results in Plan Update (Yes or No)
December 2020	M Narus (AECOM)	Plan updated based on 2020 monitoring and information	Yes

1.0 OVERVIEW AND SCOPE

AF installations that operate a Municipal Separate Storm Sewer System (MS4) in an Urbanized Area (UA) are regulated as small MS4s pursuant to the Storm Water Phase II Final Rule of the National Pollutant Discharge Elimination System (NPDES) permitting program of the Clean Water Act. Covered installations must obtain coverage under a small MS4 storm water permit from the appropriately authorized permitting authority and implement a storm water management program.

The primary objective of this SWMP is to reduce the discharge of pollutants to storm water to the maximum extent possible (MEP). Pollutant discharge reduction will be accomplished by implementing best management practices (BMPs) and measurable goals for the following six minimum control measures (MCMs):

- Public Education and Outreach
- Public Involvement / Participation
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Pollution Prevention / Good Housekeeping

Installation Supplement – Overview and Scope

This SWMP has been prepared to satisfy the requirements of the Joint Base Elmendorf-Richardson (JBER) MS4 permit. In October 2009, the U.S. Environmental Protection Agency (EPA) granted the State of Alaska primacy over the National Pollutant Discharge Elimination System (NPDES) program in Alaska. The NPDES program in Alaska was renamed the Alaska Pollutant Discharge Elimination System (APDES), and the Alaska Department of Environmental Conservation (ADEC) became the NPDES permitting authority for Alaska. On April 3, 2014, the ADEC issued the JBER MS4 permit. The permit took effect on June 1, 2014. On August 22, 2019, the ADEC reissued the JBER MS4 permit; the reissued permit took effect on October 1, 2019. This SWMP is the primary document used by the installation to comply with provisions of the MS4 permit. Commitments in this plan apply to military facilities and personnel, base residents, businesses and contractors operating at JBER, Department of Defense (DoD) and non-DoD tenants, and privatized services contractors. These commitments are further enforced through the Command Policy included as Appendix 3.

This SWMP describes the actions and activities JBER has implemented and those that JBER intends to implement to meet its compliance objectives under the current MS4 permit. The MS4 permit covers all JBER activities, facilities, roads, airfields, etc., with the potential to drain within, or to, JBER's storm sewer system that is in the UA. Stormwater discharges covered by other permits, such as industrial activities under the Multi-Sector General Permit (MSGP) or construction activities addressed under ADEC's Alaska Construction General Permit (ACGP), are subject to compliance with JBER's MS4 permit. Therefore, in some cases the installation's MS4 permit provides an additional level of regulation for such industrial and construction activities.

Most facilities covered by JBER's industrial stormwater permit drain to the JBER MS4 and must meet the requirements of the MSGP and its associated industrial Stormwater Pollution Prevention Plan (SWPPP), as well as the requirements of the MS4 permit and associated SWMP. Construction projects that drain to the MS4 must meet the requirements of the applicable construction stormwater discharge permit and this SWMP. Construction projects that do not discharge/drain to the regulated MS4 must still meet the requirements of the applicable construction stormwater permit and associated construction SWPPP. Compliance with the MS4 permit and SWMP is not limited to facilities and activities subject to industrial

and construction stormwater discharge permits. All facilities and activities that drain to JBER's MS4 within the JBER UA must meet the requirements of this SWMP. The SWMP can then be viewed as the "umbrella" plan for minimizing stormwater pollution from all facilities and activities discharging to the regulated JBER MS4. This SWMP provides a comprehensive approach to stormwater pollution prevention at JBER. Importantly, the key elements of this SWMP are the best management practices (BMPs) as outlined in Section 7 and the reporting requirements associated with each BMP.

2.0 INSTALLATION PROFILE

Installation Profile

Scope of Plan	Joint Base Elmendorf-Richardson Base Residents Businesses and contractors operating at JBER DoD organizations/units, DoD related tenants (such as Alaska Air National Guard [ANG] and Alaska Army National Guard [ARNG]), and non-DoD tenants Privatized utility and service contractors
OPR	The 673 CES/CEIEC has overall responsibility for implementing the storm water management program and is the lead organization for monitoring compliance with applicable federal, state, and local storm water regulations.
Responsible Official	Col. Kirsten G. Aguilar.
Water Quality Program Manager	Matthew Beattie 907-384-0250 matthew.beattie.1@us.af.mil
Permitting Authority	Alaska Department of Environmental Conservation 555 Cordova Street, Anchorage, AK 99501 907-269-6283
MS4 Permit Number	AKS053651
MS4 Permit Expiration Date	9/30/2024
Applicable Federal and AF regulatory references	AFI 32-7041, *Water Quality Compliance* *AFMAN 32-7002, Environmental Compliance and Pollution Prevention* ETL 14-1, *Construction and Operation and Maintenance Guidance for Stormwater Systems* Clean Water Act AFI 32-1067, *Water and Fuel Systems* AFI 32-7001, *Environmental Management*
Applicable State and local regulatory references	18 AAC 83, *Alaska Pollution Discharge Elimination System*

3.0 ENVIRONMENTAL MANAGEMENT SYSTEM

The AF environmental program adheres to the Environmental Management System (EMS) framework and its Plan, Do, Check, Act cycle for ensuring mission success. Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, U.S. Department of Defense Instruction (DoDI) 4715.17, *Environmental Management Systems,* AFI 32-7001, and International Organization for Standardization (ISO) standard 14001, *Environmental Management Systems – Requirements with guidance for use,* provide guidance on how environmental programs should be established, implemented, and maintained to operate under the EMS framework.

The storm water management program employs EMS-based processes to achieve compliance with all legal obligations and current policy drivers, effectively manage associated risks, and instill a culture of continual improvement. The SWMP serves as an administrative operational control that defines compliance-related activities and processes.

4.0 GENERAL ROLES AND RESPONSIBILITIES

Storm water management requires the full involvement of all organizations and personnel on the installation, including contractors, tenants, and family members living on the installation. The major roles/organizations involved in supporting the storm water management program at a typical installation include:

- Installation Commander
- Base Civil Engineer
- Flight Chief, Installation Management
- Water Quality Program Manager
- Storm Water Pollution Prevention Team
- Unit Environmental Coordinator (UEC)
- Installation Personnel
- AFCEC

Additional organizational and personnel roles and responsibilities for storm water management are described throughout this plan and in referenced documents. Detailed information about typical responsibilities is available in AFI 32-1067, AFI 32-7001, and the Water Quality Playbook. Additional installation-specific roles and responsibilities are documented in the BMPs below.

Installation Supplement – General Roles and Responsibilities

JBER's stormwater pollution prevention team was initially established to obtain and ensure compliance with the installation's NPDES Phase I industrial stormwater permit, the MSGP, and the associated industrial SWPPP. This team is experienced in preventing stormwater pollution from industrial and construction activity throughout the installation and will be expanded as necessary to implement this SWMP. The following sections provide an overview of stormwater pollution prevention responsibilities at JBER.

Installation Stormwater Discharge Permit Responsibilities

Installation policy on the MS4 and stormwater program are stipulated in the Command Policy memo dated January 30, 2019 (Appendix 3).

The JBER stormwater program manager has direct responsibility for day-to-day compliance with the industrial MSGP and SWPPP and the MS4 permit and SWMP. Other members of the stormwater team are responsible for compliance within their areas of responsibility and/or job description. Key contacts with installation stormwater discharge permit responsibilities are listed in the Installation Profile table in Section 2 of this SWMP.

Tenant Stormwater Discharge Permit Responsibilities

Tenants of JBER include government- and contractor-owned and operated operations, privatized utility and service providers (such as Doyon Utilities), installation commercial establishments (such as the Base Exchange [BX] or the commissary), and base residents. The 673 CES/CEIEC is responsible for ensuring

that all tenants of JBER comply with the SWMP as applicable and appropriate. This may be achieved by a variety of means, including general cooperation, memorandums of agreement, lease agreements, contract terms, and policy letters.

Construction Stormwater Discharge Permit Responsibilities

Various parties perform construction at JBER, including installation personnel, installation contractors, USACE and AFCEC contractors, etc. When construction affecting 1 acre or more is performed by installation personnel, it is usually the 673 CES/CEIEC's responsibility to obtain a construction stormwater permit, typically by submitting a Notice-of-Intent (NOI) for coverage under the ACGP for the work. When contractors perform construction work, the contractor and/or sponsor or contracting agency (e.g., USACE or AFCEC) must obtain the construction permit (via filing of the NOI for coverage under the ACGP). In each case, the permit holders are responsible for compliance with their permit. The 673 CES/CEIEC is responsible for providing construction operators a list of construction BMPs that the installation considers adequate in protecting JBER's MS4, and ultimately, the Ship Creek and Cook Inlet receiving waters. This SWMP will also be provided as a reference for the NOI and ACGP. Refer to Sections 7.4 and 7.5 of this SWMP for more specific discussions regarding construction-related MS4 compliance.

5.0 TRAINING

AF installations implement storm water training programs to ensure that installation personnel, contractors, and visitors are aware of their role in the program and the importance of their participation to its success. DoDI 4715.10, *Environmental Education, Training, and Career Development*, implements policy and provides the procedures for environmental education, training, and career development programs for DoD personnel. AF installations ensure that appropriate personnel complete required education, training, and certification necessary to perform their jobs. Priority is given to the use of AF-approved education/training sources such as the Air Force Institute of Technology (AFIT) training courses and official AF-approved computer-based training resources (e.g., The Environmental Awareness Course Hub [TEACH], Advanced Distributed Learning Service [ADLS], ArcNet, etc.) to meet training needs.

Specific training requirements are outlined in the BMPs below. Training records are maintained in IAW the Recordkeeping and Reporting section of this plan.

Installation Supplement – Training

JBER must annually review, revise, and conduct appropriate training for appropriate base personnel with facility management or certain operational responsibilities to provide awareness and the proper practices for the protection of water quality. Over the years, JBER has made and continues to make multiple efforts to train appropriate base personnel in stormwater pollution prevention. Training topics covered include the components and goals of the MSGP and associated SWPPP, awareness of the MS4 permit and stormwater quality requirements, basic BMPs, and activity-specific BMPs, if applicable. Facility inspections are performed according to the MSGP. Stormwater training sessions occur through numerous means:

- Online or classroom type training for UECs and other environmental personnel
- Online training through coordinated courses/sessions administered by 673 CES/CEIE personnel or contractors, or self-directed courses using materials provided by 673 CES/CEIE personnel
- Training provided at the time of facility inspections

The stormwater training may be combined with training for other environmental media and requirements, such as training for spill prevention and response as required by the installation's Spill Prevention Control and Countermeasures (SPCC) Plan.

Typically, the UEC and/or hazardous material/hazardous waste primary and/or alternate point-of-contact (POC) for each facility will receive the stormwater training. However, it is at the discretion of the 673 CES/CEIEC and/or the facility supervisor to determine the most suitable employees to be trained and how training will occur. Trained stormwater coordinators are tasked with conducting in-house training annually and for new employees.

Personnel responsible for JBER infrastructure maintenance, such as roads and grounds personnel, airfield maintenance personnel, associated airfield or heavy equipment repair personnel, and aircraft fueling operations personnel, whose activities are designated industrial Sector S (Air Transportation) under the MSGP, also participate in required, annual stormwater training. For JBER this is often provided through the annual "Snow Barn Training" administered each fall.

JBER will continue to train relevant groups on the installation in stormwater pollution prevention and will diversify the training audience as necessary to meet compliance objectives and requirements. For example, the 673 CES/CEIEC will offer additional SWPP guidance, training, and courtesy inspections to personnel working at support facilities at JBER that have the potential to impact stormwater. Training that has been offered to JBER's construction community is described below.

Construction Stormwater Training

JBER must biennially conduct a training session for the local construction/design/engineering audience related to the construction and BMP requirements referenced in Parts 3.4.3 and 3.4.4 of the MS4 permit. JBER will develop or adopt such a training program that educates relevant members of the installation's construction community and will offer the training at least once every 2 years. The training will also include education on the scope of the Command Policy memo.

Post-Construction Stormwater Training

Within 3 years of the effective date of the permit, JBER must develop and conduct at least one training for base developers, engineers, tenants, and the public regarding requirements of the base Command Policy letter and implementation of the Post-Construction Activity Monitoring (PCAM) referenced in Parts 3.5.2 and 3.5.3 of the MS4 permit. JBER's implementation of PCAM is through the distribution and adherence to the installation's BMP guidance and the Green Infrastructure/Low Impact Development (GI/LID) Plan (2020). JBER's Post-Construction Activity Manual is included as Appendix 4.

6.0 RECORDKEEPING AND REPORTING

All AF MS4s have measures in place to ensure compliance with applicable permit recordkeeping and reporting requirements. Records are stored and maintained IAW Air Force Manual 33-363, *Management of Records*, and records are archived and disposed IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS).

Installation Supplement – Recordkeeping and Reporting

Compliance with MS4 permit requirements includes permittee monitoring to confirm BMP effectiveness, keeping records of permit activities, and mandatory reporting to the permitting authority (ADEC).

6.1 Monitoring Program Plan

According to Section 4 of the MS4 permit, JBER must develop, implement, and revise a comprehensive Monitoring Program Plan (MPP) as necessary. A description of the MPP must be included in this SWMP. The MPP must be designed to assess compliance with the MS4 permit, and achieve the following:

- Measure the effectiveness of this SWMP
- Measure the chemical, physical, and biological impacts to the receiving waters resulting from stormwater discharges
- Characterize stormwater discharges
- Identify sources of specific pollutants
- Detect and eliminate illicit discharges and illegal connections to the MS4

6.1.1 Water Quality Monitoring

Under the MS4 permit, JBER must comply with the following provisions when conducting water quality monitoring:

- All samples and measurements must be representative of the monitored activity.
- Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless otherwise specified.
- JBER must conduct a stormwater discharge monitoring program, which meets the following minimum requirements:
    - JBER must revise the current MPP consistent with the monitoring objectives described above as necessary. The outfalls selected by JBER in the MPP must be representative of major land uses at JBER and include the outfall(s) that discharge into the Port of Anchorage (POA) MS4 (Outfall JBER-E #1). Coordination shall occur between JBER and the POA for discharge monitoring at this outfall.
    - JBER must monitor the stormwater outfalls identified in the MPP during wet weather events, at least four times per year. The specific monitoring requirements are outlined in Part 4.1.2.5 and Table 4-1 (Outfall Monitoring Requirements) of the MS4 permit.
- Monitoring results and reporting shall use a Discharge Monitoring Report (DMR) form (EPA No. 3320-1) or equivalent. The report shall be submitted annually for the previous 12-month period along with the Annual Report required in Part 4.3 of the MS4 permit.
- Within 6 months of the effective MS4 permit date, JBER must develop an MPP that includes a Quality Assurance Project Plan (QAPP) for all analytical monitoring to be conducted including, but not limited to, the activities described in Part 3.0 of the MS4 permit. Prior to beginning any analytical monitoring, JBER must submit the plan to ADEC at the address provided in Part 4.5 of the MS4 permit.
- The following requirements pertain to the QAPP required by the JBER MS4 permit:
    - The QAPP must be designed to assist in planning for the collection and analysis of water samples in support of the SWMP.
    - JBER must use the EPA-approved Quality Assurance/Quality Control and chain-of custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5), *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5) and ADEC's Quality Assurance

Plan, Checklist 38 for all sample collection and analysis activities. The QAPP must be formatted as specified in these documents.

- At a minimum, the QAPP must include the following:
  - Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantification limits for each target compound; type and number of quality assurance field samples; precision and accuracy requirements; sample preparation requirements; sample shipping methods; and laboratory data delivery requirements.
  - Map(s) indicating the location(s) of each sampling point.
  - Qualification and training of personnel.
  - Name(s), address(es), and telephone number(s) of the laboratories used by or proposed to be used by JBER.
- JBER must annually review the QAPP for adequacy based on permit compliance activities and sampling results. Whenever there is modification in the sample collection, sample analysis, or other conditions or requirements of the plan, JBER must amend the MPP and QAPP, accordingly.
- JBER must continue monitoring the identified stormwater outfalls in Part 4.1.2.3.1 during wet weather events at least four times per year. Monitoring requirements are listed in Table 4-1 (Outfall Monitoring Requirements) of the MS4 permit.
- Records of monitoring information must include:
  - The date, exact place, and time the samples or measurements were taken
  - The name(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
  - The results of each analysis
- If JBER monitors more frequently than required by the MS4 permit using test procedures approved under 40 CFR Part 136 (adopted by reference at 18 AAC 83.010), or as otherwise specified by the MS4 permit, JBER must include the results of such monitoring with the data submitted as part of the Annual Report.

As required by the MS4 permit provisions described above, JBER will develop an MPP within the first 6 months of the effective date of any new or revised MS4 permit. JBER's MPP will address all monitoring, methodology, and sampling locations required of the plan and include a QAPP.

The JBER 2020 QAPP was submitted on March 26, 2020.

An MPP meeting the requirements of the MS4 permit is provided in Appendix 6.

6.2 Evaluation of Overall Program Effectiveness

At least annually, JBER must evaluate its compliance with conditions of the MS4 permit. As part of this exercise, JBER must consider the appropriateness of BMPs identified in this SWMP, as well as the progress toward achieving identified measurable goals for each of the six MCMs. This evaluation of program

compliance must be included in the Annual Report. As part of the evaluation, JBER must implement the following requirements:

- JBER must use the monitoring data described in Part 4.1 of the MS4 permit to specifically assess the effectiveness of each of the following:
  - Each significant activity/control measure or type of activity/control measure implemented
  - Implementation of each MCM
  - Implementation of the SWMP as a whole
- JBER must identify and use measurable goals, assessment indicators, and assessment methods for each of the three items listed directly above.
- JBER must document its compliance with MS4 permit conditions.
- Based on the results of the effectiveness assessment, JBER must annually review activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve permit compliance. JBER must develop and implement a plan and schedule to address the identified modifications and improvements. Ineffective BMPs must be replaced by more effective, comparable BMPs/control measures.

6.3 Annual Reports

JBER must submit an Annual Report following Table 4-2 of the MS4 permit; this report must be submitted by February 15 to ADEC at the address listed in Appendix A, Part 1.1.2 Compliance and Enforcement Program, of the MS4 permit. Copies of the JBER Annual Report are available on the JBER Environmental Compliance website (https://www.jber.jb.mil/Services-Resources/Environmental/).

The Annual Report must include the ADEC *MS4 – Summary Annual Report* form provided in Appendix D of the MS4 permit. The report must also include the following detailed information:

- An updated SWMP as required by Part 2.0 of the MS4 permit
- A description of the effectiveness of each SWMP program component or activity (see MS4 permit Part 4.2)
- Planned activities and changes for the next reporting period for each SWMP program component or activity
- An evaluation of compliance with the requirements of the MS4 permit, the appropriateness of identified BMPs, and progress toward achieving measurable goals identified in the SWMP for each MCM
- Results of any information collected and analyzed during the previous 12-month reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP
- A summary of the activities JBER plans to undertake during the next reporting cycle (including an implementation schedule) for each MCM
- Proposed changes and completed changes to the SWMP, including changes to any BMPs or any identified measurable goals for any MCM
- Description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable WQS

- If applicable, a notice that JBER intends to have another entity satisfy a permit obligation

6.3.3.1 Annual Report Requirements for MCMs

Annual report requirements for MCMs 1 through 6 are given in Section 7.

6.4 Record Keeping

6.4.1 Retention of Records

JBER must retain records of all information used in the development of the stormwater management program, all monitoring data, copies of all reports, and all data used in the development of JBER's MS4 permit, for a period of at least 5 years from the date of the sample, measurement, report or application, or for the term of the MS4 permit, whichever is longer. These records must include the following:

- Monitoring records (and copies)
- Calibration records (and copies)
- Maintenance records (and copies)
- All original strip chart recordings for any continuous monitoring instrumentation
- Copies of all reports required by the MS4 permit
- Copies of DMRs
- A copy of the MS4 permit
- Records of all data used by JBER to complete the application for the MS4 permit
- All information used in the development of the SWMP

ADEC reserves the right to extend the period for required recordkeeping under the MS4 permit at any time.

6.4.2 Availability of Records

According to the MS4 permit, pertinent records must be made available to ADEC; the MS4 permit, this SWMP, and the Annual Reports are on the JBER Environmental website. Other stormwater program records are available through contacting the 673 CES/CEIEC water quality program manager.

6.4.3 Electronic Reporting (E-Reporting) Rule

JBER submits the required DMRs electronically through the Network Discharge Monitoring Report (NetDMR) per Phase I of the E-Reporting Rule (40 CFR Part 127) upon the effective date of the permit. Authorized persons may access permit information by logging into the NetDMR Portal (https://cdxnodengn.epa.gov/oeca-netdmr-web/action/login). DMRs submitted in compliance with the E-Reporting Rule are not required to be submitted as described in Appendix A – Standard Conditions of the MS4 permit unless requested or approved by the Department. Any DMR data required by the Permit that cannot be reported in a NetDMR field (e.g., mixing zone receiving water data), shall be included as an attachment to the NetDMR submittal. DEC has established a website at: http://dec.alaska.gov/water/Compliance/EReporting Rule.htm that contains general information about this new reporting format. Training materials and webinars for NetDMR can be found at: https://netdmr.zendesk.com/home.

6.4.4 E-Reporting Rule for Other Reports (Phase II)

Phase II of the E-Reporting Rule will integrate electronic reporting for all other reports required by the Permit (e.g., Annual Reports and Certifications) and implementation is expected to begin December 2020. JBER should monitor DEC's E-Reporting Information website for updates on Phase II of the E-Reporting Rule and will be notified when they must begin submitting all other reports electronically (https://dec.alaska.gov/water/compliance/electronic-reporting-rule). Until such time, other reports required by the Permit may be submitted in accordance with Appendix A – Standard Conditions of the MS4 permit.

6.5 JBER MS4 Permit Compliance Schedule

Table 1 summarizes major MS4 permit requirements (from Table 1 of the permit). For each requirement, the MS4 permit citation is provided, as is the respective section of this SWMP where the requirement is discussed, and the measurable goal(s) stated. The compliance date for each major requirement is also presented in the table.

Table 1. JBER MS4 Permit Compliance Schedule

Permit Section Reference	SWMP Section	MS4 Permit Requirement	Compliance Date
General Requirements			
2.3.1	6.2 & 6.3	Annual review of the SWMP	Annually
4.1.2.5	6.1	Monitoring Program Plan and Quality Assurance Project Plan	Within 6 months of effective permit date; reviewed annually
Public Education and Outreach (MCM 1)			
3.1.2	7.1	Community/public education and outreach for means/methods to reduce impacts to stormwater quality	Annually
3.1.3.1		Publish articles in a local newspaper or base website regarding stormwater pollution prevention	Annually
3.1.3.2		Create or obtain stormwater pollution prevention materials for key audiences and distribution at annual base events	Update annually
3.1.3.3		Update on-base residents with materials related to stormwater pollution prevention	Update annually
3.1.3.4		Provide (to base residents) materials regarding the effects on stormwater quality of lawn chemicals and household hazardous products	Annually
3.1.3.5		Develop/maintain a stormwater program website with pertinent program information	Update semi-annually
Public Involvement and Participation (MCM 2)			
3.2.2	7.2	Post SWMP and Annual Reports to JBER's stormwater webpage	Update annually
3.2.3		Plan and host community litter cleanup activities in the MS4, to include Ship Creek and adjacent areas	Host annually

Permit Section Reference	SWMP Section	MS4 Permit Requirement	Compliance Date
3.2.4		Conduct storm drain cover program to apply labels to JBER storm drain covers	Annually
3.2.5		Establish and maintain a Stormwater Steering Committee representing multiple base organizations or units that meets quarterly	Quarterly
Illicit Discharge Detection and Elimination (MCM 3)			
3.3.1	7.3	Inventory and map industrial facilities to include in storm sewer system map	Update annually
3.3.2		Update and implement a plan to detect and address illicit discharges (IDDEP) to the MS4	Annually
3.3.3.1		Conduct wet weather outfall inspections of stormwater discharge locations to identify illicit discharges	Annually
3.3.3.2		Conduct dry weather outfall inspections of stormwater discharge locations to identify illicit discharges	Annually
3.3.4		Develop and implement a system for tracking information on illicit discharge detection and response	Annually
3.3.5 & 3.3.6		Review effectiveness of command policy letter or other control measure to prohibit illicit discharges to the MS4; prohibit any specific non-stormwater discharges, if necessary	Annually
3.3.7		Conduct education on hazards associated with illegal discharges	Annually
3.3.8		Review and revise storm sewer system map(s) and incorporate into JBER GIS network	Annually
3.3.9		Conduct dry weather screening for non-stormwater flows from all outfalls	By expiration date of permit
Construction Site Stormwater Runoff Control (MCM 4)			
3.4.1	7.4	Review and revise construction site runoff control program	Annually
3.4.3		Review the command policy letter regarding construction site stormwater runoff for continued compliance with this SWMP and the ACGP	Annually
3.4.4		Continue to publish and distribute ESCP for all construction projects	Ongoing
3.4.5		Review and implement plan review procedures for reviewing construction plans and project SWPPPs	Annually
3.4.6		Review and revise standard language for inclusion in JBER construction contracts	Annually
3.4.7		Review and implement procedures for site inspection and enforcement of control measures	Annually
3.4.8		Conduct at least one training related to the construction requirements and BMPs outlined in the Command Policy letter	Biennially

Permit Section Reference	SWMP Section	MS4 Permit Requirement	Compliance Date
Post-Construction Site Stormwater Management (MCM 5)			
3.5.1	7.5	Review, continue implementation, and enforce a post-construction site runoff control program	Annually
3.5.2		Update (as necessary) the command policy letter to require the management of post-construction site stormwater runoff	Annually
3.5.3		Review and revise and distribute a BMP design manual for post-construction	Biennially
3.5.4		Implement inspections according to the MS4 permit for post-construction BMPs	Annually
3.5.5		Develop and conduct at least one training for local contractors, engineers, and tenants regarding the requirements for PCAM and the GI/LID strategy	Within 3 years of the effective permit date
3.5.6		Develop a strategy for evaluating Green Infrastructure (GI)/Low Impact Development (LID) projects	Within 1 year of the effective permit date
3.5.7		Incorporate GI/LID techniques into educational materials	Within 2 years of the permit effective date; annually thereafter
3.5.8		Conduct an evaluation of the first project to use GI/LID during permit term	Within the permit term
3.5.9		Revise the GI/LID Strategy	Within the permit term
Pollution Prevention and Good Housekeeping for Base Operations (MCM 6)			
3.6.1	7.6	Conduct stormwater pollution prevention inspections	Annually
3.6.2		Maintain and implement maintenance standards for stormwater facilities	Annually
3.6.3		Review and implement a study of the effectiveness of current street sweeping operations, storm drain cleaning operations and other base activities with potential for stormwater impacts	Ongoing
3.6.4		Review, revise, and conduct training for appropriate base personnel related to optimum maintenance practices for the protection of water quality	Annually
3.6.5		Ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices	Ongoing

7.0 MINIMUM CONTROL MEASURES AND BEST MANAGEMENT PRACTICES

AF MS4 storm water management programs are comprised of at least six MCMs that collectively are designed to reduce pollutants discharged to receiving bodies to the MEP. BMPs and measurable goals are implemented and monitored for each MCM as described below. Where required, all AF MS4s have developed regulatory mechanisms to enforce requirements in the general permit. These mechanisms are included in the appropriate sections below.

7.1 Public Education and Outreach

All AF MS4s implement public education and outreach programs to educate the installation population on the impact that their common, daily activities and behaviors can have on installation storm water runoff and local water resources. These programs include general storm water pollution awareness and guidance on actions that can be taken to reduce the potential storm water pollution from their activities.

Example Public Education and Outreach BMPs include:

- Develop a communication and outreach strategy, including your goals, target audience, distribution methods, and available resources
- Develop outreach materials, including pamphlets, displays, signs, etc.
- Develop a public awareness campaign for installation personnel on pet waste management
- Develop a public awareness campaign for installation personnel on trash management

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Public Education and Outreach

Public Education and Outreach (MCM 1)

BMP Title	Public Education and Outreach Program – Training
BMP Description	JBER uses a multi-faceted training program to minimize stormwater runoff and impacts across the installation. Training is provided through numerous means to a variety of base organizations and personnel. Topics and training methods include: • Stormwater management practices for commercial, industrial, food service, carpet cleaners, home-based or mobile businesses, and automotive activities. • Appropriate yard care techniques for protecting water quality, including proper timing and use of fertilizers. • Proper pet waste management. • Spill prevention practices for industrial, commercial, construction, and residential settings. • Proper use, storage, and disposal of household hazardous waste. • Proper collection, storage, and management procedures for recyclable materials. • Proper management of street, parking lot, sidewalk, and building wash water. • Proper methods for using water for dust control. • Impacts of illicit discharges and how to report them.
Means/Methods	The following methods will be used for distribution of the information and outreach described above:

	• Stormwater Pollution Prevention Articles – Publish periodic stormwater pollution prevention articles in a local newspaper or installation website. • Stormwater Pollution Prevention Brochures – Distribute brochures describing spill prevention, pet waste management, and other stormwater pollution prevention BMPs to key audiences and facility points-of-contact. • Military Housing Tenant Handbook – Develop and distribute stormwater pollution prevention materials for military housing tenants. • Lawn Chemicals and Household Waste – Distribute a brochure on the proper use and disposal of lawn chemicals and household hazardous products and distribute to key audiences. • Environmental Handbook – Distribute JBER Environmental Handbook to UECs and other appropriate leadership personnel. • Stormwater Pollution Prevention Website – Maintain a website with information about stormwater management in the MS4. • Stormwater training materials – Hosting various presentation materials and videos on the JBER Environmental website.
Measurable Goals	Measurable goals for the training program will include the following: • Increasing number of organizations and individuals receiving training. • One new brochure or other materials developed and/or reviewed each year. • Decreasing number of spills/releases and the size of the spills. • Decreasing number of hazardous/universal/solid waste compliance findings. • Improving stormwater quality as measured through either visual inspections or periodic sampling. The metrics/goals described above provide a broad/general measure of the effectiveness of the stormwater training program at JBER.
Frequency	Ongoing throughout the year
Reporting Mechanism	MS4 Annual Report, due February 15 for the prior calendar year
Report Contents	JBER will include information in each Annual Report regarding the activities completed under MCM 1, Public Education and Outreach (see Part 3.1.4 of the MS4 permit). The information may include: • Descriptions of the outreach activities completed. • An accounting on the methods and frequency of information disseminated and the audiences reached.

7.2 Public Involvement / Participation

All AF MS4s comply with applicable public notice requirements associated with their storm water management program. In addition to the public notice, AF MS4 storm water management programs encourage the involvement of the installation population in all facets of the program, from developing BMPs to performing installation cleanup activities.

Example Public Involvement / Participation BMPs include:

- Stream cleanup and monitoring events
- Wetland planting events
- Installation storm drain marking

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Public Involvement / Participation

Public Involvement/Participation (MCM 2)

BMP Title	Stormwater Documentation Website
BMP Description	JBER will maintain a public website for pertinent information on the stormwater quality program and various project reports and other files.
Means/Methods	Maintain website by posting various project documents and reports.
Measurable Goals	• Increase the number of website hits • Increase the number • Track number of website updates The metrics/goals described above provide a broad/general measure of the effectiveness of the stormwater website.
Frequency	Annually
Reporting Mechanism	N/A
Report Contents	N/A

BMP Title	Community Cleanup Event(s)
BMP Description	JBER hosts various community events aimed at litter removal or similar cleanup in the MS4, including areas adjacent to Ship Creek.
Means/Methods	Coordinate cleanup events throughout the year through recruiting volunteers and documenting the cleanup activity.
Measurable Goals	• Increase the number of participants • Increase the amount of waste collected The metrics/goals described above provide a broad/general measure of the effectiveness of the cleanup events.
Frequency	At least annually or as funding or volunteer availability permits
Reporting Mechanism	MS4 Annual Report, due February 15 for the prior calendar year
Report Contents	Metrics on the cleanup events held: number of events, locations, waste amount removed, number of volunteers/volunteer hours

BMP Title	Storm Drain Labels
BMP Description	JBER will apply labels to stormwater manhole/drains and inlet covers to warn continue to maintain a storm drain labeling program. JBER must use one or more of the following labeling methods:

Means/Methods	Apply permanent labels to storm drain inlet covers and manhole covers. Use medallions or stenciled paint containing a stormwater pollution prevention message/notice (e.g., "No Dumping," "drains to ocean" or "drains to creek").
Measurable Goals	Increase number of labels applied.
Frequency	As volunteers or funding permits
Reporting Mechanism	MS4 Annual Report, due February 15 for the prior calendar year
Report Contents	Metrics on the number of labels applied and label locations

BMP Title	Stormwater Steering Committee
BMP Description	Use a JBER-wide Stormwater Steering Committee to coordinate and accomplish the goals of this SWMP.
Means/Methods	Establish a Stormwater Steering Committee with a broad range of members. Committee should meet quarterly and discuss stormwater quality, spill prevention and response, future construction and stormwater, deicing/snow removal/management, training opportunities, and the roles and responsibilities of committee members.
Measurable Goals	• Increase base participation in stormwater management and pollution prevention • Decrease spills • Improve water quality • Increase awareness on stormwater quality issues and impacts • Annually update JBER OPlan 32-1002, Snow and Ice Control Plan
Frequency	Committee should meet quarterly
Reporting Mechanism	• Committee meeting notes should be shared on JBER Environmental website. • Summary of meetings should be included in MS4 Annual Report, due February 15 for the prior calendar year.
Report Contents	Metrics on the Committee meetings held, participation, and committee decisions/actions

7.3 Illicit Discharge Detection and Elimination

All AF MS4s have measures in place to detect and eliminate illicit discharges to the storm water system. Illicit discharges include intentional non-storm water discharges and incidental non-storm water discharges. Installation illicit discharge detection and elimination measures include both proactive and reactive measures for preventing or limiting these types of discharges.

Example Illicit Discharge Detection and Elimination BMPs include:

- Develop a storm sewer system map

- Establish an ordinance, regulatory mechanism, or other binding agreement, as appropriate, prohibiting non-storm water discharges
- Develop a plan to detect and prevent illicit discharges
- Educate installation personnel on the hazards associated with illicit discharges

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Illicit Discharge and Elimination

Illicit Discharge Detection and Elimination (MCM 3)

BMP Title	Industrial Facility Inventory
BMP Description	Maintain current listing of JBER industrial facilities
Means/Methods	JBER shall review facility records, work orders, or other information to maintain the accuracy of the industrial facility list (Table 2). Inspections may also be performed to determine facility activities and connections to MS4.
Measurable Goals	Increase the accuracy of the industrial facility listing.
Frequency	Annual review of the list
Reporting Mechanism	MS4 Annual Report, due February 15 for the prior calendar year
Report Contents	Updated listing of industrial facilities (as necessary)

BMP Title	Wet and Dry Weather Outfall Inspections
BMP Description	JBER will conduct wet and dry weather inspections of the MS4 system and outfalls to identify illicit discharges and other potential stormwater impacts (spills).
Means/Methods	Conduct annual inspections as follows: • Wet weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-stormwater discharge to the MS4 • Dry weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-stormwater discharge to the MS4. The screening should include field tests of selected chemical parameters as indicators of discharge sources. Screening level tests may use less expensive field test kits using test methods not approved by EPA under 40 CFR Part 136, provided the manufacturers published detection ranges are adequate for the illicit discharge detection purposes. The permittee must investigate any illicit discharge within 15 days of its detection and must take action to eliminate the source of the discharge within 45 days of its detection. Raw data and narrative review of screening and mapping must be included in the following year's Annual Report from the year the data was collected.
Measurable Goals	• Maintain compliance with MSGP inspection requirements. • Promptly detect and respond to any potential illicit discharges noted through the inspections.

Frequency	Inspections are performed quarterly.
Reporting Mechanism	MS4 Annual Report, due February 15 for the prior calendar year
Report Contents	Summary of findings from the inspections: number of inspections, important noted observations, information on any illicit discharges and follow-up actions.

BMP Title	Command Policy on Stormwater Compliance
BMP Description	JBER has developed regulatory policy requiring compliance with applicable stormwater permit requirements, including the prohibition on illicit discharges.
Means/Methods	JBER maintains a Command Policy on the required compliance with stormwater management regulations and permit requirements. The policy letter is updated as necessary.
Measurable Goals	Maintain Command Policy letter.
Frequency	Ongoing
Reporting Mechanism	MS4 Annual Report (if policy changes)
Report Contents	Updated version of Command Policy (as necessary) and report on any violations of the policy

BMP Title	Storm Sewer System Map
BMP Description	Maintain accurate storm sewer system map to show jurisdictional boundaries, the location of all inlets and outfalls, names, and locations of all waters that receive discharges from those outfalls, and locations of all base operated facilities, including snow disposal sites.
Means/Methods	Use project as-built drawings, survey information, and site inspections to produce updated Storm Sewer System Maps.
Measurable Goals	Annual review of the stormwater system map.
Frequency	Annually
Reporting Mechanism	MS4 Annual Report, by February 15 for the prior calendar year
Report Contents	Maps of updated JBER MS4

BMP Title	JBER Environmental Management Plans
BMP Description	Other JBER Environmental Management Plans and Permits provide requirements related to illicit discharges and proper stormwater management.

Means/Methods	The following JBER maintained plans/permits provide requirements that must be followed for JBER activities and provide BMPs related to proper stormwater management and illicit discharges: **Industrial SWPPP** Many stormwater requirements for JBER are outlined in the Industrial SWPPP. Annual illicit discharge and detection measures are complimented by a regular inspection schedule as required by the Industrial SWPPP. Hazardous material and waste handling and spill response training at industrial facilities further ensures that if illicit discharges do occur, they are effectively addressed. Monitoring requirements at JBER under the MSGP include visual outfall inspections during or immediately after storms. These inspections will likely reveal any illicit discharges that reach an outfall. Quarterly facility inspections at industrial facilities identify potential stormwater contaminants closer to the source and allow them to be addressed prior to discharging to the MS4. One quarter's inspection typically coincides with annual stormwater training for stormwater coordinators, and a separate quarter's inspection also serves as the annual Comprehensive Site Compliance Evaluation (CSCE). The CSCE includes inspections of facilities covered by the MSGP, associated outfalls, and other components of the installation-wide stormwater management system and evaluations of the overall effectiveness of JBER's industrial SWPPP. A further discussion of these inspections is included in MCM 6, Pollution Prevention and Good Housekeeping for Base Operations. For full detail of these measures, refer to the JBER Industrial SWPPP. **Construction General Permit Requirements** Construction projects that will disturb 1 or more acres of land and will discharge stormwater to waters of the United States or a MS4 leading to a water of the United States at JBER must operate under ADEC's ACGP. Measures to prevent and eliminate illicit discharges from construction sites include inspections and additional BMPs required under the ACGP. Construction activities disturbing less than 1 acre but that have the potential to discharge stormwater to the JBER MS4 or other waters of the United States are required to operate under an Erosion and Sediment Control Plan (ESCP), developed and implemented by the construction site operator. The ESCP must be submitted to the 673 CES/CEIEC for review prior to ground disturbance. A sample ESCP is provided in Appendix 5. MCMs 4 and 5 (see Sections 7.4 and 7.5, respectively) of this SWMP detail BMPs addressing permitted construction activities at JBER and are not duplicated further in this section. **Spill Prevention Control and Countermeasures (SPCC) Plan** Spill prevention and response requirements are outlined in the JBER SPCC Plan. This plan includes training requirements and outlines proper management strategies for POL. The SPCC Plan must be regularly updated and revised as JBER operations change, including personnel and infrastructure related to the program.

	Hazardous Waste Management Plan (HWMP) JBER maintains a HWMP to provide guidance for the proper management of hazardous wastes. This plan requires proper training for individuals managing and handling hazardous wastes. Improper management of these wastes can lead to spills that may impact stormwater.
Measurable Goals	• Conduct hazardous material and waste handling and spill response training • Conduct visual outfall inspections during or immediately after storms per MSGP • Conduct quarterly facility inspections • Ensure construction projects have appropriate permits and plans in place
Frequency	As necessary
Reporting Mechanism	N/A
Report Contents	N/A

7.4 Construction Site Runoff Control

All AF MS4s have measures in place to reduce discharges to storm water of sediment and other potential pollutants from construction sites disturbing one or more acres of land.

Example Construction Site Runoff Control BMPs include:

- Establish an ordinance, regulatory mechanism, or other binding agreement, as appropriate, requiring erosion and sediment control
- Implement erosion and sediment control measures
- Establish procedures for controlling construction waste
- Develop a procedure to review construction site plans for proper sediment control
- Develop a procedure for collecting and considering installation personnel information and feedback
- Conduct inspections and enforce storm water requirements at construction sites

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Construction Site Runoff Control

Construction Site Stormwater Runoff Control (MCM 4)

BMP Title	Construction Site Runoff Control Program
BMP Description	JBER maintains an active construction site runoff control program for projects requiring coverage (≥ 1 acre) under the Alaska Construction General Permit (ACGP, AKR100000) and for projects not covered under this permit (< 1 acre).
Means/Methods	Construction projects at JBER must follow Alaska regulations on the management and control of stormwater runoff. Projects must also follow the Command Policy for stormwater compliance. For projects that will

	impact/disturb more than 1 acre, the project must obtain coverage under the ACGP through the submittal of a Notice of Intent (NOI) to ADEC. JBER Environmental provides assistance and review of the NOIs. For projects that will disturb < 1 acre, the project must provide an erosion and sediment control plan (ESCP) to minimize stormwater impacts from the project.
Measurable Goals	• Provide reviews of construction project plans and NOIs for implementation of BMPs and coverage under the ACGP. • Implement the JBER Green Infrastructure (GI)/Low Impact Development (LID) Plan and associated BMPs. • Review and inspect projects covered under the ACGP and smaller projects for proper stormwater management and pollution prevention.
Frequency	Continually (as construction projects require)
Reporting Mechanism	MS4 Annual Report, due February 15 for prior calendar year
Report Contents	Metrics on the construction stormwater control program including: • A summary of the number of construction projects implemented with site disturbances • A summary of the number of site plan reviews conducted. • A listing of the in-force ACGPs at JBER • A summary of the sites inspected, including inspection procedures, how sites are prioritized for inspection, and when and how often sites are inspected. • A summary of any pertinent inspection findings and resolutions.

BMP Title	Construction Outreach and Training
BMP Description	JBER uses training and outreach to inform construction project planners, engineers, and contractors on the proper stormwater management regulations, requirements, and BMPs to implement.
Means/Methods	JBER will provide training on the construction stormwater requirements and potential BMPs that may be used for these projects. Training on the application of the JBER GI/LID Plan will also be included. Training is required according to Sections 3.4.3 and 3.4.4 of the MS4 permit.
Measurable Goals	Number of construction-related personnel receiving stormwater training. A description on the different methods/means of construction related training provided.
Frequency	Training provided as necessary; biennially for JBER construction project planners, engineers, and inspectors
Reporting Mechanism	MS4 Annual Report due February 15 for prior calendar year
Report Contents	Details on the construction training and outreach provided, including number of individuals trained and number of construction projects reviewed.

BMP Title	Construction Contract Language
BMP Description	JBER uses specific contract language to ensure construction projects and contractors follow applicable stormwater requirements.
Means/Methods	JBER ensures that construction project contracts include language to require construction contractors to follow appropriate rules/regulations for the management of stormwater, comply with the Command Policy, and prepare/submit NOIs as appropriate.
Measurable Goals	Number of construction projects with stormwater contract language requirements.
Frequency	All construction contracts
Reporting Mechanism	N/A
Report Contents	N/A

BMP Title	CESCL Training and Certification
BMP Description	JBER is looking to implement the Alaska Certified Erosion and Sediment Control Lead (CESCL) certification on a wide basis with construction project related personnel (planners, engineers, inspectors, etc.).
Means/Methods	Provide an on-site offering of the CESCL certification course to JBER personnel on a periodic basis as funding permits.
Measurable Goals	• Conduct CESCL courses biennially (as funding permits)
Frequency	As funding permits
Reporting Mechanism	N/A
Report Contents	N/A

7.5 Post-Construction Runoff Control

All AF MS4s have measures in place to reduce discharges to storm water of sediment and other potential pollutants from new and/or redevelopment projects.

Example Post-Construction Runoff Control BMPs include:

- Develop strategies for implementing both structural and non-structural BMPs in development projects
- Establish an ordinance, regulatory mechanism, or other binding agreement, as appropriate, addressing post-construction runoff
- Implement a program to ensure adequate long-term operation and maintenance of BMPs

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Post-Construction Runoff Control

Post-Construction Stormwater Management (MCM 5)

BMP Title	Post-Construction Stormwater Management Program
Description	The monitoring and management of former construction sites is an important element of stormwater pollution prevention. BMPs and other control techniques should be employed to ensure the continued minimize of stormwater impacts.
Means/Methods	JBER will implement various methods to ensure that completed construction projects continue to exhibit stormwater minimization and prevent the impacts upon site stormwater.
Measurable Goals	• Implement training for JBER construction personnel to training on potential post-construction BMPs and post-construction stormwater considerations, such that these can be included in the earlier phases of project planning and construction. • Implement the adoption of the JBER GI/LID Plan and procedures for implementing GI/LID considerations for projects that will minimize post-construction stormwater flows and impacts. • Increase the number of construction projects that include specific post construction stormwater minimization and impact avoidance strategies.
Frequency	For each construction project
Reporting Mechanism	MS4 Annual Report, due February 15 for each prior calendar year
Report Contents	Summarize post-construction considerations employed for the prior calendar year, including any projects implementing GI/LID considerations.

BMP Title	Snow Removal and Stockpile Management
BMP Description	JBER will implement appropriate BMPs related to the removal and stockpiling of snow from the roads and airfield areas.
Means/Methods	Several BMPs are followed for the management of snow throughout JBER. This is largely accomplished through the regular review and approval of the JBER OPlan 32-1002, Snow and Ice Control Plan. This plan covers the following elements of snow removal and stockpiles: **Stockpile Locations** Stockpiled snow is removed from base facilities with impervious surfaces or facilities that are adjacent to surface waterbodies or stormwater conveyances. Snow is stockpiled in multiple locations at JBER. Most stockpiles are on vegetated, permeable ground, such as a grassy field, or are situated such that melt water drains to vegetated and/or permeable ground that is at least 100 feet from a stormwater conveyance. Stockpile locations are inspected to ensure that melt water cannot reach stormwater conveyances, and that trash melted out of them is reported for collection and proper disposal. The locations of JBER's snow stockpiles change

	periodically due to land use changes, mission requirements, and development activity. **Construction Site Snow Clearance** Snow cleared from construction sites must adhere to requirements similar to the stockpile location requirements. On request and available space, contractors are able to use alternative snow stockpile locations. Inspection of these sites is a BMP that satisfies provisions of the MS4 permit. JBER's MS4 permit specifically prohibits the disposal of snow directly to waters of the United States or to the JBER MS4.
Measurable Goals	• Maintain JBER OPlan 32-1002, Snow and Ice Control Plan; provide updates to the plan as necessary each year. • Ensure all snow stockpiles are in approved/designated locations.
Frequency	Annual updates to the JBER OPlan 32-1002, Snow and Ice Control Plan
Reporting Mechanism	MS4 Annual Report, due February 15 for prior calendar year
Report Contents	• Include current snow year snow removal and stockpile plan with annual report. • Include any pertinent observations or other concerns from prior year snow removal and stockpile management activities.

BMP Title	Adopt JBER Post-Construction Activity Manual (Appendix 4)
BMP Description	JBER will implement the PCAM requirements from the MS4 permit through the adoption of construction site and post-construction BMPs. The GI/LID Plan provides further PCAM guidance. A JBER Environmental instruction memo will require the consideration of the GI/LID for construction projects.
Means/Methods	JBER Environmental will require the consideration of GI/LID methodology and BMPs for construction projects, including post-construction considerations for stormwater management.
Measurable Goals	Number of projects following GI/LID methodology.
Frequency	Ongoing with annual review of construction projects
Reporting Mechanism	MS4 Annual Report, due February 15 for each prior calendar year
Report Contents	Summarize post-construction considerations employed for the prior calendar year, including any projects implementing GI/LID considerations.

BMP Title	Post-Construction Site Inspections and Maintenance
BMP Description	JBER will implement an inspection schedule and a long-term operation and maintenance plan for post-construction BMPs.

Means/Methods	Inspections of post-construction BMPs ensures their continued effectiveness for stormwater mitigation impacts. These inspections will also inform the operations and maintenance requirements for the BMPs.
Measurable Goals	Inspect post-construction BMPs as required according to the post-construction planning for each site/project.
Frequency	Inspections should happen annually for each site
Reporting Mechanism	Inspection findings should be documented through the JBER work order process to address any observations requiring maintenance/repair.
Report Contents	N/A

BMP Title	Post-Construction Stormwater Training
BMP Description	JBER will develop and provide appropriate training for base planners, developers, engineers, tenants, and the public regarding the requirements of the base Command Policy letter and the PCAM referenced in Parts 3.5.2 and 3.5.3 of the MS4 permit.
Measurable Goals	JBER will add post-construction considerations to the training materials and courses described through MCMs 1 through 4. The updated training program educates relevant members of the installation's construction community and provides the training to them before October 1, 2022 per MS4 permit requirements. The training will include education on the scope of the Command Policy letter and implementation of the PCAM.
Frequency	Annually, implemented before October 1, 2022
Reporting Mechanism	N/A
Report Contents	N/A

BMP Title	Green Infrastructure/Low Impact Development Plan/Strategy
Description	JBER completed a GI/LID Plan in 2020. This plan includes strategies to address planning, constructing, and evaluating GI/LID for new construction projects at JBER.
Means/Methods	The GI/LID plan includes numerous post-construction BMP options and strategies that may be employed to minimize stormwater impacts following construction.
Measurable Goals	JBER will provide ADEC with the GI/LID Plan as a compliance deliverable for the MS4 permit.
Frequency	Complete, GI/LID Plan issued on September 30, 2020
Reporting Mechanism	N/A
Report Contents	N/A

7.6 Pollution Prevention / Good Housekeeping

All AF MS4s have measures in place to identify and implement methods and practices for performing municipal operations in a manner that minimizes and prevents pollution of storm water runoff. Municipal operations may include:

- Storm drain maintenance and cleaning
- Landscaping
- Road repair and infrastructure maintenance
- Winter road maintenance

Example Pollution Prevention / Good Housekeeping BMPs include:

- Cover deicing materials when not in use
- Ensure proper procedures are followed when deicing roadways
- Ensure vehicle maintenance is performed in approved locations
- Perform regular street cleaning
- Inspect storm sewer system and conduct maintenance as necessary

Installation-specific BMPs are described in the installation supplement below.

Installation Supplement – Pollution Prevention / Good Housekeeping

Pollution Prevention/Good Housekeeping (MCM 6)

BMP Title	Stormwater Pollution Prevention Inspections
BMP Description	Annually, JBER must conduct stormwater pollution prevention inspections that include the following: • Wet-weather outfall inspections (100% each year) • Snow disposal areas (100% each year) • Catch basins (50% each year)
Means/Methods	Perform visual inspections using a common checklist to ensure each feature is properly functioning for stormwater impact minimization.
Measurable Goals	JBER will provide additional stormwater pollution prevention inspections as required by the MS4 permit provision above. JBER's Industrial SWPPP contains descriptions of stormwater inspections already being implemented at JBER under the MSGP. A corrective action form is used to report issues encountered during inspections and the site operator is contacted to perform corrective actions (Appendix 10).
Frequency	Inspect each site/feature according to MSGP requirements
Reporting Mechanism	MS4 Annual Report, due February 15 for prior calendar year
Report Contents	Provide a summary of pertinent observations from the inspections and actions taken as warranted from appropriate inspections.

BMP Title	Operations and Maintenance Program

BMP Description	JBER must annually maintain and implement an operation and maintenance program intended to prevent or reduce pollutant runoff from base operations.
Means/Methods	The O&M program, administered through numerous individual programs and procedures, addresses base activities occurring with the potential for negative stormwater related water quality impacts. Individual JBER programs use various O&M activities including the following: • The use of sand and road deicers • Fleet maintenance and vehicle washing operations • Street sweeping, cleaning, and maintenance • Grounds/parks, golf course, and open space maintenance operations • Building maintenance • Solid waste transfer activities • Water treatment plant operations • Stormwater system maintenance • Snow disposal site operation and maintenance In addition, JBER's pollution prevention program and related environmental compliance programs address the following: • Materials storage • Hazardous materials storage • Used oil recycling • Spill control and prevention measures for refueling facilities • New construction and land disturbances on base • Snow removal and stockpiling practices A key component of the various JBER O&M programs is outreach to appropriate base audiences. For example, educational materials (as described in MCM 1 [Section 7.1]) will be provided to base housing residents. These materials will provide pollution prevention guidance for the resident areas, discuss the proper disposal of household chemicals, proper storage, application, and disposal of pesticides, herbicides, and fertilizers, and include procedures for vehicle maintenance and washing, and pet waste management. Additional O&M practices and pollution prevention measures include: **Preventive Maintenance (PM)** JBER's operations and maintenance schedule includes regular servicing of all OWSs on base. This work includes maintenance to ensure proper functioning of pumps, floats, and switches and, if necessary, cleaning in-line filters and sediment traps. Separator tanks, sediment trap pits, and oil collection basins are periodically vacuumed. Petro-pak filter layers are cleaned as necessary. Exterior wash racks and their sediment and collection tanks are winterized every fall. They remain out of service until spring when they are de-winterized and prepared for use.

	Storm drain catch basins (Appendix 9) are inspected/cleaned annually (at least 50%) on a PM schedule, beginning with primary roads, which have the most sanding and deicing activities. Cleaning operations clear catch basins of accumulated sediment and debris. Inspections/cleanings will be recorded and summarized in the MS4 Annual Report. **Deicing** Regular aircraft and runway deicing during winter months on Bryant and JBER airfields are critical in support of the installation's overall mission. However, JBER is reducing its deicing footprint over time by using more environmentally friendly products and replacing older equipment with newer, more efficient application components. Deicing inspections, beginning in October and ending in April, are conducted monthly throughout the JBER airfield. Deicing inspection forms are included in Appendix 8. Stormwater runoff from the majority of Sector S (Air Transportation) facilities at JBER-E, as well as from the JBER-E Airfield, flow to JBER-E Outfall 1. Prior to reaching this outfall and subsequently discharging to Cook Inlet, runoff must first travel a significant distance through culverts and vegetated ditches until being discharged to a large, grassy swale on Cherry Hill, above the outfall. From there, water is hard-piped to the outfall. In the event that a large spill of any kind occurred upstream of this point, including on the flight line, a gate valve can prevent flow to the outfall. The valve traps flow in the swale, where spill response actions could mitigate potential contaminants. **Residential Facilities** Newly assigned residents in base housing receive a briefing when they sign their lease that includes information on many pollution prevention and good housekeeping practices. Residents are directed to clean up pet waste daily. Guidance for vehicle maintenance and washing activities is provided. Residents are expected to dispose of all hazardous materials and waste properly. The privatized military housing contractor's Tenant Handbook gives housing residents general guidance on environmental topics and instructs residents to report all spills and to keep parking spaces free of POL residue. Following these practices is mandatory for continued residency on base. **Additional Measures** Civilian and military employees at JBER must adhere to the installation specific Hazardous Waste Management Plan (HWMP). The installation's waste turn-in contractor conducts weekly and quarterly inspections as required by the HWMP, to ensure compliance with regulations for hazardous materials and waste handling, storage, and disposal. A complete description of BMPs for these facilities can be found in the industrial SWPPP.
Measurable Goals	Reduce repeated stormwater related incidents and/or impacts, improving stormwater quality.
Frequency	Ongoing
Reporting Mechanism	MS4 Annual Report, due February15th for each prior calendar year

Report Contents	Summary of the pertinent O&M program activities

BMP Title	Street Cleaning Operations and Review
BMP Description	JBER will perform regular street cleaning to remove sediment and other trash that may wash to local surface water.
Means/Methods	Springtime street cleaning/sweeping is typically performed via automated methods. Coverage areas for this cleaning shall be determined and reviewed annually.
Measurable Goals	Increase the effectiveness and coverage of the street cleaning program at JBER.
Frequency	Annually or as needed
Reporting Mechanism	MS4 Annual Report, due February 15 for each prior calendar year
Report Contents	Summary of street cleaning metrics and reviews of cleaned areas.

BMP Title	Additional JBER Measures, Good Operations and Housekeeping
BMP Description	Additional JBER BMPs are those surrounding the proper operations and good housekeeping associated with JBER facilities and activities.
Means/Methods	The following is a summary of stormwater pollution prevention BMP categories that are currently implemented at industrial facilities at JBER: • Good housekeeping, including periodic waste removal and inspections of grounds and waste storage areas and containers. • Eliminating and minimizing exposure • Proper loading/unloading practices • Preventive maintenance • Spill prevention and response procedures • Proper storage and disposal of contaminated materials • Fuel training, including fuel transfer procedures • Proper washing practices • Employee training • Record keeping of inspections, training, and waste removals • Proper covering and berming around salt storage piles or piles containing salt • Proper snow stockpiling at edges of facility parking lots, away from storm sewer inlets or catch basins. • Maintenance of structural BMPs, including storm drains **Stormwater Pollution Prevention Inspections** 673 CES/CEIEC staff and/or stormwater contractors conduct formal, quarterly inspections, as required by the MSGP. One quarter's inspection typically coincides with annual stormwater training for

	facility coordinators. Another quarter's inspection serves as the annual CSCE. The CSCE includes inspections of each facility and associated grounds covered by the MSGP, portions of the installation-wide stormwater management system and outfalls and evaluates the overall effectiveness of JBER's industrial SWPPP. The following areas are emphasized during routine stormwater inspections where hazardous materials and/or industrial activities are potentially exposed to stormwater: • Vehicle/equipment parking and outdoor storage areas • All locations for the use and storage of hazardous material/hazardous waste • Areas where maintenance occurs • Fueling areas • Bulk fuel and deicing storage areas • Vehicle, aircraft, and equipment wash areas • Loading/unloading areas • Facility perimeter and stormwater drainage features The 673 CES/CEIEC and/or stormwater contractors conduct wet-weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-stormwater discharges to the storm sewer system. If illicit discharges are discovered, they are immediately addressed (see MCM 3 in Section 7.3).
Measurable Goals	Reduce stormwater related incidents and impacts
Frequency	Ongoing
Reporting Mechanism	N/A
Report Contents	N/A

8.0 REFERENCES

Standard References

(Applicable to all AF Installations)

- Federal Water Pollution Control Act (Clean Water Act)
- AFI 32-1067, *Water and Fuel Systems*
- AFI 32-7001, *Environmental Management*
- AFI 90-201, *Air force Inspections System*
- ETL 14-1, *Construction and Operation and Maintenance Guidance for Storm Water Systems*
- Water Quality Program Management Playbook
- eDASH AFLOA Water Quality Legal and Other Requirements
- eDASH Water Quality Program Page
- eDASH Training Matrix
- ADLS

Installation References

- ADEC. 2017. Title 18 AAC Chapter 83, Alaska Pollution Discharge Elimination System. https://dec.alaska.gov/media/1052/18-aac-83.pdf
- ADEC. 2019. Municipal Separate Storm Sewer System (MS4) Permit AKS053651. 22 August. http://dec.alaska.gov/water-permit-search/aks053651-Portfolio1.pdf
- JBER. 2020a. Hazardous Waste Management Plan.
- JBER. 2020b. Industrial Stormwater Pollution Prevention Plan (SWPPP). July.
- JBER. 2017. 673 ABW OPlan 32-1002, Snow and Ice Control Plan. November.
- JBER. 2016. Spill Prevention, Control, and Countermeasure Plan/Oil Discharge Prevention and Contingency Plan (SPCC/C-Plan). October. https://dec.alaska.gov/Applications/SPAR/PublicMVC/IPP/DownloadCPlanDocument/3575
- State of Alaska. 2015. Alaska Statute (AS) 46.04.900, Water, Air, Energy, and Environmental Conservation: Definitions.
- USAF. 2020a. Air Force Manual 32-7002: Environmental Compliance and Pollution Prevention. 4 February.

9.0 ACRONYMS

Standard Acronyms

(Applicable to all AF Installations)

- eDASH Acronym Library
- Water Quality Playbook Acronym Section
- U.S. EPA Terms and Acronyms

Installation Acronyms

673 CES/CEIEC	673d Civil Engineer Squadron/Installation Environmental Compliance Element
AAC	Alaska Administrative Code
AAFES	Army and Air Force Exchange Service
ABW/CC	Air Base Wing/Commander
ACGP	Alaska Construction General Permit
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AK ANG	Alaska Air National Guard
AK ARNG	Alaska Army National Guard
APDES	Alaska Pollution Discharge Elimination System
BMP	Best Management Practice
CESCL	Certified Erosion and Sediment Control Lead
CFR	Code of Federal Regulations
CSCE	Comprehensive Site Compliance Evaluation
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
ETL	Engineering Technical Letter
GI	Green Infrastructure
HWMP	Hazardous Waste Management Plan
IDDEP	Illicit Discharge Detection and Elimination Plan
JBER	Joint Base Elmendorf-Richardson
JBER-E	JBER-Elmendorf
JBER-R	JBER-Richardson
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
MILCON	Military Construction
MPP	Monitoring Program Plan
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit

NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollution Discharge Elimination System
OWS	Oil/Water Separator
PCAM	Post-Construction Activity Monitoring
POA	Port of Anchorage
POL	Petroleum, Oil and Lubricants
PWE	Public Works Environmental
QAPP	Quality Assurance Project Plan
SPCC	Spill Prevention, Control and Countermeasure Plan
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
UA	Urbanized Area
USACE	U.S. Army Corps of Engineers
WQS	Water Quality Standards

10.0 DEFINITIONS

Standard Definitions

(Applicable to all AF Installations)

- Water Quality Playbook Definition Section

Installation Definitions

- *See Appendix C of the MS4 permit (Appendix 7)*

11.0 INSTALLATION – SPECIFIC CONTENT

Former Elmendorf Air Force Base (EAFB) and former Fort Richardson were initially granted separate stormwater discharge permit coverage under EPA's original MSGP in 1996. Both installations operated under subsequent MSGPs until October 2012, when JBER submitted a single Notice of Intent (NOI) for MSGP coverage for the joint base. To complement the NOI JBER developed and implemented a single, installation-wide SWPPP for industrial stormwater compliance, with one exception. The exception to installation-wide coverage of the JBER SWPPP is Bryant Airfield at JBER-Richardson (JBER-R). The Alaska Army National Guard (AK ARNG) maintains a separate MSGP and associated SWPPP for their operations at Bryant Airfield. All other industrial operations at JBER are covered by JBER's MSGP and SWPPP. JBER is currently covered by the most recent MSGP (Permit No. AKR060000), which went into effect on April 1, 2020. JBER submitted an NOI for MSGP coverage to ADEC in July 2020, updating the installation-wide industrial SWPPP at the same time to follow-on with the new MSGP. ADEC approved the NOI and granted coverage under the new MSGP in November 2020 via Permit No. AKR06AC85.

Discharges Associated with Construction Activity

Construction activities at JBER must comply with APDES construction stormwater permitting requirements. Construction activities are regulated under the ACGP, Permit No. AKR100000). Individual construction projects must submit a Notice-of-Intent (NOI) for coverage under this permit; once

construction is complete, the permittee must then submit a Notice of Termination (NOT) to cease permit coverage.

For construction activities occurring within the boundaries of JBER's MS4, the installation is required to meet construction and post-construction requirements for erosion and sediment control BMPs. Projects smaller than the minimum area threshold for ACGP coverage (i.e., less than 1 acre of disturbed land) must still address stormwater concerns. To address these concerns and facilitate compliance, JBER has developed and implemented a Command Policy letter specifically addressing stormwater management on the installation. A copy of the finalized Command Policy letter is provided as Appendix 3.

Stormwater management requirements, recommendations, and suggestions for construction activities at JBER are included in Sections 7.4, Construction Site Runoff Control and 7.5, Post-Construction Runoff Control of this SWMP.

11.1 Permit Coverage Area

The location of the JBER MS4 is described in this section. Also provided is a discussion of the surface drainage networks of JBER-E and JBER-R.

11.1.1 JBER MS4 Location

JBER is in south central Alaska and consists of approximately 73,014 acres, including ranges (see Figure 1). JBER is bound to the southwest by the Municipality of Anchorage and to the northwest by Cook Inlet. The southern and eastern boundaries traverse undeveloped land, much of which is in Chugach State Park. The community of Eagle River is located along the northeastern border. The requirement to obtain a NPDES/ APDES MS4 permit applies to owners and operators of certain MS4s within urbanized areas, as defined by the U.S. Census Bureau. Only a portion of JBER is included within the Anchorage UA (see Figure 2). With the exception of the JBER-E Airfield and associated facilities/areas, these UA portions consist mainly of the developed areas of JBER. The topography of these areas is generally flat. All facilities and areas of the installation required to comply with provisions of the MS4 permit and this document are in portions of JBER that are in the UA.

Figure 2 illustrates portions of the urbanized areas within the installation, applicable drainage areas, outfall locations, waters that receive discharges from outfalls, industrial facilities, and privatized utility contractor facilities.

Figure 1. Location Map

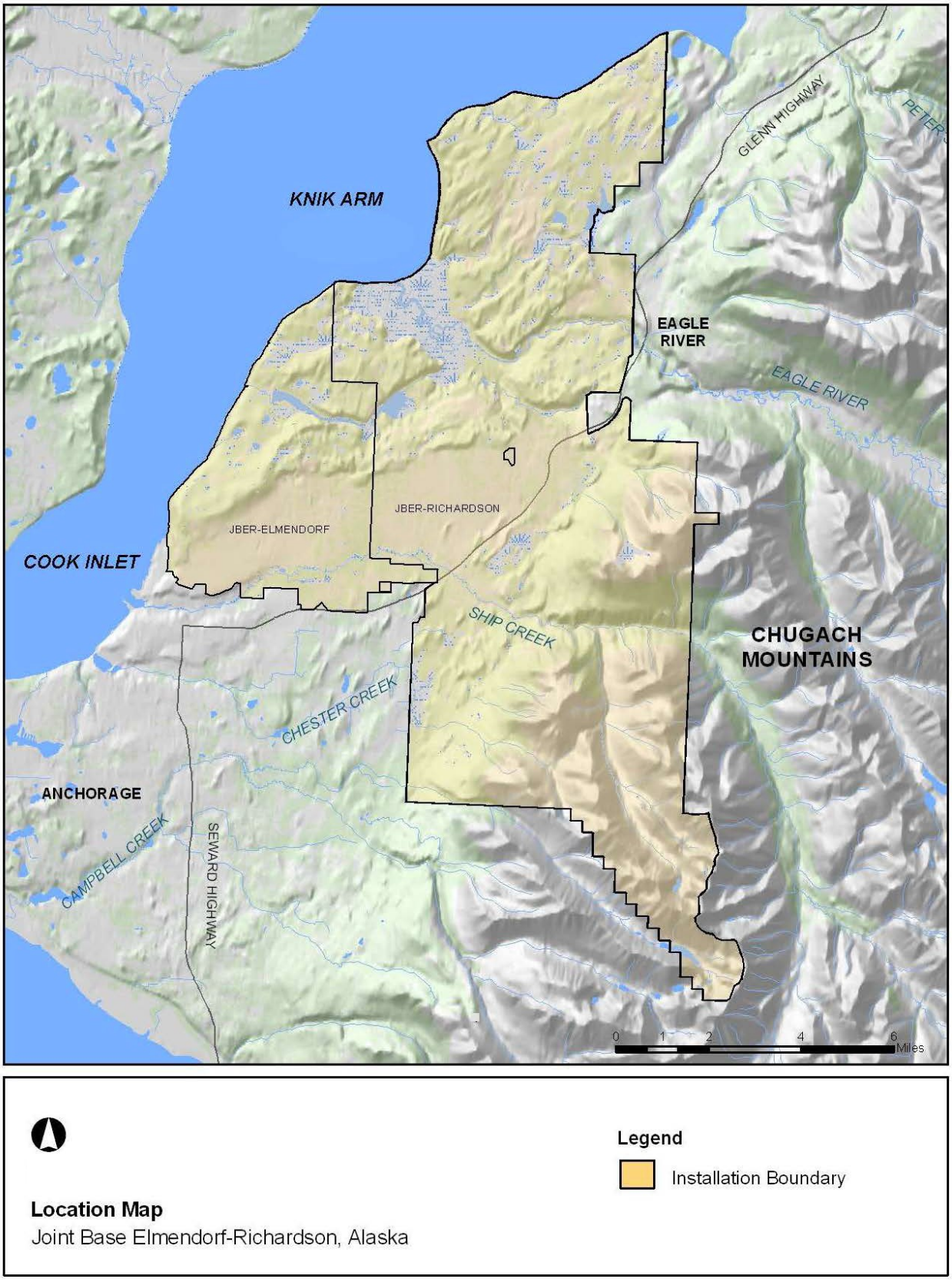
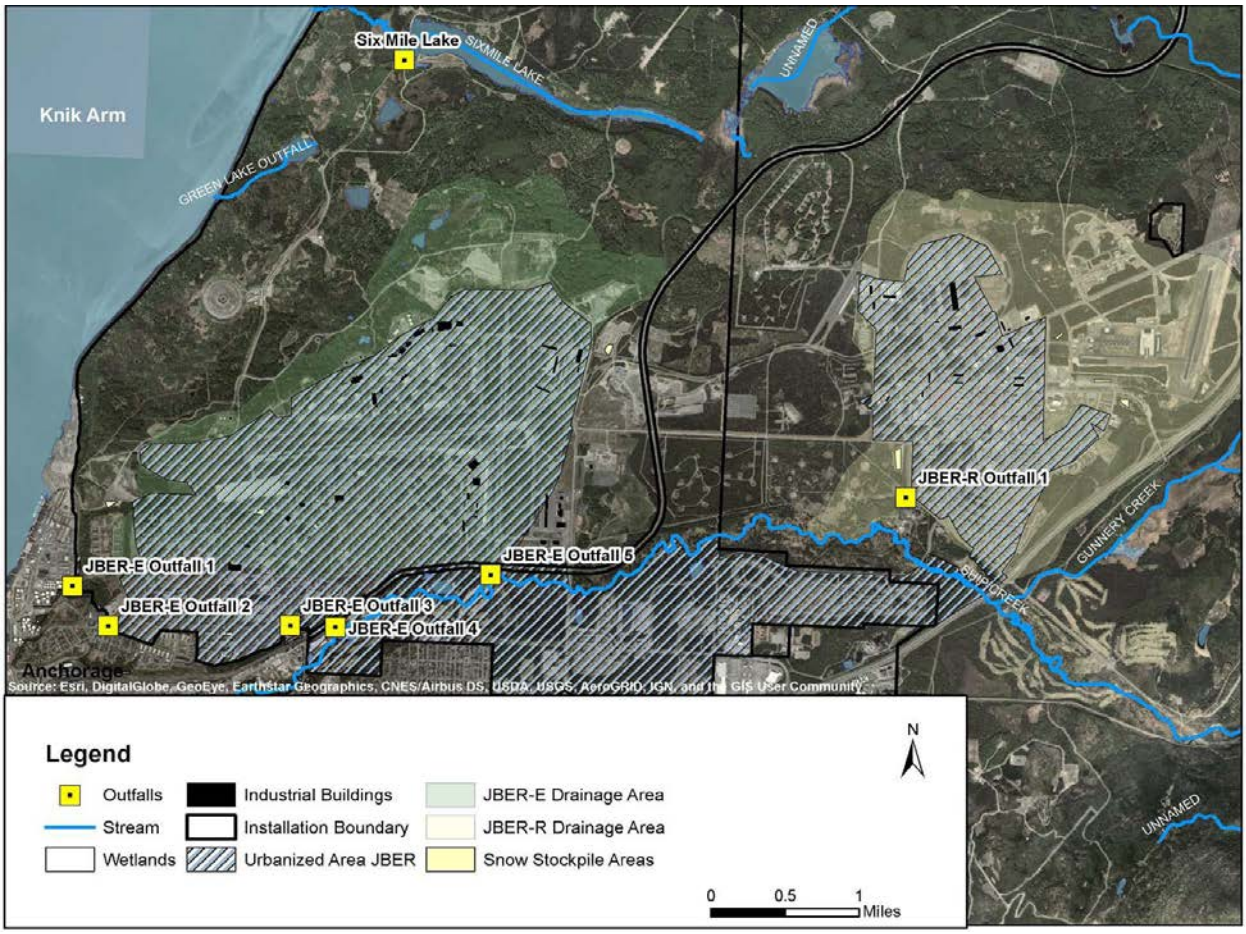


Figure 2. JBER Outfalls and Drainage Areas



11.1.2 JBER-E Drainage Network

The general drainage area of developed portions of JBER-E and its interior drainage system is presented in Appendix 1. Figure 2 depicts approximate drainage area boundaries and associated outfalls described below. In addition to discharging to the outfalls described in this section, stormwater runoff from JBER-E drainage areas may enter Ship Creek and Cook Inlet as sheet flow, infiltrate into the ground, and/or evaporate. Seventeen drainage areas have been identified on JBER-E. For purposes of this SWMP, only drainage areas that discharge to a specific outfall are discussed in this section.

Drainage Area 1 receives runoff from the majority of developed areas of the installation, including the JBER-E Airfield, which encompasses approximately 3,586 acres. Stormwater in this drainage area enters the subsurface storm sewer system via catch basins located throughout the drainage area, eventually emptying into the "Cherry Hill Ditch." This ditch discharges to a weir designed to trap sediment on Port of Anchorage (POA) property. Water from this drainage area collected at the weir is considered JBER-E Outfall 1.

Drainage Area 2 encompasses approximately 378 acres of the installation. Stormwater in this area enters the subsurface storm sewer system via catch basins. This water connects to the municipality's storm sewer system west of the Government Hill Gate. The system then continues westward and eventually discharges approximately 300 feet south of the Cherry Hill Ditch. This water eventually flows into the same weir as

Drainage Area 1, with stormwater subsequently discharging to Cook Inlet. Water from this drainage area collected at the maintenance hole west of the Government Hill Gate is considered JBER-E Outfall 2.

Drainage Area 3 encompasses approximately 96 acres of the installation. Stormwater in the area is channeled into culverts and discharges through two culverts south to an engineered wetland outside the installation area, designed to remediate contaminated groundwater. This is considered JBER-E Outfall 3.

Drainage Area 4 encompasses approximately 97 acres of the installation, and is located north of the railroad right-of-way, east of Kenny Avenue and northwest of Pease Avenue. The northern boundary is Arctic Warrior Drive. Stormwater in this drainage area is channeled through culverts, eventually draining into Ship Creek at JBER-E Outfall 4.

Drainage Area 5 is situated north of the railroad, between Vandenburg Avenue to the east, and Talley Avenue to the west. The approximate area is 154 acres. Stormwater from this area is piped underneath the railroad tracks to the south, eventually draining into Ship Creek at JBER-E Outfall 5.

11.1.3 JBER-R Drainage Network

General drainage on the developed portion of JBER-R and its interior drainage system is depicted in Appendix 2. The natural flow direction is from northeast to southwest, but imposition of the JBER-R complex and interior drainage network has altered this flow pattern by channeling natural and urban runoff to a single Ship Creek point discharge at JBER- R Outfall 1. Figure 2 shows the approximate drainage area boundary and location of JBER-R Outfall 1, to which this area discharges stormwater. The developed area lies generally north of Ship Creek and south of a lateral moraine drainage divide. In this area, virtually all surface-drainage from the developed area enters the storm sewer system. Runoff from the northeast, Camp Carroll, the railroad complex, and the area southwest of the immediate developed portion either infiltrates or enters open, grass-lined ditches that channel water into low-lying open areas and settling basins where it eventually infiltrates into the ground. This natural divide, coupled with the interception into open ditches, serves as an effective BMP that precludes waters from these areas from entering the cantonment area or eventually Ship Creek or contiguous drainage basins. Other minor sheet flow from natural areas may enter the developed portion interior drainage network.

The total surface water runoff at Bryant Airfield, in the northeastern portion of the developed area, is composed of runoff from the active runway (17-35) and runoff from the taxiways/hangars. Surface water runoff from the active runway flows to either side of the runway and then infiltrates into the ground. No runoff from the runway enters the JBER storm sewer system. Surface water from the taxiways and hangar is collected in a network of open ditches that drain south. These ditches are connected to the storm sewer system and storm drainage network through a series of open ditches and swales. During most of the year, runoff from the taxiway and hangar area percolates into the soil of the swales. However, during extreme, rapid break-up, a discharge has been observed entering the drainage network that discharges to Ship Creek.

Appendix 2 shows the general direction of flow within the interior stormwater drainage system and its ultimate discharge point into Ship Creek. Three separate drainage areas eventually daylight at open drainage ditches in the southeast section of the developed area. At this point, runoff is discharged to an unlined open ditch that leads to an infiltration basin before reaching Ship Creek.

The drainage area boundary of the developed portion of JBER-R is breached by two Alaska Department of Transportation (ADOT) off-site sources of surface water that ultimately reach Ship Creek by way of the interior drainage system. Both run-on points originate from the Glenn Highway lateral drainage ditch and enter JBER-R in the area of the main JBER-R gate and through a 24-inch culvert at Arctic Valley Road. Both are known to cause minor flooding and pooling during spring breakup. In the absence of the JBER-R

storm sewer system, surface runoff from both of these drainage breaches would have entered Ship Creek eventually, but by virtue of routing this drainage onto the JBER-R complex, the impact of the breaches on Ship Creek is ameliorated by JBER's stormwater pollution prevention program. See Section 7.6 for more information associated with flood control measures.

11.1.4 JBER Industrial Facilities

JBER has numerous facilities/buildings where industrial type activities are performed. These facilities are typically in the UA and have stormwater drainage to the MS4. A listing of the facilities that receive a quarterly building inspection is provided in Table 2. The industrial sector for these facilities is also listed, based on their classification from the MSGP. The majority of industrial facilities operating at JBER are Sector S facilities that support airfield operations, largely associated with the JBER-Elmendorf (JBER-E) Airfield. Additional Sector S facilities support AK ARNG operations at Bryant Airfield, on the JBER-R side of the installation. Other industrial facilities include Sector P facilities where vehicle maintenance and other motor pool activities occur, Sector K facilities that support the installation's hazardous waste program operations, and Sector N facilities where recycling activities occur. Per JBERs 2020 SWPPP, Sector J facilities where fill/gravel materials are extracted and stored, and Sector D facilities that process asphalt for paving projects at JBER have no exposure to stormwater. Therefore, quarterly inspections are not required for Sector J or D activities, nor are they listed in Table 2.

Table 2. Industrial Facilities at JBER

Facility No.	Description	Sector
JBER-Elmendorf Facilities		
4314	Hazardous Waste Storage	K
6136	Vehicle Ops (773 LRS)	S
6211A	Vehicle/Equipment Maintenance/Wash Facility	S
6211B	Vehicle Wash Facility	S
6211C	Vehicle Maintenance AK ANG	S
7201	Fueling Facility	S
7228	Fueler Maintenance Facility (673 LRS/LGRF)	S
8288	Heavy Equipment Shop (D29/673 LRS)	S
8317/8319	Outdoor Vehicle/Equipment Storage	S
8326	AGE Storage Facility	S
8549/8574	Vehicle/Equipment Maintenance Facility (Jet Engine Shop)	S
8681	Maintenance Hangar (Hangar 19 Fighter Fuel Cell)	S
8691	Equipment Maintenance Facility (F-22 Engine Shop)	S
9311	Maintenance Hangar (Hangar 6 ARMY)	S
9361	Vehicle/Equipment Maintenance (Snow Barn)	S
9561	Engine Test Facility (Hush House)	S
9563	Engine Test Facility (Hush House)	S

Facility No.	Description	Sector
9569	Engine Storage/Cleaning (SPAR Barn)	S
9684	Maintenance Hangar (Hangar 24 Weather Shelter)	S
9694	Maintenance Hangar (Hangar 25 AMU)	S
9696	Maintenance Hangar (Hangar 22 LO Maintenance Facility)	S
10286	Maintenance Hangar (Hangar 7 AERO Club)	S
10550	Salt/Sand Storage Facility	S
10571	Maintenance Hangar (Hangar 3 C-12/Red Flag AWACS)	S
10682	Maintenance Hangar (Hangar 26 Weather Shelter)	S
10694	Equipment Storage Facility (AGE Facility)	S
11525	Maintenance Hangar (Hangar 2 3rd EMS)	S
11567	Farm 3 Jet Fuel and Military Service Station (MSS)	S
11583	Fuel Farm (Farm 3 JP-5)	S
11673	Equipment Maintenance Facility (Fueler truck storage and staging)	S
11735	Hazardous Waste Transfer Facility	K
13196	Fuel Pump House	S
14313	Deicer Storage and Transfer Facility	S
14408	AGE Storage Facility	S
14410	Maintenance Hangar (Hangar 8)	S
14415A	Equipment Maintenance Facility – Large AGE Storage	S
14415B	AK ANG Large AGE Storage	S
14416	Vehicle Fueling Facility	S
15365	North Ramp Pump House	S
15380	Air Freight Terminal	S
15455	Maintenance Hangar (Hangar 10 210-RQS)	S
15510	Joint Mobility Complex (773 LRS)	S
15658	Maintenance Hangar (Hangar 16 Combat Alert Cell)	S
15699/15710	Fuel Farm 5 FP-4/90th Military Service Station	S
16385/16387/ 16389	Pump House 3	S
16430	Maintenance Hangar (Hangar 11/210 RQS)	S
16456	Maintenance Hangar (Hangar 12 ANG Corrosion Control)	S
16468	Maintenance Hangar (ANG Maintenance Complex)	S
16521	Maintenance Hangar (Hangar 14 Mobility Maintenance)	S

Facility No.	Description	Sector
16670	Maintenance Hangar (Hangar 17 Weather Shelter)	S
16710	F-22 AGE (AGE Storage)	S
16716	Maintenance Hangar (Hangar 15 90th Fighter Squadron)	S
17470	Maintenance Hangar (Hangar 18 176th ANG)	S
17494	C-17 Engine Shop	S
17508	Maintenance Hangar (Hangar 21 C-17 Maintenance)	S
17534	Hangar 20 Aircraft and Tank Maintenance	S
17660	Maintenance Hangar (Hangar 23 Weather Shelter)	S
18471	Pump House Office	S
29453	Airfield Fueling Point (Six Mile Lake)	S
55295	Ammo Supply Point	N
76195/96/97	Fuel Farm	S
76211	Fuel Fill Stand	S
JBER-E Airfield	Airstrip, Taxiways, and Tarmacs	S
JBER-Richardson Facilities		
704	Vehicle/Equipment Maintenance	P
732A	Vehicle/Equipment Maintenance	P
732B	Vehicle Storage Yard	P
740	Vehicle Maintenance	P
750	Vehicle/Equipment Maintenance	P
754	Public Use Car Wash	P
755	Public Use Auto Repair Shop	P
756	Vehicle Maintenance	P
778A	Vehicle/Equipment Maintenance	P
778B	Vehicle/Equipment Maintenance	P
784	Vehicle Maintenance	P
796	Tactical Vehicle Shop	P
798	Vehicle/Equipment Maintenance	P
806	Vehicle Maintenance	P
812	ESSM Navy Base and Maintenance Shop	P
940	Army, Facility, Refueler Storage/Maintenance	P
952	Recycling Center	N

Facility No.	Description	Sector
955/956	Environmental Storage Facility/Liquid IDW Treatment System	K
974	SPERS Maintenance Shop	P
975A	Vehicle/Equipment Maintenance	P
975B	Vehicle/Equipment Maintenance	P
976	Vehicle/Equipment Maintenance	P
982	Vehicle/Equipment Maintenance	P
988	Fueling Facility	S
45715	Vehicle/Equipment Maintenance	P
45726	Vehicle Maintenance	P
45727	Vehicle Maintenance	P
47427	Hangar 6 (AK ARNG)	S
47428	Ground Support (AK ARNG)	S
47430	Hangar 1 (AK ARNG)	S
47431	Hangar 4 (AK ARNG)	S
47438	Bryant Airfield Fuel Facility (AK ARNG)	S

Note: AK ARNG facilities are managed under the AK ARNG's MSGP.

11.1.5 Discharges Authorized Under the JBER MS4 Permit

During the effective term of the current JBER MS4 permit (October 1, 2019 to September 30, 2024), JBER is authorized to discharge stormwater to waters of the United States from all portions of the MS4 owned and operated by JBER, subject to the conditions set forth in the MS4 permit. Stormwater discharges commingled with flows contributed by processed wastewater, non-processed wastewater, and industrial stormwater discharges are also authorized, provided that the stormwater in these flows only commingles with allowable non-stormwater discharges, as identified in SWMP Section 11.3.

11.2 Limitations of Permit Coverage

11.2.1 Non-Stormwater Discharges

Section 1.4 of the permit prohibits the discharge of non-stormwater to the JBER MS4 and subsequent waters of the United States.

11.2.2 Discharges Threatening Water Quality

JBER is not authorized to discharge stormwater that ADEC determines will cause or have the reasonable potential to cause or contribute to violations of water quality standards (WQS) in the receiving water. Alaska WQSs, set forth in the Title 18 of the Alaska Administrative Code, Chapter 70 (18 AAC 70), state that a person may not conduct an operation that causes or contributes to violation of the State's WQS. Thus, JBER stormwater discharges reaching state waterbodies must not result in the exceedance of WQS established for those waterbodies. The State of Alaska's Anti-Degradation Policy states that existing water uses, and water quality to support those uses, must be maintained and protected. This is a statewide policy

that applies to Ship Creek and Cook Inlet. Waterbodies listed under Section 303(d) of the CWA, such as Ship Creek, are deemed impaired and may be subject to additional requirements.

Classification of Ship Creek and Cook Inlet water uses, numeric limits for those uses, and site-specific criteria are found in 18 AAC 70.020 and in the Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances.

11.2.2.1 Discharges to Cook Inlet

The following subsections explain the requirements for discharges from the JBER MS4 to Cook Inlet, where JBER-E Outfalls 1 and 2 ultimately discharge to Cook Inlet.

Basic Water Quality Criteria for Cook Inlet

The State of Alaska has jurisdiction of marine waters within 3 miles of the coastline. The basic criteria for which numeric and qualitative requirements exist for State of Alaska waters in the Cook Inlet (as a marine waterbody) are listed below. Discharges to Cook Inlet from the JBER MS4 must not violate standards for the following parameters as defined by 18 AAC 70:

- Color, for marine water uses
- Fecal coliform bacteria, for marine water uses
- Dissolved gas, for marine water uses
- Dissolved inorganic substances, for marine water uses
- Petroleum hydrocarbons, oil, and grease, for marine water uses
- pH, for marine water uses (variation of pH for water naturally outside the specified range must be toward the range)
- Radioactivity, for marine water uses
- Residues, for marine water uses: floating solids, debris, sludge, deposits, foam, scum, or other residues
- Sediment, for marine water uses
- Temperature, for marine water uses
- Toxic and other deleterious organic and inorganic substances, for marine water uses
- Turbidity, for marine water uses

Site-Specific Criteria

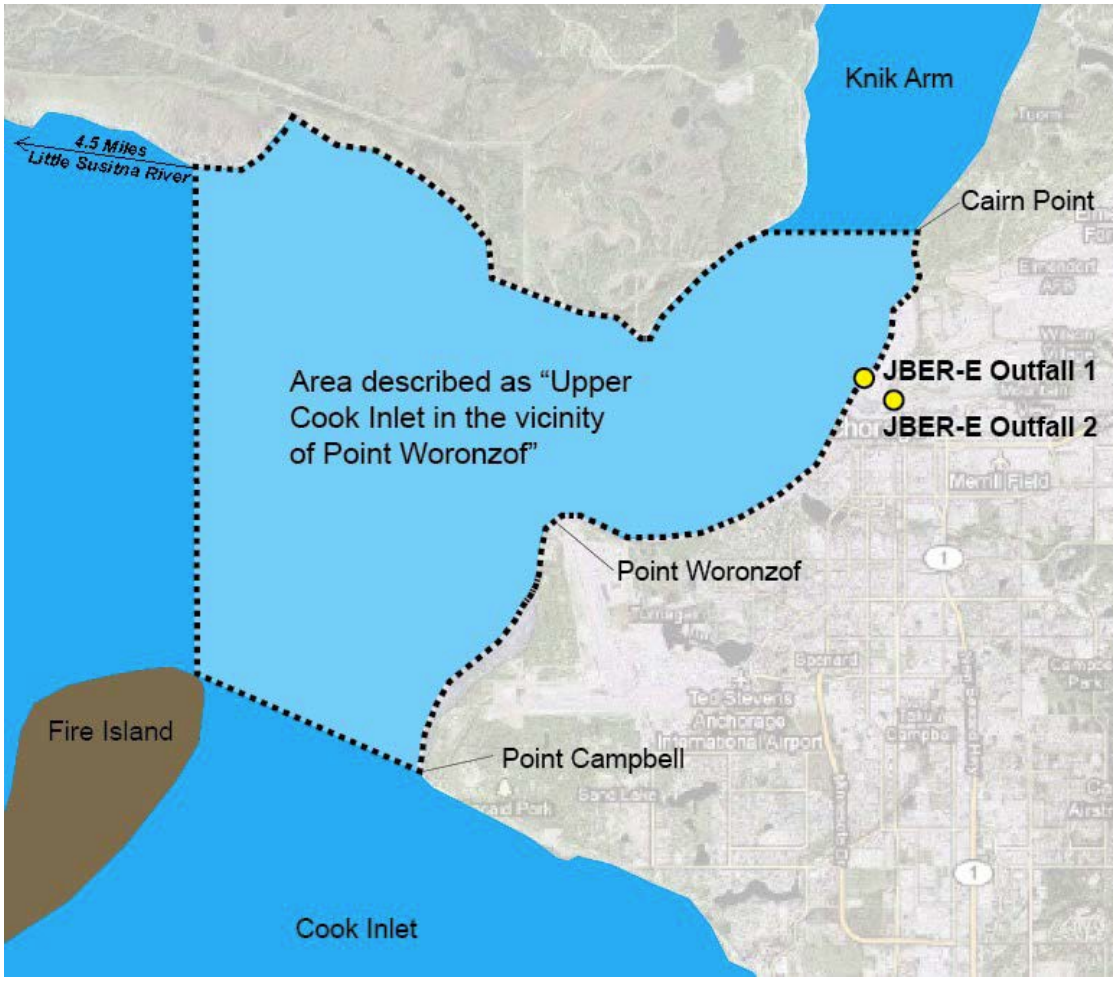
In addition to the above criteria applicable to Alaska marine waters, numeric site-specific criteria have been established for the following area of Cook Inlet into which JBER-E Outfalls 1 and 2 ultimately discharge to:

> Upper Cook Inlet in the vicinity of Point Woronzof, an area bounded by the constriction of Knik Arm at Cairn Point to the northeast, by the southern shoreline of Cook Inlet southwest to Point Campbell, by a line from Point Campbell to the northeast end of Fire Island, by a line due north from the northeast end of Fire Island to the northern shoreline of Cook Inlet at a point east of the mouth of the Little Susitna River, by the northern

shoreline of upper Cook Inlet north and east to a point directly west of Cairn Point; and from that point by a line due east to Cairn Point.

Figure 3 displays the area of the Upper Cook Inlet in the vicinity of Point Woronzof.

Figure 3. Upper Cook Inlet Area Subject to Site-Specific Water Quality Criteria



The Cook Inlet site-specific criteria are numeric limits for 11 parameters. This information is provided in Table 3.

Table 3. Numeric limits for the Upper Cook Inlet in the Vicinity of Point Woronzof

Water Quality Parameter	Site-Specific Criteria
Arsenic	36 µg/L (chronic) 69 µg/L (acute) measured as dissolved metal
Cadmium	9.3 µg/L (chronic) 42 µg/L (acute) measured as dissolved metal
Chromium VI	50 µg/L (chronic) 1,100 µg/L (acute) measured as dissolved metal
Copper	3.1 µg/L (chronic) 4.8 µg/L (acute) measured as dissolved metal
Lead	8.1 µg/L (chronic) 210 µg/L (acute) measured as dissolved metal
Mercury	0.025 µg/L (chronic) 1.8 µg/L (acute) measured as dissolved metal
Nickel	8.2 µg/L (chronic) 74 µg/L (acute) measured as dissolved metal
Selenium	71 µg/L (chronic) 290 µg/L (acute) measured as dissolved metal
Silver	1.9 µg/L (acute) measured as dissolved metal
Zinc	81 µg/L (chronic) 90 µg/L (acute) measured as dissolved metal
Turbidity	May not exceed the natural condition

11.2.3 Snow Disposal to Receiving Waters

JBER has selected snow storage and disposal sites in permeable, upland areas where direct drainage to surface waters or storm drains is not possible and where the groundwater table is low. BMPs at snow disposal sites include detention basins, dikes, berms, and vegetative buffers. These BMPs are implemented and maintained as needed.

JBER is not authorized to dispose of snow directly to waters of the United States or directly to the MS4. Discharges from JBER's snow disposal and management practices are authorized under the MS4 permit when such practices are operated using appropriate BMPs required in Part 3.6.2 of the permit. Such BMPs may include detention basins, dikes, berms, ditches, and vegetative buffers. BMPs are designed, operated,

and maintained to prevent and reduce pollutants in the discharge to the Maximum Extent Practical (MEP) to avoid exceedances above the water quality standards in the receiving water.

The management of snow stockpiles at JBER is discussed in Section 7.5 of this SWMP. Snow stockpile locations are presented on the Inspection Form provided in Appendix 8. JBER maintains OPlan 32-1002, Snow and Ice Control Plan, to provide overall guidance and requirements for the snow removal and stockpiling operations at the installation.

11.2.4 Discharges to Water Quality-Impaired Receiving Waters

For the purposes of JBER's current MS4 permit, Ship Creek is the only CWA §303(d) listed waterbody as cited in ADEC's most recent Integrated Water Quality Monitoring Report. "Pollutant(s) of concern" refers to the pollutant(s) identified as causing or contributing to the water quality impairment. Based on the most recent Integrated Report at the time this SWMP was prepared, the pollutant of concern for Ship Creek is fecal coliform bacteria.

This SWMP must include a description of how activities associated with each MCM in Section 7 are implemented to control the discharge of the pollutant of concern and ensure that discharges from the MS4 will not cause, or contribute to, an exceedance of applicable WQS. In this discussion, JBER must specifically identify how it will measure and gauge the effectiveness of the SWMP to control the discharge of the pollutant of concern. For BMPs that take multiple years to develop and implement, JBER must provide interim progress updates to ADEC. Consistent with Part 2.1 of the MS4 permit, JBER must update and submit this description of SWMP implementation to ADEC as part of the Annual Report and update its description annually in subsequent Annual Reports. In addition, JBER must implement a stormwater discharge monitoring program as required in Part 4.0 of the MS4 permit.

The following sections explain the requirements for discharges from the JBER MS4 to Ship Creek.

11.2.4.1 Basic Water Quality Criteria for Ship Creek

The basic criteria for which numeric and qualitative requirements exist for Ship Creek (as a fresh waterbody) are listed below. Discharges to Ship Creek from the JBER MS4 must not violate standards for the following parameters as defined by AAC:

- Color, for fresh water uses
- Fecal coliform bacteria, for fresh water uses
- Dissolved gas, for fresh water uses
- Dissolved inorganic substances, for fresh water uses
- Petroleum hydrocarbons, oil, and grease, for fresh water uses
- pH, for fresh water uses (variation of pH for water naturally outside the specified range must be toward the range)
- Radioactivity, for fresh water uses
- Residues, for fresh water uses: floating solids, debris, sludge, deposits, foam, scum, or other residues
- Sediment, for fresh water uses
- Temperature, for fresh water uses
- Toxic and other deleterious organic and inorganic substances, for fresh water uses

- Turbidity, for fresh water uses

11.2.4.2 Ship Creek Impaired Status

In addition to meeting State of Alaska WQS, discharges to Ship Creek are subject to additional constraints because it is listed on the State of Alaska's 1992 CWA section 303(d) list of impaired waterways for increased levels of fecal coliform bacteria. As of July 2020, Ship Creek was still on the list but had an established total maximum daily load (TMDL). A TMDL is the amount or loading capacity of a specific pollutant that a waterbody can receive and still comply with applicable WQS. This means that Ship Creek is a Category 4a waterbody with respect to fecal coliform bacteria impairment, and measures must be taken to avoid contributing fecal coliform bacteria to the creek.

Both domestic and wild animals at JBER are potential sources of fecal coliform pollution into Ship Creek. JBER implements multiple BMPs to reduce the potential for fecal coliform pollution to Ship Creek in, and from, the JBER MS4. Such BMPs have included required use of the sanitary sewer over septic systems in the UA for all new construction, surveys to detect illicit sewer system connections, leash rules for pets, required daily cleaning of pet waste, and street sweeping of road grit in early spring. BMPs that further address this concern are detailed in Section 7 of this.

APPENDICES

Incorporate installation-specific content. Appendices should include required content only. Procedures not included in Section 7 will be documented here.

Appendix 1 – Stormwater Routing Map: JBER-Elmendorf

KNIK ARM

DRAINAGE AREA 1

JBER-E OUTFALL 1 (discharge to POA/MOA MS4)

JBER-R OUTFALL 1

JBER-E OUTFALL 5

DRAINAGE AREA 4

SHIP CREEK

DRAINAGE AREA 4

DRAINAGE AREA 2

DRAINAGE AREA 3

JBER-E OUTFALL 4

JBER-E OUTFALL 3

JBER-E OUTFALL 2

GLENN HIGHWAY

Legend

- Installation Boundary
- Discharge Point
- Inlet
- Manhole
- Culvert
- Conduit
- Open Drainage
- Drainage Area
- Creeks
- Railroad Right-of-Way
- Drainage Basin

NOTES:

1. Map data provided by JBER GeoBase team, May 2020.

N W E S

0 1,000 2,000 4,000 Feet

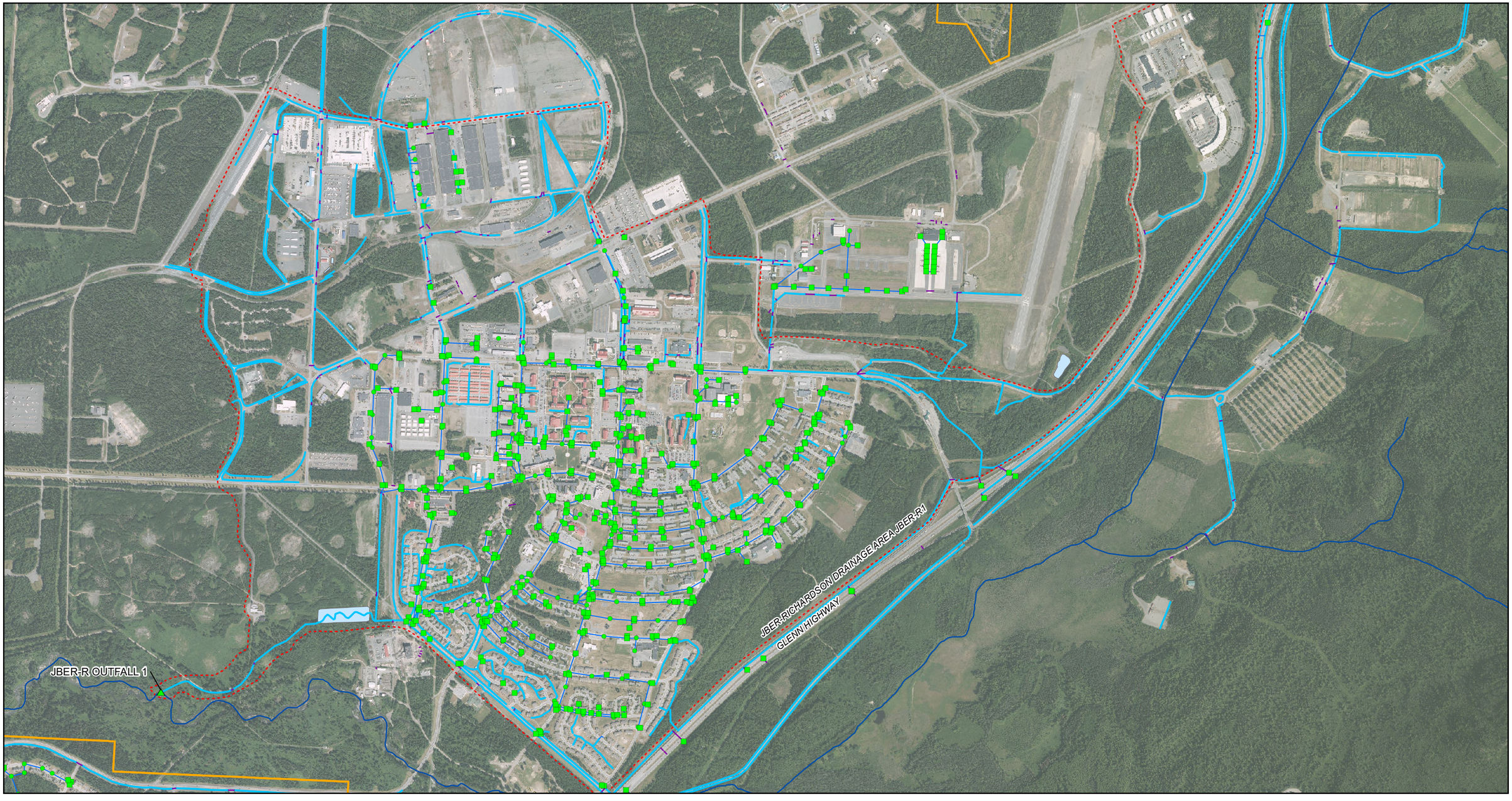
JBER - ELMENDORF STORMWATER INFRASTRUCTURE

2020 Stormwater Management Plan
Joint Base Elmendorf-Richardson

DATE:	PROJECT MANAGER:	FIGURE NO:
19 JUN 2020	M. Freimund / M. Narus	App-1

C:\Users\ScopM1\Desktop\PACAF-SWPPPP\0-JBER\Figure 4 Elmendorf-Stormwater.mxd ScopM1

Appendix 2 – Stormwater Routing Map: JBER-Richardson



Legend

- Installation Boundary
- Discharge Point
- Inlet
- Manhole
- Culvert
- Conduit
- Open Drainage
- Drainage Area
- Creeks
- Drainage Basin

NOTES:

1. Map data provided by JBER GeoBase team, May 2020.

N W E S

0 1,000 2,000 Feet

JBER - RICHARDSON STORMWATER INFRASTRUCTURE

2020 Stormwater Management Plan
Joint Base Elmendorf-Richardson

DATE:	PROJECT MANAGER:	FIGURE NO:
19 JUN 2020	M. Freimund / M. Narus	App-2

C:\Users\ScopM1\Desktop\PACAF-SWPPP\0-JBER\Figure 6 Richardson-Stormwater.mxd ScopM1

Appendix 3 – Command Policy Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, JOINT BASE ELMENDORF-RICHARDSON
JOINT BASE ELMENDORF-RICHARDSON, ALASKA

MEMORANDUM FOR ALL JBER PERSONNEL

FROM: 673 ABW/CC
10471 20th Street, Suite 139
JBER AK 99506-2200

SUBJECT: JBER Policy on Enforcement of JBER Municipal Separate Storm Sewer System (MS4) Permit Requirements (JBER-70)

1. Joint Base Elmendorf Richardson (JBER) operates a Municipal Separate Storm Sewer System (MS4) as defined by the Federal Clean Water Act (40 CFR 122.26) and State of Alaska Administrative Code 18 AAC 83.

2. The regulations and MS4 permit, issued on 1 June 2014, require JBER to develop, implement, and enforce a storm water management program to reduce the discharge of pollutants in storm water to the maximum extent feasible. The program must implement six minimum control measures, including controlling storm water runoff from construction sites and post-construction storm water management. The primary management measures are erosion control, sediment control, and best management practices.

3. All construction activities conducted on JBER that have the potential to impact storm water will comply with the 673 Air Base Wing Storm Water Management Plan (SWMP). Additionally, all construction activities conducted on the installation must be evaluated to determine if a storm water permit is required. If a permit is required, both the prime contractor and the requiring activity (Corps of Engineers, 673 Civil Engineer Group, and etc.) must apply for coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP).

4. Enforcement procedures for non-compliance with the SWMP and/or permit will vary depending upon the owner of the activity, the type contract, the nature of the violation, past compliance issues, and the potential to discharge to the storm water system. Enforcement may include, but is not limited to:

a. Disclosure of non-compliance to appropriate Commanders and/or Directors
b. Stop-work orders may be issued until non-compliance issues have been rectified
c. Withholding of payment and/or liquidated damages
d. Disclosure of violations to state/federal agencies

5. This guidance will be given widest dissemination and applies to the military and civilian workforce, as well as contractors. Please address questions or concerns to the JBER Environmental Office at 384-2440.

PATRICIA A. CSANK
Colonel, USAF
Commander

30 Jan 19

Appendix 4 – Post-Construction Activity Manual

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, JOINT BASE ELMENDORF-RICHARDSON
JOINT BASE ELMENDORF-RICHARDSON, ALASKA

7 JANUARY 2021

MEMORANDUM FOR ALL JBER PERSONNEL

FROM: 673 CES/CEIEC

SUBJECT: JBER Post-Construction Activity Manual (PCAM), Permit No. AKS053651

References: (a) Alaska Department of Environmental Conservation (ADEC), 2019. Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, Permit No. AKS053651.
(b) JBER, 2017. 673 ABW OPlan 32-1002: Snow and Ice Control Plan. November.
(c) Oneida Total Integrated Enterprises, 2020. Green Infrastructure/Low Impact Development Plan, Joint Base Elmendorf-Richardson, Alaska. September.

1. JBER must maintain an Alaska Pollutant Discharge Elimination System (APDES) permit for storm water discharges into Ship Creek and the Cook Inlet from its municipal separate storm sewer system (MS4). The ADEC issued an APDES permit (permit No. AKS053651) to JBER on August 22, 2019. According to permit condition 3.5.3, the installation must prepare and maintain a PCAM that provides guidance for Best Management Practices (BMPs) for the following storm water-related activities: snow disposal, low-impact development (LID) methods, and parking lot maintenance

2. This memorandum provides references to existing documents and procedures that JBER personnel should follow when engaging in construction projects and post-construction related activities. These documents and procedures, when combined with this memorandum, satisfy PCAM content requirements.

3. JBER has developed a Green Infrastructure/Low Impact Development (GI/LID) Plan (2020). The GI/LID Plan and Unified Facilities Criteria (UFC) 3-210-10 (Low Impact Development) provide design guidance satisfying the majority of the MS4 permit requirements for a PCAM. The GI/LID Plan provides a variety of LID BMPs that may be used to manage storm water runoff and prevent pollution from construction projects and post-construction related activities. Copies of the GI/LID Plan are available upon request from the 673 CES/CEIEC (JBER Environmental Office).

4. The removal and storage of snow provides a potential pathway for impacts to storm water at JBER. Snow removal and storage at JBER is managed according to the 673 ABW OPlan 32-1002, Snow and Ice Control Plan. Snow storage sites are annually reviewed and their specific locations are updated through this plan. Adherence to OPlan 32-1002 satisfies the GI/LID principles for snow storage and disposal sites.

5. JBER's Storm Water Protection Pamphlet and Preventing Storm Water Pollution at Construction Sites Pamphlet (attached) identify BMPs for protecting storm water during construction activities and good housekeeping practices that should be followed for post-construction activities. Equipment/materials storage, concrete washout, and dewatering BMPs help protect water quality during the construction phase of development at JBER.

6. Periodic cleanup activities are performed throughout JBER for the removal of trash and other debris that may runoff to the MS4. All base residents and personnel are encouraged to follow good housekeeping measures described as BMPs for storm water management. Specific parking lots with significant accumulated trash and other environmental concerns should be reported to the 673 CES/CEIEC at 384-2440.

7. As new development and construction is planned or occurs at JBER, storm water management design should incorporate the guidance presented in the GI/LID Plan and UFC 3-210-10. Snow disposal sites should continue to be located in permeable areas away from storm water conveyances. JBER's Storm Water Protection Pamphlet and Preventing Storm Water Pollution at Construction Sites Pamphlet provide additional BMPs to consider for use with construction projects.

SARAH A. RUNCK, GS-12, DAF
Water Quality Program Manager

Attachments:
1. JBER Storm Water Protection Pamphlet
2. Preventing Storm Water Pollution at Construction Sites Pamphlet

Appendix 5 – Sample Erosion and Sediment Control Plan

Erosion and Sediment Control Plan (ESCP)

Repairs of Parking Lot at Building XXXX
Joint Base Elmendorf-Richardson

Project: Repairs of Parking Lot at Building XXXX
Location: Joint Base Elmendorf-Richardson
Size of Disturbance: 0.11 acres of gravel shoulders and area behind sidewalk repairs (site's existing asphalt parking lot = 7,278 square yards)
Start Date:
Completion Date:
Contractor Information (name, address, phone, fax, website):

Contact Information (name & phone)
Site Superintendent:
Project Manager:
CESCL Manager:

Site/Activity Description
The project is located on Joint Base Elmendorf-Richardson and involves the repair of the existing deteriorated parking lot and sidewalks/curbs. Deteriorated asphalt, sidewalks, and curbs will be removed. Any unsuitable soils will be excavated and new classified fill placed and a new asphalt wear course will be laid. Minimal soil disturbance is scheduled around perimeters to allow removal and replacement of parking areas. Best management practices (BMPs) will be installed at catch basin inlets and curb flow lines adjoining the project. Each catch basin will be isolated if repairs are required on them.

Schedule
- Install Erosion Control BMPs
- Remove existing deteriorated sidewalks/curbs and asphalt
- Remove unsuitable sub base
- Adjust catch basin top
- Place classified material and compact
- Place D-1/RAP and asphalt wear course
- Final cleanup – grade and compact any disturbed gravel areas
- Removal of temporary BMPs

Site Control Plan Elements
1. *Mark Clearing Limits*
   Construction limits will be marked with paint and traffic devices. Existing vegetation and/or buffer zones will be preserved.

2. *Concrete Washout*
   A stable and leak-proof concrete washout will be established. The washout will be inspected and maintained, especially before and after storm events. Washout water will not be disposed of on the ground or into storm drains.

3. *Control Flow Rate*
   On-site detention, sediment will be collected and re-used on site.

4. *Install Sediment Controls*
   Fiber rolls (wattles) will be used as a perimeter sediment control at low points to prevent any sediment from leaving the construction site.

5. *Stabilize Soils*
   Temporary stabilization measures will be used on certain areas of the construction site if activity ceases in that area for more than 14 days. Stabilization measures uses will be compaction, mulching and/or seeding.

6. *Protect Drain Inlets*
   All existing storm drains (inlets) shall be protected using straw wattles or equivalent.

7. *Stabilize Channels and Outlets*
   Stabilizing channels and outlets is not anticipated.

8. *Control Pollutants*
   The types of primary pollutants expected will be suspended solids, turbidity, and settle able solids from surface erosion of the active work area. Good housekeeping measures will be used to prevent construction materials, petroleum, oils, lubricants, and asphalt cement from entering the storm water runoff. There will be no onsite storage of fuels during this project.

9. *Manage Hazardous Materials and Wastes (including portable toilets)*
   Any liquid, solid, or contained gas that has properties that are dangerous or potentially harmful to human health or the environment must be managed appropriately. Hazardous materials and wastes will be kept in properly labeled and sealed containers, and will be kept under cover and away from drainages and waterways. Portable toilets will be kept as far practicable from drainages, inlets, surface waters, and storm water conveyances. Portable toilets will be kept, whenever possible, on non-permeable surfaces and will be secured to the ground to prevent tipping.

10. *Control De-Watering*
    Dewatering is not anticipated. If it is later determined that dewatering is needed, authorization under the AK Department of Environmental Conservation's Excavation Dewatering General Permit may be necessary.

11. *Maintain BMPs*
    BMPs used will be straw wattles, concrete clean outs (when needed), sweeper trucks, spill pads, drip pans, and a water truck to control air pollution. Spill kits will also remain on-site, will be restocked immediately after use, and will be inspected once every 7 days to ensure adequate spill response materials are available. Inspections will be performed every 7 days. Inspections will be performed by CESCL certified inspectors and all BMPs in place will be monitored for effectiveness and/or replacement.

12. *Manage the Project*
    Each phase of activity will follow the sequence outlined in the schedule above. A site-specific Erosion and Sediment Control Plan will be posted on site and all workers will be briefed on the plan. An updated site map and completed inspection reports will be available at the job site.

Soil disturbance will be minimized and good housekeeping measures will be implemented. All BMPs will be updated appropriately as monitoring and inspection dictates.

Attachments:
Attachment A – ESCP Construction Inspection Form
Attachment B – Site Map

Attachment A: ESCP Construction Inspection Report Form (Sample)

General Project Information	
Project name	Repairs of Parking Lot at Building XXXX
Location	Joint Base Elmendorf-Richardson
Date of Inspection	
Inspector's name(s)	
Inspector's title(s)	
Inspector's contact info	
Describe present phase of construction	
Type of inspection	☐ 1st Inspection/start-up ☐ Weekly ☐ Pre-storm event ☐ During storm event ☐ Post-storm event ☐ Final

Weather Information

Has it rained since the last inspection?

☐ Yes ☐ No

If yes, provide: Storm start date & time:

Storm duration (hrs):

Approximate rainfall (in):

Weather at time of this inspection:

Is there evidence that erosion discharges have left the project site since the last inspection?

☐ Yes ☐ No

Are there any erosion discharges leaving the project site at the time of inspection?

☐ Yes ☐ No

Site-Specific BMPs

	BMP description/location	BMP installed & operating properly?	Corrective action needed	Date for corrective action/responsible person
1	Curb flow line protection wattles	☐ Yes ☐ No		
2	Catch basin protection	☐ Yes ☐ No		
3	Inlet protection	☐ Yes ☐ No		
4	Entry control point	☐ Yes ☐ No		
5	Spill kit on site	☐ Yes ☐ No		

6	Water truck, sweeper (on-call on base)	☐ Yes ☐ No		
7	Are any additional BMPs needed?	☐ Yes ☐ No		

Below are some general site issues that should be assessed during inspections.

Overall Site Issues					
	BMP/activity	**Implemented**	**Maintained**	**Corrective Action**	**Date for corrective action / responsible person**
1A	Are stabilization measures initiated on slopes/disturbed areas not actively being worked?	☐ Yes ☐ No	☐ Yes ☐ No		
1B	If no, will the disturbed areas be worked in 14 days?	☐ Yes ☐ No	☐ Yes ☐ No		
2	Are perimeter controls and sediment barriers adequately installed and maintained?	☐ Yes ☐ No	☐ Yes ☐ No		
3	Are discharge points and receiving waters free of sediment deposits?	☐ Yes ☐ No	☐ Yes ☐ No		
4	Are storm drain inlets properly protected?	☐ Yes ☐ No	☐ Yes ☐ No		
5A	Is there evidence of sediment being tracked into the street?	☐ Yes ☐ No	☐ Yes ☐ No		
5B	Are the BMPs to avoid tracking being maintained?	☐ Yes ☐ No	☐ Yes ☐ No		
6	Is trash/litter from work areas collected and placed in covered dumpsters?	☐ Yes ☐ No	☐ Yes ☐ No		
7	Concrete, drywall, or masonry washout facilities on site?	☐ Yes ☐ No	☐ Yes ☐ No		
8	Are vehicles and equipment fueling, cleaning, and maintenance areas free of spills and leaks?	☐ Yes ☐ No	☐ Yes ☐ No		
9	Has spill response kit been used since the last inspection? If yes, is it restocked?	☐ Yes ☐ No	☐ Yes ☐ No		
10	Are non-storm water discharges (e.g., wash water, dewatering) properly controlled?	☐ Yes ☐ No	☐ Yes ☐ No		
11	Are the ESCP and site maps: Up to date? Available at JBER central locations? Being implemented?	☐ Yes ☐ No	☐ Yes ☐ No ☐ Yes ☐ No		
12	Inspection performed every 7 calendar days?	☐ Yes ☐ No	☐ Yes ☐ No		
13	Are inspections being performed by qualified individuals?	☐ Yes ☐ No	☐ Yes ☐ No		

Certification statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Contractor's Inspector/ Superintendent Representative

Name:_____

Title:_____

Signature:_____

Date: _____

Contractor's Duly Authorized

Name:_____

Title:_____

Signature:_____

Date: _____

Attachment B: Site Map

Appendix 6 – Monitoring Program Plan

SAMPLING AND ANALYSIS PLAN/ MONITORING PROGRAM PLAN

(SAP/MPP is specific for each USAF contractor)

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TABLE OF CONTENTS (CONTINUED)

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FIGURES

ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
%R	percent recovery
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AG	amber glass
AWWU	Anchorage Water and Wastewater Utility
BOD_5	biochemical oxygen demand, 5-day
Brice	Brice Environmental Services Corporation
CA	corrective action
CASRN	Chemical Abstracts Service registry number
CL	control limit
CoC	chain-of-custody
COD	chemical oxygen demand
DL	detection limit
DO	dissolved oxygen
DoD	Department of Defense
DOT	U.S. Department of Transportation
DQI	data quality indicators
DQO	data quality objectives
ECC	Environmental Compliance Consultants, Inc.
EDD	electronic data deliverable
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
ERPIMS	Environmental Restoration Program Information Management System
FD	field duplicate
FSP	Field Sampling Plan
GC	gas chromatography
HDPE	high-density polyethylene
IATA	International Air Transportation Association
IS	Internal Standard
IWW	Industrial Wastewater
JBER	Joint Base Elmendorf-Richardson
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LL	low level
LOD	limit of detection
LOQ	limit of quantitation
MB	method blank
mg/L	milligram(s) per liter
mL	milliliter
MPC	measurement performance criteria

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MPP	Monitoring Program Plan
MS	mass spectroscopy
MS/MSD	matrix spike/matrix spike duplicate
MSGP	Multi Sector General Permit
MS4	Municipal Separate Storm Sewer System
NA	not applicable
ND	nondetect
NS	not specified
PAL	project action limits
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
PM	project manager
ppm	parts per million
QA	quality assurance
QAPP	Quality Assurance Program Plan
QC	quality control
QSM	Quality Systems Manual
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SDG	sample delivery group
SGS	SGS North America, Inc.
SOP	standard operating procedure
SWMP	Storm Water Monitoring Program
SWPPP	Storm Water Pollution Prevention Plan
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
TMDL	total maximum daily load
TPH	total petroleum hydrocarbons
TSS	total suspended solids
UCL	upper control limit
VOA	volatile organic analysis

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP)/Monitoring Program Plan (MPP) presents the sampling design, rationale, locations, methods, and decision logic for field activities related to the sampling on Joint Base Elmendorf-Richardson (JBER) (Figure C-1) necessary for compliance with storm water and industrial wastewater permits applicable on base. Brice Environmental Services Corporation (Brice) will perform the work described herein for the Air Force Civil Engineer Center (AFCEC) under ESC-PACAF Contract No. FA8903-17-D-0054, Task Order No. FA5215-19-F-A056. Project activities, including the collection of field parameters and analytical samples, will be completed by individuals that have been trained to collect samples in accordance with the applicable permits and this SAP/MPP.

The purpose of this SAP/MPP is to provide instruction and guidance to ensure that the data generated during compliance field activities are of sufficient quality and quantity to meet the established project and data quality objectives (DQOs). The SAP/MPP is divided into two main parts; the Field Sampling Plan (FSP) and the Quality Assurance Program Plan (QAPP). The FSP describes procedures for the collection, handling, and analysis of environmental samples. The QAPP describes the analytical and documentation protocols to be followed when reviewing and analyzing data collected from the project site. Additional detail will be provided in the task specific plans.

This SAP/MPP is organized as follows:

- Section 1.0 introduces the project
- Section 2.0 provides the FSP
- Section 3.0 defines the analytical methods and regulatory criteria
- Section 4.0 provides the QAPP
- Section 5.0 includes a list of references cited in this SAP/MPP
- The SAP/MPP is supported by Attachment C-1, which provides the field standard operating procedures (SOPs)
- Current analytical laboratory certifications are provided in Attachment C-2

1.1. Municipal Separate Storm Sewer System

JBER is regulated under the APDES permitting program because it owns a Municipal Separate Storm Sewer System (MS4). MS4s (as defined in 40 Code of Federal Regulations [CFR] 122.26[b][8]) include any public or privately-owned conveyance or system of conveyance used for collecting and conveying storm water that discharges to “Waters of the United States”. Such a system may include roads with drainage systems, streets, catch basins, curbs, gutters, ditches, human-made channels, or storm drains.

A key part of the MS4 program requires JBER to monitor storm water and non-storm water discharges during each five-year permit term. This document provides general information regarding the collection of these samples. Further information can be found in the applicable Storm Water Monitoring Program (SWMP) Plan.

In addition to discharging to the outfalls, storm water runoff from JBER drainage areas may enter Ship Creek and Knik Arm as sheet flow, infiltrate into the ground, and/or evaporate. The seven outfalls identified as discharging storm water on JBER are presented on Figure C-2, and include:

- JBER-E Outfall (OF) 1
- JBER-E OF 2
- JBER-E OF 3
- JBER-E OF 4
- JBER-E OF 5
- JBER-E OF 6 (Six Mile Lake is not associated with an urbanized area)
- JBER-R OF 1

For information regarding drainage area size and details, refer to the JBER SWMP. For the purposes of the MS4 permit, outfalls JBER-E OF 1, JBER-E OF 2, JBER-E OF 4, JBER-E OF 5 and JBER-R OF 1 will be sampled under the monitoring program. Each of these five storm water outfalls will be sampled a minimum of four times per year, when there is sufficient precipitation to generate runoff.

At each outfall, both field parameters and analytical parameters will be monitored to evaluate the quality of the storm water. The field parameters include rate of flow, temperature, pH, turbidity and dissolved oxygen (DO). The laboratory parameters include 5-day biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total suspended solids (TSS), total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH), in accordance with Part 4.1.2.8 of the MS4 Permit. Table 1-1 lists the required parameters that will be measured and recorded during each sampling event.

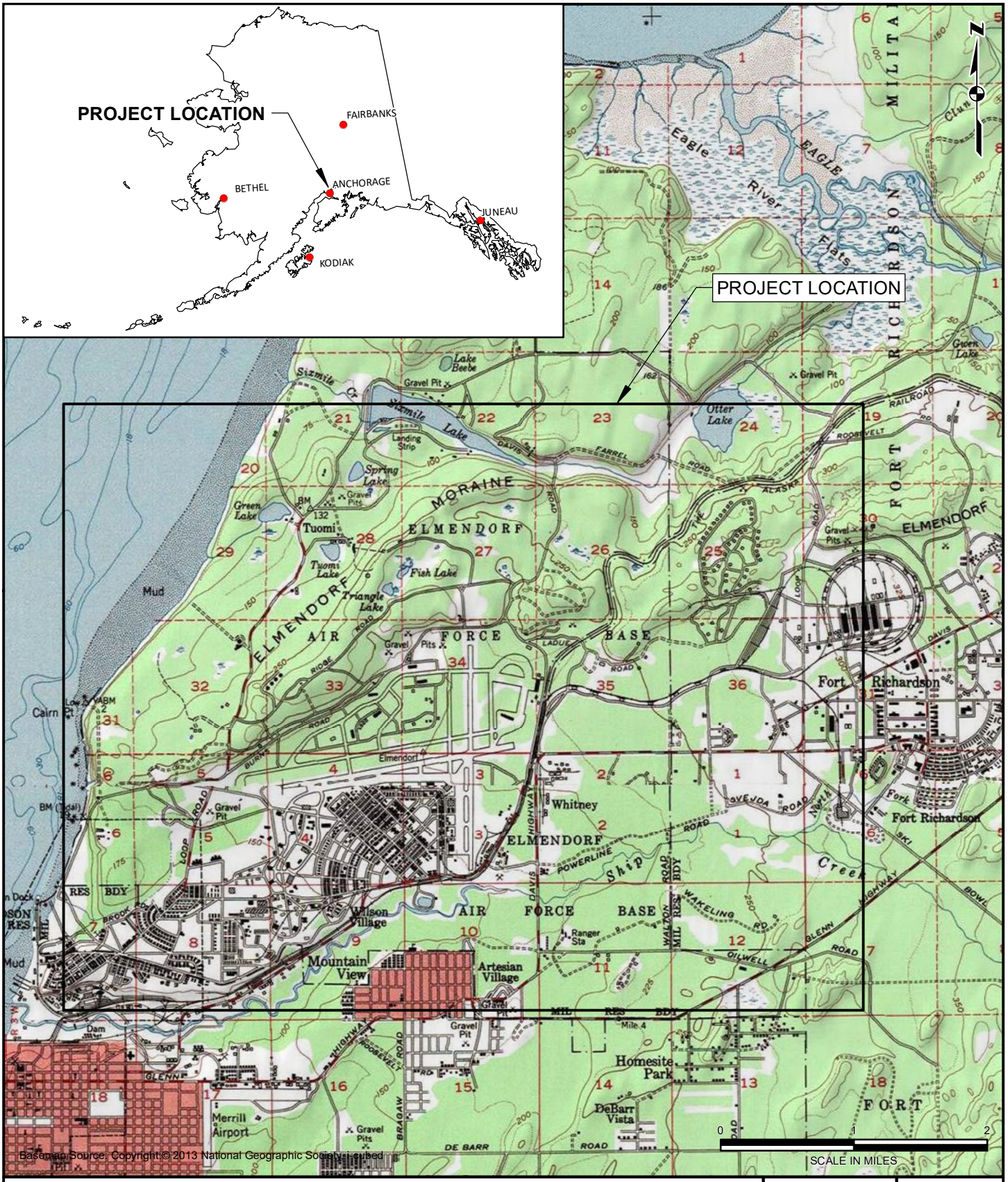
Ship Creek is listed as an impaired water body and receives storm water discharges from JBER facilities. The pollutants for which Ship Creek (for the Glenn Highway bridge to the mouth of Ship Creek) was listed as impaired include fecal coliform and petroleum hydrocarbons and oil and grease; however, in 2012 the petroleum hydrocarbons and oil and grease impairments for Ship Creek were removed from the Section 303(d)/Category 5 list and placed in Category 2, based on the 2012 Integrated Report produced as a result of a consent decree between the EPA and Alaska Railroad Corporation. Three outfalls discharge storm water from JBER to Ship Creek (JBER-E OF 4, JBER-E OF 5, and JBER-R OF 1); two of these are associated with industrial facilities (JBER-E OF 5 and JBER-R OF 1) and are therefore also regulated under the MSGP. Per email correspondence with ADEC, dated March 17, 2020, sampling for fecal coliform is not required at JBER.

Table 1-1 MS4 Parameters to be Measured

Field Measurements	Laboratory Measurements
Flow (cfs)	Chemical Oxygen Demand (mg/L)
Temperature (°C)	Biochemical Oxygen Demand, 5-day (BOD_5) (mg/L)
pH	Total Suspended Solids (mg/L)
Dissolved Oxygen (mg/L)	Total Aromatic Hydrocarbons (µg/L)
Turbidity (NTU)	Total Aqueous Hydrocarbons (µg/L)

Notes:
cfs = cubic feet per second NTU = nephelometric turbidity units
mg/L = milligrams per liter µg/L = micrograms per liter

1 INCH



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JOINT BASE ELMENDORF-RICHARDSON/EIELSON WATER SUPPORT

ANCHORAGE, ALASKA

LOCATION AND VICINITY

DATE: 1/24/2020

PROJECT No.: FA8903-17-D-0054

DRAWN: K.T.

FIGURE: **C-1**

1 INCH

JOINT BASE ELMENDORF-RICHARDSON/EIELSON WATER SUPPORT

ANCHORAGE, ALASKA

JBER OUTFALL AND METERING LOCATIONS

Six Mile Lake

D Street Gate

JBER-R Outfall 1

JBER-E Outfall 5

JBER-E Outfall 1

JBER-E Outfall 2

Post Road Gate

North Muldoon Road Gate

North Boniface Parkway Gate

JBER-E Outfall 3

JBER-E Outfall 4

Government Hill 001

Mountain View 002

Fort Richardson 003

LEGEND

- Outfall

AWWUI Outfalls

- Government Hill Outfall 001
- Mountain View Outfall 002
- Fort Richardson Outfall 003
- Base Gate

References:

1. Background imagery from Municipality of Anchorage (Aerial, 0.15m, collected on 5/4/2015)
2. Map produced using ESRI ArcMap v. 10.5.

U.S. SURVEY FEET
HORIZONTAL DATUM: NAD 1983 STATE PLANE ALASKA
VERTICAL DATUM: NGVD '88 COORDINATE SYSTEM ZONE 4

3,250 1,625 0 3,250

SCALE IN FEET

CONTRACT No.:	TASK ORDER No.:	FIGURE:
FA890317D0054	FA521519FA056	C-2
DATE: 1/24/2020	DRAWN: KT	

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1.2. Multi-Sector General Permit

JBER also has a Multi-Sector General Permit (MSGP) to manage the discharge of storm water associated with industrial activities located on the base. Various monitoring and inspection events are required to be completed for compliance with the MSGP and this information is provided in further detail in the JBER Storm Water Pollution Prevention Plan (SWPPP). Information presented in this SAP/MPPP is limited to the analytical sampling that is required for compliance with the MSGP, which is limited to impaired waters monitoring. The ADEC 2015 MSGP defines impaired waters as those which have been listed pursuant to Section 303(d) of the Clean Water Act (CWA) as not meeting applicable State water quality standards under 40 CFR 30.2 (j). The ADEC 2015 MSGP states that if the permittee discharges to an impaired water body, each pollutant for which the water body is impaired must be monitored. There are three outfalls (JBER-E OF 4, JBER-E OF 5, and JBER-R OF 1) that discharge to Ship Creek, which is listed as an impaired water body.

At each outfall, only field parameters and observations will be monitored to evaluate the quality of the storm water. The field parameters include rate of flow, odor, color, floatables, deposits/stains, vegetation conditions, damage to outfall structure, temperature, pH, turbidity and dissolved oxygen (DO). Table 1-2 lists the required parameters that will be measured and recorded during each sampling event.

Table 1-2 MSGP Parameters to be Measured

Field Parameters	
Flow (cfs)	Vegetation Condition
Temperature (°C)	Odor
pH	Color
Dissolved Oxygen (mg/L)	Floatables
Turbidity (NTU)	Damage to outfall structure
	Deposits/stains

Notes:
cfs = cubic feet per second NTU = nephelometric turbidity units
mg/L = milligrams per liter µg/L = micrograms per liter

In addition, background concentrations of turbidity must be determined for the two outfall discharge destinations, Ship Creek and Cook Inlet. Outfalls JBER-E-OF-4, JBER-E-OF-5, and JBER-R-OF-1 all discharge into Ship Creek. To measure the background value of turbidity, measurements will be taken during each sampling event from an accessible location along Ship Creek upstream of JBER-R-OF-1, such as Cottonwood Park.

JBER-E-OF-1 and JBER-E-OF-2 discharge into Cook Inlet. To obtain a background value for turbidity, data will be used from the AWWU 2016 Cook Inlet Water Quality Report.

1.3. Industrial Wastewater Management Plan

Finally, JBER has an Industrial Wastewater (IWW) Discharge Permit through Anchorage Water and Wastewater Utility (AWWU) that allows the facilities on base to discharge wastewater into the municipal sewer system. The permit requires that JBER prevent the discharge of toxic and/or hazardous pollutants

that may upset or degrade the system, cause health or safety problems, or exceed permit effluent limits. The Industrial Wastewater Management Plan provides information on how these discharges are prevented and how compliance is monitored. Part of the monitoring includes the collection of analytical samples from specific metering stations on base as described below.

JBER's wastewater distribution system accepts water from both industrial and domestic sources and consists of approximately 132 miles of sewer line, 21 sewage lift stations, and over 2,000 sewer manholes. JBER's wastewater enters AWWU's system at three metering station locations: Government Hill (Metering Station 001), Mountain View (Metering Station 002), and Fort Richardson (Metering Station 003). Figure C-2 shows the location of these three metering stations and associated manholes. Each metering station is equipped with an auto-sampler and meters that are maintained and operated by AWWU.

At each metering station, analytical parameters will be monitored biannually to evaluate the quality of the wastewater. Before the first sampling event AWWU's industrial pretreatment coordinator Mario Croce will be contacted at 907-751-2219 and invited to observe the sampling process.

The laboratory parameters include various metals, oil and grease, total aromatic hydrocarbons (TAH) and pH, in accordance with Part 1(C) of the Industrial Wastewater Discharge Permit. Table 1-3 lists the required parameters that will be measured and recorded during each sampling event. Wastewater samples are analyzed in accordance with testing procedures in 40 CFR part 136.

Table 1-3 IWMP Parameters to be Measured

Pollutant	Sample Type
Arsenic	24-hour composite
Beryllium	24-hour composite
Cadmium	24-hour composite
Chromium	24-hour composite
Copper	24-hour composite
Cyanide	Single grab
Lead	24-hour composite
Mercury	24-hour composite
Nickel	24-hour composite
Oil or grease	Single grab
Silver	24-hour composite
TAH	Single grab
Zinc	24-hour composite
pH	Single grab

2.0 FIELD SAMPLING PLAN

The FSP defines procedures for the collection, handling, and analysis of samples associated with storm water and industrial wastewater permit compliance. This SAP/MPP covers compliance sampling for the IWW permit, the MSGP, and the MS4 permit.

2.1. Key Personnel and Qualifications

All field activities, including the collection of field parameters and analytical samples, will be performed by experienced personnel that have been trained to collect samples in accordance with the applicable permits and this SAP/MPP (Table 2-1). In general, sampling will be performed in accordance with the permits and standard industry practices.

Table 2-1 presents the key personnel for the project, their qualifications, and their responsibilities on the project.

Table 2-1 Personnel Qualifications

Name/Title	Responsibilities	Education/Experience	Specialized Training/Certifications
Steve Becker Program Manager	Assisting the Brice PM and ensuring that AFCEC project objectives are met.	• Over 20 years of experience, including 18 years as a PM and Program Manager • MS Environmental Quality Science • BS Natural Resource Management (Soils)	• Certified Environmental Professional (CEP #5040343) • 40-Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • First-aid certification • Adult CPR/AED certification • ADEC-Qualified Environmental Professional
Michelle Freimund, PG Project Manager (PM)	Providing direction to the Brice project team to ensure project objectives are met, project budget is tracked, and project is on schedule.	• Over 29 years of experience working on State and Federal environmental projects, including 26 years as a PM and 15 years as a Program Manager • BS Professional Geology, Emphasis Hydrogeology	• PG in Wisconsin • 40-Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • 8-Hour Hazardous Waste Site Supervisor • Confined Space Entry • First-aid certification • Adult CPR/AED certification
Matt Narus, PE Senior Compliance Engineer	Providing direction and oversight to the Brice project team to ensure project activities are completed in accordance with State and Federal regulations and the permit requirements.	• Over 20 years of experience working on regulatory compliance projects, including at JBER and Eielson • BS Chemistry • MS Civil and Environmental Engineering • Executive MBA	• PE (Environmental) in Alaska, Idaho and Wisconsin • 40-Hour HAZWOPER • 8-hour refresher per 29 CFR 1910.120(e)

Table 2-1 Personnel Qualifications

Name/Title	Responsibilities	Education/Experience	Specialized Training/Certifications
Gene Hoilman, PE CWA Specialist	Works with Technical Lead to implement project activities in compliance with the SWPPP, IWMP and SWMP	• Over 20 years of experience working on stormwater and wastewater projects • BA in Physics and Mathematics; MS in Bioresource Engineering	• 40-Hour HAZWOPER • 8-hour refresher per 29 CFR 1910.120(e) • Certified Erosion Sediment Control Lead (CESCL) in Washington #502333
Kimi Lloyd Technical Lead	Implementing, overseeing, and coordinating project activities in the Work Plan and SAP/MPP and ensuring project objectives are met. Supporting PM as needed.	• Over 9 years of experience in environmental consulting • BS Civil Engineering	• PMP • PE (Civil) in Alaska • 40-Hour HAZWOPER • 8-hour refresher per 29 CFR 1910.120(e) • 30-Hour OSHA Construction • First-aid/CPR/AED certification • ADEC Qualified Environmental Professional
Sara Hadden Lead Sampler	Collecting field screening and analytical samples; managing and shipping analytical samples designed to meet project objectives.	• Over 15 years of technical and professional experience • MS Environmental Quality Science • BS Biology • AS Science	• ADEC Qualified Sampler • 40-Hour HAZWOPER • 8-hour refresher per 29 CFR 1910.120(e) • First-aid certification • Adult CPR/AED certification
Victoria Pennick Brice Project Chemist	Coordinating with the analytical laboratory, reviewing analytical data, and ensuring that the DQOs are achieved.	• Over 30 years of technical and professional experience • BS Biological Sciences	• 40-Hour HAZWOPER • 8-hour refresher per 29 CFR 1910.120(e) • ADEC-Qualified Environmental Professional

Table 2-1 Personnel Qualifications

Name/Title	Responsibilities	Education/Experience	Specialized Training/Certifications
Kirk Fisher Brice Director of HSE	Developing, implementing, and overseeing all safety and health-related aspects of the project.	• Over 15 years of professional experience in aspects of health, safety, and the environment • MPH Occupational Health and Industrial Hygiene • BS Health Science	• 40-Hour HAZWOPER Instructor • OSHA Regulations 10- and 30-hour General/Construction Industry Training • Adult First-aid/CPR/AED Instructor • Incident Command System Certification • Project Manager Certification

Notes:
For definitions, see the Acronyms and Abbreviations section.

2.2. Sample Collection

Outfall samples and metering station samples will be collected in accordance with BE-SOP-32 and BE-SOP-33, respectively, presented in Attachment C-1. Samples collected for storm water analyses will be delivered to SGS in Anchorage, Alaska. SGS is certified by the Department of Defense (DoD) Environmental Laboratory Accreditation Program (DoD ELAP) and State of Alaska (ADEC). Although the solicitation requires DoD ELAP certifications for the analytical laboratory, the methods required under this SAP/MPP are CWA methods and are not covered by these certifications. Some may be certified under SGS' ADEC Drinking Water Chemistry certification.

Table 2-2 provides glassware and preservation requirements for each analytical method. Sample aliquots will be collected in order of volatility with volatiles being collected first, followed by semi-volatiles, and then non-volatile analytes.

Table 2-2 Containers, Volumes, Preservation, and Holding Times for Laboratory Analysis

Parameter	Analytical Method	Container Type and volume	Preservation	Maximum Holding Time
BOD_5	SM 5210B	1 liter HDPE	0°C–6°C	48 hours
COD	EPA 410.4	250 mL HDPE	0°C–6°C/H_2SO_4	28 days
TSS	SM 2540D	1 liter HDPE	0°C–6°C	7 days
TAH	EPA 624	3 x 40 mL VOA vials	0°C–6°C/HCl	14 days
TAqH (TAH + TPAH)	EPA 625 SIM	2 x 1 liter AG	0°C–6°C	7 days (ext)/40 days (analysis)
Metals	EPA 200.8/ 245.1	250 mL HDPE	HNO_3	28 days mercury; 180 days
pH	SM 4500H-B	125 mL HDPE	0°C–6°C	ASAP/7 days
Cyanide	SM 4500CN-C,E	125 mL amber HDPE	0°C–6°C/ NaOH	14 days
Oil and grease	EPA 1664B	2 x 1 liter AG	0°C–6°C/ HCL	28 days

2.2.1 Field Parameter Collection

The YSI Professional Plus multiparameter probe (or equivalent) will be used to collect field measurements. This data will be collected from flowing water, and probe measurements will be recorded in the field logbook or data sheets. Table 2-3 presents the measurement quality objectives during field parameter collection.

Table 2-3 Measurement Quality Objectives for Field Instruments

Parameter	Method/Range	Sensitivity (DL)	Accuracy	Calibration Method
Flow (cfs)	Portable weir or volumetric method (using bucket)	Weir: 0.01-inch stage height Volumetric method: NA	Weir: 0.01 inch Volumetric Method: measurement take 3 to 4 times for consistent results.	Weir: Feld calibration at deployment. Volumetric method: Field calibration using bucket and stopwatch.
Temperature (°C)	YSI Professional Plus/YSI Quatro 13G100030/ISE-ISE-DO-COND-T Multiparameter Probe (or equivalent) -5 to 70°C	0.01°C	+0.2°C	Automatic calibration at one custom point.
pH	YSI Professional Plus/YSI Quatro 13G100030/ISE-ISE-DO-COND-T Multiparameter Probe (or equivalent) 14 pH units	0.01 pH units	±0.02 pH units	Automatic 1, 2, 3, 4, 5, or 6 points with recognition of standard buffers (pH 4.01, 7.01, 10.01 solutions).
Dissolved Oxygen (DO) (mg/L)	YSI Professional Plus/YSI Quatro 13G100030/ISE-ISE-DO-COND-T Multiparameter Probe (or equivalent) 0 to 50 ppm (mg/L)	0.1 or 0.01 ppm (mg/L) (user selectable); 0.1% air saturation	0 to 20 mg/L(+2% of the reading or 0.2 mg/L, whichever is greater) 20 to 50 mg/L (+6% of the reading).	Automatic 1 or 2 points with zero at 0, 100% or 1 custom point.
Turbidity (NTU)	HF Scientific Micro TPI Field Portable Turbidimeter (or equivalent) 0.0 to 99.9 FNU; 100 to 1000 FNU	0.1 FNU from 0.0 to 99.9 FNU; 1 FNU from 100 to 1000 FNU	± 0.3 FNU or ± 2% of reading, whichever is greater.	Automatic 1, 2, or 3 points at 0, 20, 200 FNU.

2.2.2 Storm Water Sample Collection

Field sample crews will collect samples during flow events in accordance with the field sampling protocols described in this section. Field sample crews will collect adequate volume samples for all sample bottles, duplicates, and field monitoring analysis described above.

Where samples are to be collected from flow over a temporary or permanent weir, or where water is free falling from a pipe, sample bottles will be held under the flow. For samples collected directly into laboratory analysis bottles that contain preservatives, the field crew will use care to not overfill the sample bottles. Sample containers will be filled to the shoulder, except for the VOA vials which require no headspace (bubbles).

Field crew members will assign a unique sample number as described in below in Section 2.5.1, label the bottles with indelible ink, add preservative required (unless the laboratory has provided the preservatives in the bottle already), prepare the chain of custody (CoC) form, and pack the bottles as described in Section 2.6.

2.2.3 Industrial Wastewater Sample Collection

Industrial wastewater samples will be collected from autosamplers already in place in each of the manholes to be sampled. The samples will either be composite samples over a 24-hour period or will be grab samples. Samples will be collected in accordance with BE-SOP-33.

2.2.4 Field Quality Control Samples

This section summarizes the types and frequencies of field primary and quality control (QC) samples that will be collected and submitted to the laboratory for discrete samples collected for each matrix and analytical group. Field and QC sample quantities will be based on actual quantities and determined in the field. QC samples will be collected and/or submitted as follows:

- At a minimum, one field duplicate sample will be collected for every 10 or fewer primary samples, for each matrix sampled and for each target analyte
- A minimum of one field duplicate will be collected per day
- Field duplicates will be collected at the same location as the primary sample and will be submitted to the laboratory blind with unique sample identification number
- Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of one per sample delivery group (SDG) for TAH, TAqH, and metals analyses only
- One trip blank will accompany each cooler that contains volatile samples (TAH)

Table 2-4 includes sample types and location, analytical methods, and estimated sample quantities.

Table 2-4 Quality Control Sample Summary

Sample Type	Analyte	Matrix	Estimated Primary Samples	MS/ MSD	Dup	Trip Blank	Total Analyses
MS4 and MSGP	COD	WW	16	-	4	-	20
	BOD	WW	16	-	4	-	20
	TAH	WW	16	4	4	4	28
	TAqH	WW	16	4	4	-	24
	TSS	WW	16	-	4	-	20
Industrial Wastewater Samples	Metals	WW	6	2	2	-	10
	TAH	WW	6	2	2	2	12
	pH	WW	6	-	2	-	8
	Cyanide	WW	6	-	2	-	8
	Oil and Grease	WW	6	-	2	-	8

Notes:
For definitions, see the acronyms and abbreviations section.
Sample quantities and turnaround times may be adjusted in the field.

2.3. Sample Equipment Decontamination

Sampling equipment will be single-use, disposable equipment whenever possible, which will not require decontamination. Decontamination of non-disposable water sampling equipment will be performed by washing with a laboratory-grade biodegradable detergent and rinsing with potable water after collecting each sample. Decontamination procedures will be conducted in accordance with *BE-SOP-14 Equipment Decontamination* (Attachment C-1).

2.4. Field Sampling Logbook

Accurate and comprehensive record keeping is critical to documenting sample custody. Bound, sequentially paginated field logbooks will be maintained daily to document all sampling activities, including the collection of every sample. Additionally, appropriate field forms will be completed during sample collection. All field notes will be entered in permanent ink, and each page will be initialed and dated. If any changes are made to the field record, the original notation will be crossed out with a single line, initialed, and dated by the person making the correction. Field logbooks will be completed in accordance with *BE-SOP-01 Logbook Documentation and Field Notes* (Attachment C-1).

At a minimum, the field sampling book will contain the following information:

- Project identification
- Date and time of work
- Name and location of site
- Names of writer and field personnel present
- Description/sketch of work area
- Field observations and weather conditions
- Analytical sample locations, identifications, and corresponding field test results
- Visual/sensory description of sample
- Time of each sample collection event
- Descriptions of sample container sizes, preservations, special handling procedures, analyses, etc. collected for each sample
- Explanation of deviations from the approved work plan, with rationales for the deviations

2.5. Sample Documentation

The following sections describe the sample numbering system and chain-of-custody (CoC) requirements for this project.

2.5.1 Sample Identification

Each sample collected will be assigned a unique field-sample identification number reflecting the sample year and location. At the time of sampling, appropriate sample numbers will be recorded in the field logbook and/or field forms. Samples collected for this project will be numbered with unique identifiers as follows:

- Digits 1 and 2 are the last two digits of the fiscal year (e.g., 20 for 2020)
- Digits 3 through 6 are used to designate the site (JBER)
- Digit 7 will designate if the location is on the Richardson (R) or Elmendorf (E) side of JBER
- Digits 8 through 10 correspond to the outfall or manhole number:
- OF5 indicates outfall 5
- MH1 indicates manhole 001
- Digits 11 and 12 will correspond to the sequential number of the quarterly or semiannual sample event for that outfall or manhole

In general, the sample location identifier (location ID) will be digits 3 through 12, removing the year (i.e., JBER-E-OF5-01). For discrete samples, a collocated field duplicate will be collected; however, the location ID will only be recorded in the logbook and not on the CoC in order to keep the duplicate “blind” to the analytical laboratory. The location ID for the duplicate sample will be the same as the location ID for the primary sample.

Field duplicate samples will be blind to the laboratory, and sample identification numbers will contain no codes identifying duplicates as QC samples. Field duplicates will be identified as “Dup-1” (following

sequential order as they are collected). Although the collection time for primary and duplicate samples is identical, a fictitious sample collection time will be created for the duplicate and recorded on sample labels and CoC forms to ensure it is a blind duplicate. The collection date, time, duplicate sample identification number, and corresponding primary sample identification number will be recorded in the field sampling logbook and/or field form and carried through to the sample summary.

Trip blanks will be identified consecutively, 20JBER-TB01, 20JBER-TB02, etc.

Examples of sample identification numbers are as follows:

- Fourth quarter outfall sample: 20JBER-E-OF1-04
- Second round of industrial wastewater sampling: 20JBER-R-MH3-02
- Trip blank 20JBER-TB01

MS/MSD samples merely require additional volume submitted with the primary sample. A notation will be made in the logbook and/or field form as to which sample is being submitted as an MS/MSD, as well as the volume of sample submitted. The notation will be carried through from the logbook/field form to the CoC form and the sample summary. Sample labels and CoC forms will be marked to indicate that additional sample volume is being submitted for MS/MSD analyses.

2.5.2 Sample Labels

Each sample container will have a sample label affixed in a waterproof manner. Sample labels will be water resistant and contain the following information:

- Sample identification number
- Preservative, where applicable
- Requested analyses
- Date and time of sample collection
- Sampler's initials

Sample labels will be completed in accordance with *BE-SOP-03 Labeling, Packaging, and Shipping Samples* (Attachment C-1).

2.5.3 Chain-of-Custody Records

The possession and handling of individual samples must be traceable from the time of sample collection until the time the analytical laboratory reports the results of sample analyses to the appropriate parties. The CoC form is designed to document the transfer of samples from the field to the laboratory. One CoC form will be included in each cooler, and the CoC form will reflect the samples that are contained in the cooler. The lead sampler will be responsible for sample security and CoC recordkeeping in the field. CoC procedures outlined in *BE-SOP-2 Sample Chain-of-Custody* (Attachment C-1) will be followed. To identify the contents of a shipment, request analysis from the laboratory, and track custody transfers, the CoC form will include:

- Unique identification number (i.e., 20JBER01)
- Project number
- Project/client name and location

- Sample identification (corresponding to the sample container labels)
- Date/time of sample collection
- Requested analyses
- Sample matrix (e.g., soil, water)
- Number and type of containers
- Cooler name or identification number
- Preservative, as applicable
- Notes pertaining to specific samples
- Sampler initials for each sample
- Relinquishment record with signature, name, date, and time
- Receipt record with signature, name, date and time
- Requested turnaround time
- Laboratory name

2.6. Sample Packaging and Shipping

Sample preservation requirements, hazardous material shipping regulations, cross-contamination avoidance, and environmental and physical stresses must be addressed to ensure that samples reach the laboratory intact. Samples will be packaged and shipped in accordance with *BE-SOP-03 Labeling, Packaging, and Shipping Samples* (Attachment C-1).

2.6.1 Sample Preservation

Environmental samples require various methods of preservation to minimize the degradation of analytes during shipment and storage. Table 2-2 lists the preservation requirements for each analytical method and matrix. All laboratory samples will be preserved with cool temperatures by placing in an insulated cooler or refrigerator shortly after collection. Ice packs will be used to establish and maintain sample temperatures of 0 degrees Celsius (°C) to 6 °C during storage in coolers and during transport.

2.6.2 Sample Packaging

All sample containers will be labeled in accordance with *BE-SOP-03 Labeling, Packaging, and Shipping Samples* (Attachment C-1). All sample containers will be wrapped with bubble wrap or placed in bubble-wrap bags. They will then be placed in a resealable plastic bag and sealed. Coolers will be prepared for shipment by ensuring that the cooler drain is taped closed from both sides, then spreading an approximately 4-centimeter thick layer of non-reactive absorbent packing material across the bottom of the cooler. The cooler will then be lined with a plastic garbage bag before adding the bagged samples. Eight completely frozen gel ice packs will be placed around and among the sample containers to ensure that the samples remain at 0 °C to 6 °C during shipment. A labeled temperature blank (tap water in a screw-top plastic bottle, minimum 250 mL) will be included in each cooler to measure sample temperature at the laboratory during the login process.

The liner bag will then be tied or taped closed, and additional inert cushioning such as bubble wrap, newsprint, and/or non-reactive absorbent packing material will be used to take up the remaining space in

the cooler. If the coolers are sealed prior to delivery to the laboratory, then a resealable plastic bag will be taped to the inside lid of the cooler containing the completed and signed CoC. No movement should be detected in the closed cooler with moderate shaking.

The CoC will be completed and sealed inside the cooler. The coolers will be hand delivered to the analytical laboratory; therefore, sealing the cooler and custody seals are not necessary. In the event that sample coolers need to be shipped somewhere, custody seals be place on opposite corners of the cooler and clear tape will be placed over the custody seals to protect them from abrasion, and a minimum of two full wraps of strapping tape will be placed around the cooler in two places to secure the lid. The strapping tape should not obscure the package labels but may be used to secure the edges of the labels and seals.

2.6.3 Cross Contamination

While the seals on modern containers are very good, it is possible for volatile compounds from other samples or the environment to migrate into a sample container. To reduce this risk, each sample container (or container set) will be placed in resealable plastic bags. Trip blanks will be included in each cooler containing samples for volatiles analysis to confirm that sample containers have not been impacted during shipment.

2.6.4 Sample Shipping

Coolers of samples will be hand-delivered directly to SGS in Anchorage, AK. The laboratory will be informed of pending cooler shipments by telephone or email.

2.6.5 Sample Receipt, Inspection, and Log-in Procedures

A sample custodian at the laboratory will accept custody of the shipped samples and inspect the shipment. The laboratory will sign and date the cooler receipt form(s) when samples are received. Shipment inspection will include, but is not limited to, discrepancies on the CoC form(s), sample preservation, sample integrity, temperature blank temperature, and cooler temperature. Cooler receipt information, including the signed CoC, custody seals, and the completed cooler receipt form will be emailed to the Corps of Engineers at Receipt.cooler@usace.army.mil (generally within 24 hours of cooler receipt), and the contractor project chemist will be cc'd on the transmission. Discrepancies or other data quality issues identified by the laboratory will be forwarded to the laboratory project manager (PM) and/or the Contractor project chemist for corrective action (CA).

3.0 REGULATORY CRITERIA

Analytical results for samples collected as a part of storm water and industrial wastewater compliance activities will be compared to criteria as presented in their respective permits. Target analytes and the associated criteria are presented for each of the three permits in Table 3-1.

Table 3-1 Project Action Limits and Laboratory Limits for Water Samples

Analyte		Method	Ms4[a]	MSGP	IWMP	DI[b]	LOD[b]	LOQ[b]
TAH	Benzene	EPA 624	10 ug/L[c]	10 ug/L[c]	5.0 mg/L[c]	0.12	0.2	0.4
	Ethylbenzene	EPA 624				0.31	0.5	1
	Toluene	EPA 624				0.31	0.5	1
	o-xylene	EPA 624				0.31	0.5	1
	p- and m-xylenes	EPA 624				0.62	1	2
TAqH	Acenaphthene	EPA 625 SIM	15 ug/L[d]	15 ug/L[d]		0.015	0.025	0.05
	Acenaphthylene	EPA 625 SIM				0.015	0.025	0.05
	Anthracene	EPA 625 SIM				0.015	0.025	0.05
	Benzo(a)-Anthracene	EPA 625 SIM				0.015	0.025	0.05
	Benzo[a]-pyrene	EPA 625 SIM				0.0062	0.01	0.02
	Benzo[b]-Fluoranthene	EPA 625 SIM				0.015	0.025	0.05
	Benzo[g,h,i]-perylene	EPA 625 SIM				0.015	0.025	0.05
	Benzo[k]-fluoranthene	EPA 625 SIM				0.015	0.025	0.05
	Chrysene	EPA 625 SIM				0.015	0.025	0.05
	Dibenzo[a,h]-anthracene	EPA 625 SIM				0.0062	0.01	0.02
	Fluoranthene	EPA 625 SIM				0.015	0.025	0.05
	Fluorene	EPA 625 SIM				0.015	0.025	0.05
	Indeno[1,2,3-c,d] pyrene	EPA 625 SIM				0.015	0.025	0.05
	Naphthalene	EPA 625 SIM				0.031	0.05	0.1
	Phenanthrene	EPA 625 SIM				0.015	0.025	0.05
	Pyrene	EPA 625 SIM				0.015	0.025	0.05
Arsenic		EPA 200.8			3.7 mg/L	1.5	2.5	5
Beryllium		EPA 200.8			14.5 mg/L	0.13	0.2	0.4
Cadmium		EPA 200.8			0.69 mg/L	0.15	0.25	0.5

Table 3-1 Project Action Limits and Laboratory Limits for Water Samples

Analyte	Method	Ms4[a]	MSGP	IWMP	DI[b]	LOD[b]	LOQ[b]
Chromium	EPA 200.8			2.77 mg/L	0.8	1	2
Copper	EPA 200.8			3.38 mg/L	0.31	0.5	1
Lead	EPA 200.8			0.69 mg/L	0.07	0.1	0.2
Mercury	EPA 245.1			0.2 mg/L	0.4	0.5	1
Nickel	EPA 200.8			3.88 mg/L	0.62	1	2
Silver	EPA 200.8			2.5 mg/L	0.31	0.5	1
Zinc	EPA 200.8			5.62 mg/L	3.1	5	10
Cyanide	SM 4500N-C,E			1.7 mg/L	0.002	0.0025	0.005
Oil or Grease of Animal or Vegetable Origin (HEM)	EPA 1664B			250 mg/L	1	2	4
pH	SM 4500H-B	6.5-8.5	6.5-8.5	5.0-12.5	0.1	0.1	0.1
BOD, 5-day	SM 5210B	30 mg/L	30 mg/L		2	2	2
COD	EPA 410.4	120 mg/L	120 mg/L		6.2	10	20
TSS	SM 2540D				0.31	0.5	1

Notes:
For definitions, see the acronyms and abbreviations section.
[1] 18 AAC 70, Surface Water Criteria, or maximum daily limits as specified in the permit.
[2] Laboratory detection limits for SGS of Anchorage, AK are presented.
[3] The project action limit for TAH is presented.
[4] The project action limit for TAqH is presented.

4.0 QUALITY ASSURANCE PROGRAM PLAN

The purpose of this QAPP is to establish the analytical and documentation protocols to be used when reviewing and analyzing data collected for the project. The overall QC objectives for the laboratory activities are to develop and implement procedures for obtaining and evaluating data in an accurate, precise, and complete manner so that measurement data and laboratory procedures provide information that is comparable to and representative of actual field conditions. Data quality will be evaluated based on precision, accuracy, representativeness, completeness, and comparability as described in further detail in subsequent sections. This QAPP meets the requirements listed under Section 4.1.2.5.2 of the MS4 permit.

4.1. Data Quality Indicators

The quality of the data collected for this project will be verified through appropriate measurement performance criteria (MPC) established for both sampling procedures and analytical methods. The criteria also relate to data quality indicators (DQIs) consisting of precision, accuracy, representativeness, completeness, comparability, and sensitivity (commonly referred to as PARCCS) parameters. The quality of the sampling procedures and laboratory results will be evaluated for compliance with project DQOs through a review of overall PARCCS, in accordance with procedures described in the sections below.

Tables 4-1 through 4-10, presented at the end of this section, summarize the MPC for each matrix and analytical group. The tables identify the DQIs, MPC, and QC sampling and/or activity that will be used to assess performance for both the sampling and analytical measurement systems. In general, the MPC follow those defined in the most current version of the analytical method and Department of Defense (DoD) *Quality Systems Manual* (QSM) (DoD 2019), where applicable. DQIs are defined in the following subsections.

4.1.1 Precision

Precision is measured by the variability associated with duplicate or replicate analyses. Laboratory precision can be measured using laboratory control samples (LCS) and laboratory control sample duplicates (LCSD). Field precision can be evaluated with primary samples and field duplicate samples. MS/MSD samples are also used to measure precision.

Precision will be evaluated by comparing the following:

- LCS and LCSD (if prepared and analyzed) to determine the precision of the laboratory procedures and verify matrix interference
- MS/MSD samples to determine the effect of the sample matrix on the precision of the results generated using the selected analytical method
- Primary and field duplicate sample results

The required level of precision for field duplicates is relative percent difference (RPD) of 30% for waters. Field duplicate precision is evaluated by calculating RPD using the following formula:

$$RPD = \frac{2[|D_1 - D_2|]}{D_1 + D_2} x100$$

Where:

D_1 = first sample value
D_2 = second sample value (replicate)

4.1.2 Accuracy

Accuracy will be evaluated by reviewing the following:

- Calibrations – initial and continuing, acceptance, and frequency
- Surrogates – recovery and frequency
- LCS and LCSD recoveries
- MS/MSD recoveries
- Method blanks (MB) (detections in the MB may indicate potential high bias in associated samples)
- Relative response factors and relative standard deviation (appropriate calibration procedures improve accuracy of measurement results)
- Gas chromatography (GC) second-column confirmation (if required)
- Tuning criteria GC/mass spectroscopy (GC/MS) – acceptability and frequency (to ensure accuracy of mass and ion abundance measurements)
- Internal standards (IS) (GC and GC/MS) – acceptability and frequency

Percent recovery (%R) for surrogates, LCSs, and MSs is calculated using the following formula:

$$\%\ Recovery = \frac{(S - U)}{C_{sa}}\ x\ 100$$

Where:

S = measured concentration in spiked aliquot
U = measured concentration in un-spiked aliquot
Csa = actual concentration of spike added

4.1.3 Representativeness

Representativeness shall be achieved through use of the standard field, sampling, and analytical procedures. Representativeness will be evaluated by reviewing the following:

- Sampling design, including sample quantities and locations
- Sampling procedures and equipment
- Sample CoC forms and field logbooks
- Holding times and preservation

4.1.4 Completeness

Completeness is a measure of the amount of valid data obtained compared with the amount that was expected to be obtained under correct, normal conditions. Completeness will be evaluated for each analyte for a particular sampling event or other defined set of samples (such as by site) with respect to each DQO or end data use.

Completeness will be calculated and evaluated for each method, matrix and analyte combination using the following formula:

$$\%\ Completeness = 100\ x\ (\frac{V}{n})$$

Where:

V = number of measurements determined to be valid
n = total number of measurements

Valid data are considered usable in the context of project DQOs and/or end data use(s). The completeness goal is considered met when 95% of the sample data are considered valid and usable in the context of project goals.

4.1.5 Comparability

Comparability is a qualitative indicator of the confidence with which one data set can be compared to another. To ensure data set comparability, the following steps will be taken:

- Using standard methods for sampling and analysis
- Reporting data in standard units
- Operating Instruments within their calibrated range according to established procedures that are based on approved methodology
- Using only standards supplied by the field test kit manufacturer for field screening analysis
- Using standard and comprehensive reporting formats

4.1.6 Sensitivity

Sensitivity is the ability of a method or instrument to detect the target analytes at the level of interest. The capability of analytical laboratory methods and instrumentation to provide data with the sensitivity to meet the DQOs is evaluated during the planning phase. Laboratory reference limits, including detection limits (DL), limits of detection (LOD), and limits of quantitation (LOQ), are evaluated against the permit criteria to determine whether the analytical methods and/or laboratory can meet the project DQOs.

If a result is greater than the DL and less than the LOQ, the result will be reported as a detected concentration and flagged as estimated and reported with a "J" flag by the lab. If no detected concentration is determined down to the DL, the result will be reported to the LOD concentration (with the added calculations of sample dilution, final volume, and sample mass included), reported as a non-detect (ND) result. A detected result greater than or equal to the LOQ will be reported without a qualifying flag unless otherwise required by QC exceedance.

Sample dilution due to target and/or nontarget compound concentrations or matrix interference could prevent achievement of project sensitivity goals. Samples must be analyzed initially while undiluted, when reasonable. If dilution is necessary, both the original and the diluted results must be reported. Samples that are not analyzed undiluted must be supported by matrix interference documentation, such as sample viscosity, color, odor, or results from other analyses of the same sample, to show that undiluted analysis is not possible. Appropriate cleanup procedures must be followed to minimize matrix effects on DLs, LODs, and LOQs.

When the screening level or permit criteria is less than the DL, the sample result cannot be used to verify that the chemical is not of potential concern at the site. A high degree of uncertainty exists when the screening level or permit criteria is greater than the DL and less than the LOD for ND results, and these ND results should be considered potentially greater than the screening level. When the screening level or permit criteria is greater than the LOD and less than the LOQ and the sample result is ND, by definition there is a 1% false negative rate and the result shall be considered below the screening level or permit criteria at 99% confidence. For ND results with LODs over the screening level or permit criteria, the potential for the presence of those analytes will be evaluated based on site history, uses of the analyte, and professional judgment in coordination with the regulatory agencies.

Table 4-1 MPC for TAH by EPA 624 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/Contamination	Blanks (MB, Trip Blank)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample. [3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS and MS/MSD Recoveries	Water: %R limits, EPA 624, Table 5[2]
Precision	MS/MSD Recoveries (and LCS/LCSD, if performed)	RPD ≤20%[2]
Accuracy	Surrogate Recoveries	Water: %R limits, EPA 624, Table 5[2]
Accuracy/Bias	ICV and CCV	≤20% difference (≤50% for end of analytical batch CCV)[3]
Sensitivity	ISs	Retention time (RT) ±10 seconds from RT of the IS of the calibration midpoint and extracted ion current profile area within -50% to +100% of area from IS calibration midpoint standard
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be analyzed within holding times (Water: 14 days to analysis)

Table 4-1 MPC for TAH by EPA 624 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[1]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for non-detect results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
1 Field Sampling Guidance (ADEC 2017a)
2 EPA 624 (EPA 1984) If method criteria are not available, laboratory statistically derived limits will be used.
3 DoD QSM v.5.3 (DoD 2019)

Table 4-2 MPC for TAqH by EPA 625 SIM in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample. [3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS and MS/MSD Recoveries	Water: %R limits, EPA 625 Table 6[2]
Precision	MS/MSD Recoveries (and LCS/LCSD, if performed)	RPD ≤20%
Accuracy	Surrogate Recoveries	Water: %R limits, EPA 625 Table 6[2]
Accuracy/Bias	ICV and CCV	≤20% difference (≤50% for end of analytical batch CCV)[3]
Accuracy	Tune criteria	Check of mass tuning

Table 4-2 MPC for TAqH by EPA 625 SIM in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Sensitivity	ISs	RT ±30 seconds from RT of the IS of the calibration midpoint and extracted ion current profile area within -50% to +100% of area from IS calibration midpoint standard[2]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 7 days to extraction, 40 days to analysis)
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[1]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for non-detect results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] EPA 624 (EPA 1984); if method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-3 MPC for Metals (Excluding Mercury) by EPA 200.8 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS Recovery	Water: 85-115%[2]
Accuracy and Precision	MS/MSD Recoveries (if performed)	Water: 70-130% RPD ≤20% [2]
Accuracy/Bias	Post-digestion spike	Recovery within 70-130%[2]

Table 4-3 MPC for Metals (Excluding Mercury) by EPA 200.8 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Accuracy/Bias	ICV	≤10% difference[2]
Accuracy/Bias	CCV	≤15% difference[2]
Sensitivity	ISs	Recovery within 60-125%
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 180 days) [2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	None[1]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for non-detect results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] EPA 624 (EPA 1984); if method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-4 MPC for Total Mercury by EPA 245.1 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS Recovery	Recovery 85-115%[2]
Accuracy/Precision	MS (and MSD if performed) Recoveries	Recovery 70-130% RPD ≤20%[2]
Accuracy/Bias	Post-digestion spike	Recovery within 85-115%[2]

Table 4-4 MPC for Total Mercury by EPA 245.1 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Accuracy/Bias	ICV	≤5% difference[2]
Accuracy/Bias	CCV	≤10% difference[2]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 28 days)
Representativeness/Usability	Cooler Temperature and Temperature Blank	None[1]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] EPA 624 (EPA 1984); if method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-5 MPC for Biochemical Oxygen Demand by SM 5210B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB, seeded blank)	MB: <0.20 mg/L DO uptake Seeded Blank: 0.6 mg/L ≤ seeded control factor ≤ 1.0 mg/L[2]
Accuracy	Minimum DO depletion Minimum residual DO	≥2.0 mg/L after 5 days ≥1.0 mg/L after 5 days[2]
Accuracy	LCS	Recovery 84.6-115%[3]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 48 hours)[2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits

Table 4-5 MPC for Biochemical Oxygen Demand by SM 5210B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] SM 5210B (SM22 2012); method defined performance criteria.
[3] Laboratory statistically derived limits.

Table 4-6 MPC for Chemical Oxygen Demand by EPA 410.4 in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS, LCSD, MS, and MSD Recoveries	Recovery 90-110%[2]
Precision	MS/MSD Recoveries LCS/LCSD Recoveries	RPD ≤25%[2]
Accuracy/Bias	ICV and CCV	Recovery within 90-110%
Representativeness /Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 28 days)[2]
Representativeness /Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] EPA 410.4 (EPA 1993); if method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-7 MPC for Total Suspended Solids by SM 2540D in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Precision	Sample Duplicates	RPD ≤5%[2]
Accuracy /Precision	LCS/LCSD Recoveries	Recovery 75-125% RPD ≤5%[2]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 7 days)[2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] SM 2540D (SM22 2012). If method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-8 MPC for Cyanide by SM 4500N-C,E in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/ Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy	LCS, LCSD, MS and MSD Recoveries	Recovery 75-125%[2]
Precision	MS/MSD Recoveries (and LCS/LCSD if performed)	RPD ≤25%[2]
Accuracy/Bias	CCV	Recovery within 90-110%[2]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 14 days)[2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] SM 4500CN-C,E (SM22 2012); if method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019).

Table 4-9 MPC for pH by SM 4500H-B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Precision	Sample Duplicates	Within 0.1 pH SU[2]
Accuracy	LCS	Within 0.5 pH SU[2]

Table 4-9 MPC for pH by SM 4500H-B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: ASAP/7 days)[2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than project action limits
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] SM 4500H-B (SM22 2012); if method criteria are not available, laboratory statistically derived limits will be used.

Table 4-10 MPC for Oil and Grease, Total Petroleum Hydrocarbons by EPA 1664 B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Precision	FD	RPD <30% for waters[1]
Accuracy/Bias/Contamination	Blanks (MB)	No analytes detected >1/2 LOQ and >1/10 the amount found in any sample. For common laboratory contaminants, no analytes detected >LOQ and >1/10 the amount measured in any sample.[3] Sample results will be qualified if contamination is detected above the DL in the associated MB.
Accuracy/Precision	LCS/LCSD Recoveries	HEM Recovery: 78-114%; SGT-HEM Recovery: 64-132% HEM RPD: ≤18%; SGT-HEM RPD: ≤34%[2]
Precision	MS (and MSD if performed)	HEM Recovery: 78-114%; SGT-HEM Recovery: 64-132%[2]
Representativeness/Usability	Collection time/date, extraction time/date, analysis time/date	Samples must be extracted and analyzed within holding times (Water: 28 days)[2]
Representativeness/Usability	Cooler Temperature and Temperature Blank	Temperature 0° to 6°C[2]
Sensitivity	Evaluate laboratory LODs and LOQs against project DQOs	LOD for ND results less than the cleanup levels

Table 4-10 MPC for Oil and Grease, Total Petroleum Hydrocarbons by EPA 1664 B in Water

DQI	QC Sample or Measurement Performance Activity	MPC
Completeness	Completeness of samples collected; completeness of analytical requirements per the QAPP	95%

Notes:
For definitions, see the acronyms and abbreviations section.
[1] *Field Sampling Guidance* (ADEC 2017a).
[2] EPA 1664 B (EPA 2010). If method criteria are not available, laboratory statistically derived limits will be used.
[3] DoD QSM v. 5.3 (DoD 2019)

4.2. Laboratory Reporting Requirements

The laboratory used to perform work for this project is required to follow the appropriate program and method requirements to ensure that the data quality is acceptable and can be used to support project decisions.

Laboratory certification requirements include the following:

- Current State of Alaska certificate of approval for Contaminated Sites analyses
- DoD Environmental Laboratory Accreditation Program (ELAP) approval for the fields of testing and matrices proposed on the project

SGS is the primary laboratory for the project. Current laboratory certifications and limits are included in Attachment C-2.

4.2.1 Analytical Data Package Requirements

A group of samples submitted to the laboratory at the same time and included on the same CoC will be considered an SDG. The results for an SDG will be reported as one analytical data package. Laboratories must provide Level IV data packages that meet the minimum requirements included in the *ADEC DQOs, Checklists, QA Requirements for Laboratory Data, and Sample Handling Technical Memorandum* (ADEC 2017b) and the most current version of the *DoD QSM* (DoD 2019), as applicable.

Laboratory analytical reports must meet the following minimum requirements:

- Case narrative must meet ADEC requirements and shall include the project name
- Project name
- Field-sample ID number on CoC
- Abbreviated subcontracted laboratory name
- Subcontracted laboratory report number
- Lab ID number for sample
- Date sample collected

- Date sample received at subcontracted laboratory
- Date sample extracted, prepared, and analyzed
- Extraction or preparation procedures, if appropriate
- Analysis procedure including method numbers
- Analyte of parameter
- DL/LOD/LOQ for all results
- Initial and continuing calibration
- Analytical results and units
- Dilution factor
- Chromatograms for all methods
- Matrix
- Sample description (i.e., multi-phase, non-homogeneous, pebbles, roots, cloudy, viscous, etc.)
- Copy of CoC record, custody seals, and sample cooler receipt forms, with all forms properly signed and dated

4.2.2 Laboratory Data Deliverables

At minimum, laboratory data deliverables for each SDG will include the following:

- Searchable and bookmarked electronic Level IV data package in PDF for each SDG consistent with the requirements specified in *ADEC DQOs, Checklists, QA Requirements for Laboratory Data, and Sample Handling Technical Memorandum* (ADEC 2017d) and the *DoD QSM* (DoD 2019), as applicable
- Environmental Restoration Program Information Management System (ERPIMS) electronic data deliverable (EDD) validated using the most current version of ERPTools
- Staged Electronic Data Deliverable (Version 5.2, Stage 2a) deliverable (AKSEDD)

4.2.3 Laboratory Result Reporting Requirements

The following result reporting requirements will be met for laboratory data:

- DLs and sample results should be reported to one decimal place more than the corresponding LOQ, unless the appropriate number of significant figures for the measurement dictates otherwise
- Samples should be analyzed undiluted, if possible. ND results will be reported to the LOD

All reported data shall reflect any dilutions and/or concentrations. The dilution factor, if applicable, shall be noted on the analytical report. Such changes should also be reflected in the reporting limits with footnotes detailing the reason for the dilution. If dilution is required, data from both runs shall be recorded and reported; however, one result will be selected and reported as the primary result. If samples must be rerun for any reason, the data shall be included in the report. Chemical data results between the DL and the LOQ will be flagged "J."

4.2.4 Laboratory Data Review and Evaluation

All analytical data that the laboratory generates shall be verified before submittal to the project team. This internal data review process shall include all aspects of data generation, reduction, and QC assessment. The laboratory shall apply data qualifiers as part of its internal validation activities. The allowable data qualifiers for definitive data are QH/QL/QN, J, B, H, and R, and are defined in the most current version of the *DoD QSM* (DoD 2019). Flagging criteria apply when acceptance criteria are not met and when CAs are not successful or not performed.

The project chemist or data reviewer will subsequently evaluate the flags that the laboratory applied as part of its data validation and usability assessment activities. The flags may be accepted, modified, or rejected. For all data qualifiers that are changed, clear justification must be provided.

4.2.5 Laboratory Preventative Maintenance and Corrective Actions

Laboratory preventative maintenance will be implemented in accordance with the laboratory quality assurance (QA) manual and associated laboratory SOP. At a minimum, all major instrumentation will have associated records and logbooks, including schedules and maintenance criteria.

During the project, data quality issues affecting the analytical results may arise. If a laboratory issue arises that affects data quality, the project chemist will discuss with the Brice PM and the rest of the project team as appropriate.

The Brice PM, project chemist, qualified environmental professional, and contract laboratory analysts may be involved in the CA. The CA may be immediate or long-term. An immediate CA may involve recalculating, reanalyzing, or repeating sample collection. Long-term CAs may be identified through performance evaluation samples, standards, control charts, or other devices.

CAs, if necessary, should be completed immediately. If acceptance criteria were not achieved and a CA was not successful, or a CA was not performed, the appropriate data qualifiers should be applied.

4.3. Data Quality Review and Assessment

The data quality review process consists of data verification, data quality review, and data usability assessment. Data verification confirms that the specified requirements have been performed. Data quality review and assessment is the systematic process of evaluating whether the data comply with the predefined requirements of the project (including method, procedural, and contract requirements) and comparing the data with criteria based on the DQOs documented in this SAP/MPP. The data usability assessment is an evaluation based on the results of data verification and quality review in the context of the overall project objectives.

4.3.1 Data Verification Procedures

Data verification inputs include planning documents, field records, and laboratory records. Data verification is a check that all specified activities involved in collecting and analyzing samples have been completed and documented and that the necessary records are available to proceed to data quality review.

Records, documents, and/or procedures that will be reviewed as part of the data verification process include, but are not limited to, the following:

- Field documentation including field logbook(s), Global Positioning System coordinates, and photographs
- Field SOPs (verify that sampling SOPs were followed)
- Analytical SOPs (verify that the analytical SOPs were followed)
- Sample receipt documentation including CoC forms, cooler receipt forms, and laboratory log-in information
- Field measurements, including field screening results
- Sample summary table (verify accuracy and completeness by comparing with CoC forms and cooler receipt forms)
- Laboratory data packages (verify laboratory QC and raw data were provided in the Level IV PDF report)
- Laboratory EDDs (verify that EDDs are consistent with contract requirements)
- Analytical results (verify that all data for all samples were provided and that the specified analytical methods were used by the laboratory)
- Field QC sample results (verify all QAPP-required QC samples were collected and analyzed)

4.3.2 Data Review Procedures

All project data will be reviewed on an analytical-batch basis by assessing QC samples and associated field-sample results. Data quality review will be performed using the QC criteria defined in this SAP/MPP; the *DoD QSM v.5.3* (DoD 2019); *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (EPA 2017a); NFG for Inorganic Superfund Methods Data Review (EPA 2017b); ADEC Lab Data and QA Policy Technical Memorandum* (ADEC 2017b); specific method guidance; and the laboratory SOPs, in that order.

Data quality review and assessment is typically performed by person(s) independent of the activity being evaluated. Data quality review includes completing the *ADEC Laboratory Data Review Checklist* (ADEC 2019) for each SDG, the review of the analytical data including QC sample results, field and laboratory QA reports, and all data submittals.

The following information will be reviewed during the data quality review and assessment:

- CoC documentation
- Holding time compliance
- QC sample frequencies
- Blanks
- LCS recoveries (and precision, if LCSD performed)
- Surrogate spike recoveries
- MS/MSD recoveries and precision
- Initial and continuing calibration summary information
- ISs
- FD precision

- Case narrative review, laboratory flagging review, and other method-specific criteria

In general, EDDs will be evaluated for consistency with project and contract requirements. EDDs will be consistent with the Level IV PDF report.

4.3.3 Data Quality Review and Assessment Guidelines

The data quality review and assessment will identify results requiring qualification and potential effects on data usability based on the MPC in Tables 4-1 through 4-10. Table 4-11 defines the qualifiers to be applied to the analytical data set, as appropriate. Direction of bias will be indicated when possible.

Table 4-11 Data Qualifiers

Qualifier	Description
J	Analyte is considered an estimated value because the level is below the laboratory LOQ and above the DL.
QH/QL/QN	Analyte result is considered an estimated value biased (high, low, uncertain) due to a QC failure
H	Analyte result is considered a low estimate due to a holding time exceedance.
B	Analyte result is considered a high estimated value due to contamination present in the method or trip blank.
R	Analyte result is rejected due to deficiencies in meeting QC criteria, and the result is not usable. Note that "R" replaces the chemical result (no result shall be reported with an "R" flag).

Notes:
For definitions, see the acronyms and abbreviations section.
Data quality review and assessment will indicate when performance criteria are not met. The final rejection of data (qualified "R") and their use must be decided by the project team in the context of project objectives, and not based solely on the assessment performed by the data reviewer.

Qualification will not be required in the following circumstances:

- Surrogate or MS recoveries were outside QC limits, and the sample was diluted by a factor of 5 or greater
- MS recoveries were outside QC limits, and the spiked concentration was less than that of the parent sample
- An analyte was detected in the MB, but there was no detection in the sample
- MS/MSD or LCS/LCSD recoveries exceeded upper control limits (UCLs) and there was no detection in the sample(s)

Data may be rejected on the following grounds:

- Initial calibration (per compound) criteria not met
- Continuing calibration (per compound) not verified
- All NDs with the continuing calibration recovery less than control limits (CLs)
- All NDs with the LCS recovery less than CLs
- Any compound with LCS recovery less than 10%

- Missed holding times greater than two times the method-specified holding time
- Surrogate recovery of less than 10% and a dilution factor of 5 or less

Table 4-12 includes general data qualifying conventions.

Table 4-12 General Data Qualifying Conventions

QC Requirement	Criteria	Flag	Flag Applied To
Holding time	Time exceeded for extraction or analysis	H for positive results and NDs	All analytes in sample
	Time exceeded for extraction or analysis by a factor of >2	H for positive results; R for NDs	
Sample preservation	Improper sample preservation	QL for positive results and NDs	Sample
	Temperature >6 °C upon receipt	QL for positive results and NDs	
	Temperature >8 °C upon receipt at laboratory	QL for positive results; R for NDs	
	Temperature <0 °C upon receipt and not frozen or otherwise adversely affected	No flag required	
Sample Integrity (EPA 624)	Bubbles in VOA vial>1/4 inch used for analysis	QL for positive results and NDs	Sample
Instrument tuning	Ion abundance method-specific criteria not met	R for all results	All associated samples in analytical batch
Initial calibration	All analytes must be within method-specified criteria	R for all results	All associated samples in analytical batch
Second source check (ICV)	All analytes must be within method-specified criteria	R for all results	All associated samples in analytical batch
Continuing calibration	All analytes must be within method-specific criteria Note: closing CCV for GC/MS must be within 50%-150%	QH/QL/QN for positive results and NDs, indicating bias	All associated samples in analytical batch
	Criteria exceeded by more than 2x	QH/QL/QN for positive results; R for NDs	
Low-level calibration check	All analytes must be within 50% of expected value	High bias: QH for positive results Low bias: QL for positive results; and NDs	All associated samples in analytical batch
	Criteria exceeded by more than 2x	QH/QL/QN for positive results; R for NDs	

Table 4-12 General Data Qualifying Conventions

QC Requirement	Criteria	Flag	Flag Applied To
ISs	Area >UCL	QL for positive results; R for NDs	Sample
	Area < lower control limit (LCL)	QH for positive results	
LCS	%R > UCL	QH for positive results	The specific analyte(s) in all samples in associated analytical batch
	%R < LCL	QL for positive results; QL for NDs	
	%R <LCL and <10%	QL for positive results; R for NDs	
Surrogate spikes	%R >UCL	QH for positive results; no flag for NDs	Sample
	%R <LCL and >10%	QL for positive results; QL for NDs	
	%R <10%	QL for positive results; R for NDs	
	Dilution >5x	No flagging required for failed surrogates	
Blanks (method, equipment, or trip)	Analyte(s) detected above the DL (use the blank of the highest concentration)	B for positive sample results ≤ 10 times	All samples in preparation, field or analytical batch, whichever applies
FD samples	RPD >CL and FDs >LOQ	QN for positive results	The specific analyte(s) in FD pair
	One FD >LOQ, one ND	QN for positive results and NDs	
	One FD>LOQ, one FD >LOD but <LOQ	QN for positive results for RPDs outside QC limits	
	Both results <LOQ	No flagging required for RPDs outside QC limits	
MS/MSD	MS or MSD %R >UCL	QH for positive results	The specific analyte(s) in parent sample
	MS or MSD %R <LCL	QL for positive results and NDs	
	MS or MSD %R <LCL and <10%	QL for positive results; R for NDs	
	MS/MSD RPD >CL	QN for positive results	
	Sample concentration >spike concentration; excessive dilution (dilution >5x)	No flag required	

Table 4-12 General Data Qualifying Conventions

QC Requirement	Criteria	Flag	Flag Applied To
Post-digestion spike	All analytes must be within ±20% of expected value	High bias: QH for positive results Low bias: QL for positive results and NDs	The specific analyte(s) in parent sample
Serial dilutions	All analytes must be within 10% of expected value	If post-spike is not analyzed; QN for positive results	The specific analyte(s) in parent sample
Confirmation	RPD between primary and confirmation results >40%	QN for positive results; R if no matrix interference present	Sample
RT window	Analyte within established window	R for all results if analyte is outside established window	Sample

Notes:
For definitions, see the acronyms and abbreviations section.
Information in this table reflects flagging criteria from guidance documents, as well as criteria applied based on professional judgment.

Blank Evaluation Guidance

The project chemist or data reviewer will evaluate MBs, as well as other field blanks, based on the concentration of the analyte in the samples in relation to the concentration in the blank. The project chemist must discuss any blank contamination that may affect data usability in conjunction with project-specific goals. When a data set contains low-level detects in field samples and has associated field or laboratory blanks that have detects at similar concentrations, this suggests that the low-level detects in these field samples may be artifacts because of either field or laboratory practices. MBs will be evaluated to the DL. If an analyte is detected in the MB above the DL, associated sample results that are ≤10 times the amount found in the MB will be flagged "B" at the detected concentration to document the associated blank contamination.

Duplicate Evaluation Guidance

QC measures for precision include field duplicates, laboratory duplicates, and MSDs. Except for field duplicates, the laboratory will complete an evaluation of these measures and qualify the data accordingly within their review (Section 4.2.4). The project chemist or data reviewer will review this evaluation and complete an evaluation of field duplicate precision.

To evaluate field duplicate precision, the RPD between duplicate results will be calculated. Duplicate results will be qualified "QN" if the RPD exceeds the recommended 30% for waters (Section 4.1.1). Duplicate results will be qualified when one result is greater than the LOQ and one result is ND. No calculations will be made when both concentrations are less than the LOQs.

Field duplicate results can be used to assess field sampling precision, laboratory precision, and, potentially, the representativeness of the matrix sampled. Poor overall precision may result from one or more of the following:

- Field instrument variation

- Analytical measurement variation
- Poor sampling technique
- Sample transport problems
- Spatial variation (heterogeneous sample matrices)

To identify the cause of imprecision, the project team should evaluate the field sampling design rationale and sampling techniques, as well as review both field and analytical duplicate sample results. If poor precision is indicated in both the field and analytical duplicates, then the laboratory may be the source of error. If poor precision is limited to the field duplicate results, then the sampling technique, field instrument variation, sample transport, and/or spatial variability may be the source of error. If data quality reports indicate that analytical imprecision exists for a particular data set or SDG, then the reports must discuss the effect of that imprecision on usability.

4.3.4 Data Usability Assessment

The data usability assessment is an evaluation based on the results of data verification and quality review in the context of the overall project decisions or objectives. The assessment determines whether the project execution and resulting data meet the project DQOs. The sampling and analytical activities must be considered, with the ultimate goal of assessing whether the final, qualified results support the decisions to be made with the data.

Data gaps may be present if (1) a sample is not collected, (2) a sample is not analyzed for the requested parameters, or (3) the data are determined to be unusable. The need for further investigation will be determined on a case-by-case basis. This determination will depend on whether data can be extrapolated from adjacent sample locations and whether the data are needed based on the results from adjacent sample locations.

The project chemist will generate a data quality assessment report to be included with the project report that describes the results of the data verification, data quality review, and usability assessment. The project chemist will work with the Brice PM and other project staff to discuss conclusions drawn and determine any potential limitations on the usability of the project data as a result of the assessment. The data quality assessment will document all data nonconformance and usability determinations, even in cases where it is determined that the usability of the data is not affected.

The usability of the data collected during field activities will be assessed in several ways:

- Any deviations from proposed field activities and sampling and handling procedures will be reviewed and their effect on data usability evaluated
- Field screening and analytical results for field samples and field and laboratory QC samples will be compared against the project DQOs and evaluated using the MPC in Tables 4-1 through 4-11
- Analytical results, including ND values, will be compared against the project cleanup levels in Table 3-1
- Data verification and quality review will be completed following the procedures in Section 4.3
- Based on the results of data verification and quality review, the usability of the data will be evaluated in the context of project specific DQOs

Measurement error will be evaluated by reviewing sampling design, sampling locations, and sample collection methods. The project chemist or data reviewer will evaluate laboratory and field QC sample results (field duplicates, performance evaluation samples, blanks, LCS, surrogate recoveries, and matrix effect, if any) to assess the overall measurement error associated with the project.

Table 4-13 includes specific examples of items that may be evaluated during the usability assessment, as applicable. Information in this table reflects general data usability considerations.

Table 4-13 Data Usability Assessment

Item	Assessment Activity	Responsibility
Laboratory data deliverables and Work Plan	Ensure that all necessary information was provided, including (but not limited to) QC sample results and data validation results.	Project Chemist
Sampling locations, deviation	Determine whether alterations to sampling locations continue to satisfy the project DQOs.	Field Team, PM
CoC, deviation	Establish that any problems with documentation or custody procedures do not prevent the data from being used for the intended purpose.	Project Chemist
Holding times, deviation	Determine the acceptability of data where holding times were exceeded.	Project Chemist
SOPs and methods, deviations	Evaluate the impact of deviations from analytical and field SOPs and specified methods on data quality.	Field Team, Project Chemist
QC samples	Evaluate the implications of unacceptable QC sample results on the data usability for the associated samples. For example, consider the effects of observed blank contamination.	Project Chemist
Matrix	Evaluate matrix effects (interference or bias).	Project Chemist
Meteorological data and site conditions	Evaluate the possible effects of meteorological (e.g., wind, rain, temperature) and site conditions on sample results. Review field reports to identify whether any unusual conditions were present and how the sampling plan was executed.	Field Team
Comparability	Ensure that results from different data collection events achieve an acceptable level of agreement.	Project Chemist
Completeness	Evaluate the impact of missing information. Ensure that enough information was obtained for the data to be usable (completeness as defined in the project DQOs documented in this QAPP).	PM, Field Team, Project Chemist
Critical samples	Establish that critical samples and critical target analytes, as defined in the QAPP, were collected and analyzed. Determine whether the results meet criteria specified in the QAPP.	PM, Field Team, Project Chemist
Data restrictions	Describe the exact process for handling data that do not meet project DQOs (i.e., when MPC are not met). Depending on how those data will be used, specify the restrictions on use of those data for environmental decision making.	PM, Field Team, Project Chemist
Usability decision	Determine whether the data can be used to make a specific decision considering the implications of all deviations and CAs.	PM, Field Team, Project Chemist

Table 4-13 Data Usability Assessment

Item	Assessment Activity	Responsibility
Usability report	Discuss and compare overall precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity for each matrix, analytical group, and concentration level. Describe limitations on the use of project data if criteria for DQIs are not met.	Project Chemist

Note: For definitions, see the acronyms and abbreviations section.

4.3.5 Analytical Data Quality Report

An analytical data quality report will be prepared that summarizes the findings of the data verification and data quality review and discusses the effect of any variances on data usability. In addition to the overall data quality report, the project chemist or data reviewer will complete the ADEC *Laboratory Data Review Checklist* (ADEC 2019) for each laboratory data package. A summary of the findings of the data quality report will be included in the text of the report.

The analytical data quality report will present detailed results of the data quality review and assessment, including, but not limited to, a discussion of all QC parameters evaluated; the acceptance criteria used to evaluate each parameter; the extent of the QC exceedance; identification of samples affected by the QC exceedance; and discussion of any qualifiers applied to the samples results, including potential direction of bias and relationship to screening levels and/or cleanup levels (if possible). Significant trends and biases in the data will be evaluated and identified. A detailed description will be provided for any CAs and/or systematic problems that were identified during the data review process.

Analytical data will be tabulated in the completed report. All analytical results, including duplicate results, will be reported with any appropriate qualifiers in accompanying data tables. Sample LODs for ND results will be compared to the project action levels established for the method/analyte/matrix in Table 3-1. If the LOD for the ND result exceeds the action level, the result will be flagged or otherwise highlighted.

5.0 REFERENCES

18 Alaska Administrative Code (AAC) 70. 2018. *Water Quality Standards.* April.

Alaska Department of Environmental Conservation (ADEC). 2017a. *Field Sampling Guidance*. Division of Spill Prevention and Response. Contaminated Sites Program. August.

ADEC 2017d. Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling. March.

ADEC 2019. Laboratory Data Review Checklist. November.

ADEC 2016. Procedures for Calculating Cumulative Risk. September.

Environmental Compliance Consultants, Inc. (ECC). 2018. Email correspondence, 26 July and 1 August

U.S. Department of Defense (DoD). 2019. Department of Defense *Quality Systems Manual (QSM) for Environmental Laboratories* v. 5.3.

United States Environmental Protection Agency (EPA). 2017a. *National Functional Guidelines for Organic Superfund Methods Data Review*. EPA-540-R-2017-002. January.

EPA. 2017b. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. January.

EPA. 2009. Guidelines for Labelling Externally Validated Laboratory Analytical Data for Superfund Use. EPA 540-R-08-005. January.

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Attachment C-1
Field Standard Operating Procedures

(to be provided by individual USAF contractors)

Attachment C-2
Analytical Laboratory Certification

(to be provided by individual USAF contractors)

Appendix 7 – MS4 Permit, AKS053651

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FOR STORM WATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

Permit Number: AKS053651

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

In compliance with the provisions of the Clean Water Act (CWA), 33 U.S.C. ' 1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4; this permit is issued under provisions of Alaska Statutes 46.03; the Alaska Administrative Code (AAC) as amended; and other State laws and regulations. The

JOINT BASE ELMENDORF-RICHARDSON (hereafter "permittee")

is authorized to discharge from all municipal separate storm sewer system (MS4) outfalls existing as of the effective date of this permit to Ship Creek, Knik Arm, and other waters of the United States in accordance with the conditions and requirements set forth herein.

This permit shall become effective on **October 1, 2019**.

This permit and the authorization to discharge shall expire after **September 30, 2024**.

The Permittee must reapply for permit reissuance on or before **April 3, 2024**, 180 days before the expiration of this permit if the Permittee intends to continue operation and discharges from the MS4 beyond the term of this permit.

Signature	August 22, 2019 Date
Gene McCabe Printed Name	Program Manager Title

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SCHEDULE OF SUBMISSIONS

The Schedule of Submissions summarizes some of the required submissions and activities the permittee must complete and submit to the Alaska Department of Environmental Conservation (the Department or DEC) during the term of this permit. The permittee is responsible for all submissions and activities even if they are not summarized below.

Table 1: Schedule of Submissions – Storm Water Management Program

Part of Permit	Storm Water Management Program Component	Compliance Date
	General Requirements	
2.1	Submit to DEC a written description of how Storm Water Management Program (SWMP) activities control the discharge of sediment, petroleum products and debris to waters of the U.S. from the MS4	Within one year of the permit effective date
2.3.1	Conduct an annual review of the SWMP implementation and submit an Annual Report to DEC	Annually
4.1.2.5	Submit a Monitoring Program Plan including Quality Assurance Requirements	Within six months of the permit effective date
	Public Education and Outreach	
3.1.2	Continue an on-going public education program to educate the community about the ways to reduce impacts to storm water quality	Annually
3.1.3.1	Publish articles in a local newspaper or base website regarding storm water pollution prevention	Annually
3.1.3.2	Create or purchase storm water pollution prevention materials for key audiences and distribution at annual base events	Update annually
3.1.3.3	Update base housing tenant materials to include storm water related materials	Update annually
3.1.3.4	Purchase or develop brochure on use of lawn chemicals and household hazardous products and distribute to key audiences	Annually
3.1.3.5	Develop and make available to base personnel a website with information about storm water management	Update semi-annually
	Public Involvement	
3.2.2	Post SWMP and annual reports on the permittee's website	Update annually
3.2.3	Plan and host a community litter clean-up activities within the MS4, to include areas adjacent to Ship Creek	Host annually
3.2.4	Conduct storm drain cover program to apply labels to JBER storm drains covers	Annually
3.2.5	Establish and maintain a storm water steering committee representing multiple base organizations or units that meets quarterly	Quarterly
	Illicit Discharge Detection and Elimination	
3.3.1	Inventory and map industrial facilities to include in storm sewer system map	Update annually
3.3.2	Update and implement a plan to detect and address illicit discharges to the MS4	Annually
3.3.3.1	Conduct wet weather outfall inspections	Annually
3.3.3.2	Conduct dry weather inspections of storm water discharge locations to identify illicit discharges	Annually

Table 1: Schedule of Submissions – Storm Water Management Program

Part of Permit	Storm Water Management Program Component	Compliance Date
3.3.4	Develop and implement a system for tracking information on illicit discharge discovery and response	Annually
3.3.5 & 3.3.6	Review effectiveness of command policy letter or other control measure to prohibit illicit discharges to the MS4; prohibit any specific non-storm water discharge, if necessary	Annually
3.3.7	Conduct education on hazards associated with illegal discharges	Annually
3.3.8	Review and revise storm sewer system map(s) and incorporate into JBER GIS network	Annually
3.3.9	Conduct dry weather screening from all outfalls	Annually
Construction Site Storm Water Runoff		
3.4.1	Review and revise its construction site runoff control program	Annually
3.4.3	Review effectiveness of command policy letter to require appropriate management of construction site storm water runoff to ensure compliance with the SWMP and CGP	Annually
3.4.4	Continue to publish and distribute Erosion and Sediment Control Plan requirements for all construction projects	On-going
3.4.5	Review and implement plan review procedures for reviewing construction plans and project SWPPPs	Annually
3.4.6	Review and revise standard language for inclusion in JBER construction contracts	Annually
3.4.7	Review and implement procedures for site inspection and enforcement of control measures	Annually
3.4.8	Conduct a training related to the construction command letter	Biennially
Post-Construction Site Storm Water Runoff		
3.5.1	Review, continue implementation, and enforcement of a post-construction site runoff control program	Annually
3.5.2	Review and revise command policy letter to require appropriate management of post-construction site storm water runoff to ensure compliance with the SWMP and CGP	Annually
3.5.3	Review and revise and distribute a BMP design manual (post-construction activity manual (PCAM))	Biennially
3.5.4	Revise and implement an inspection schedule and long-term operation and maintenance plan for post-construction BMPs	Annually
3.5.5	Develop and conduct at least one training for local contractors, engineers, and tenants regarding the requirements of the PCAM	Within three years of the permit effective date
3.5.6	Develop a strategy for evaluating Green Infrastructure/ Low Impact Development (GI/LID) projects	Within one year after the permit effective date
3.5.7	Incorporate GI/LID techniques into educational materials	Within two years of the permit effective date; annually thereafter
3.5.8	Conduct an evaluation of the first project to use GI/LID	Within the permit term
3.5.9	Revise the GI/LID Strategy	Within the permit term
Pollution Prevention And Good Housekeeping		
3.6.1	Conduct storm water pollution prevention inspections	Annually
3.6.2	Maintain and implement maintenance standards for storm water facilities	Annually

Table 1: Schedule of Submissions – Storm Water Management Program

Part of Permit	Storm Water Management Program Component	Compliance Date
3.6.3	Review and implement a study of the effectiveness of current street sweeping operations, storm drain cleaning operations and other base activities with potential for storm water impacts	Annually
3.6.4	Conduct training for employees or contractors whose job functions may impact storm water quality	Annually
3.6.5	Ensure that new flood management projects are assessed for impacts on water quality	Annually

1.0 APPLICABILITY

1.1 Introduction

This permit authorizes the permittee to discharge storm water to Ship Creek, Knik Arm, and other waters of the United States as defined in Part 1.2 *Permit Coverage Area* from 1.3 *Discharges Authorized Under this Permit*. The goal of this permit is to minimize the discharge of storm water pollutants from an MS4.

1.2 Permit Coverage Area

This permit covers all portions of the MS4 within Joint Base Elmendorf-Richardson (JBER) which are owned or operated by the permittee.

1.3 Discharges Authorized Under this Permit

During the effective term of this permit, the permittee is authorized to discharge storm water to waters of the United States from all portions of the MS4s owned and operated by the permittee, subject to the conditions set forth herein. This permit also authorizes the discharge of storm water commingled with flows contributed by process wastewater, non-process wastewater, and storm water associated with industrial activity, provided that the storm water in these flows is only commingled with those categories of allowable non-storm water discharges set forth in Part 1.4 of this permit.

1.4 Limitations on Permit Coverage

1.4.1 **Non-Storm Water Discharges**. The Permittee is not authorized to discharge non-storm water, except where such discharges satisfy one of the following three conditions:

1.4.1.1 The non-storm water discharges are in compliance with a separate Alaska Pollutant Discharge Elimination System (APDES) permit; or

1.4.1.2 The non-storm water discharges result from a spill and:

1.4.1.2.1 Are the result of an unforeseen weather event where reasonable and prudent measures have been taken to minimize the impact of such discharge; or

1.4.1.2.2 Consist of emergency discharges required to prevent imminent threat to human health or severe property damage, provided that reasonable and prudent measures have been taken to minimize the impact of such discharges; or

1.4.1.3 The non-storm water discharges satisfy each of the following two conditions:

1.4.1.3.1 The discharges consist of uncontaminated water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR§ 35.2005(20)), uncontaminated pumped ground water, discharges from potable water

sources, foundation drains, air conditioning condensate, irrigation water, springs, water from crawlspace pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, residential building wash waters without detergents, and flows from emergency firefighting activities; and

1.4.1.3.2 The discharges are not sources of pollution to waters of the United States. A discharge is considered a source of pollution to waters of the United States if it:

1.4.1.3.2.1 Causes excessive foam in the receiving waters or contains floating and/or settleable solids in amounts sufficient to make the water unsafe or unfit for providing water supply or other beneficial uses;

1.4.1.3.2.2 Contains oil or other substances in amounts sufficient to create a visible film or sheen on the receiving waters;

1.4.1.3.2.3 Contains substances that are in amounts sufficient to be unsightly or deleterious or which produce color, odor, or other conditions to such a degree as to create a nuisance;

1.4.1.3.2.4 Contains any substance or combination of substances in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants or humans; or

1.4.1.3.2.5 Contains any substances or combination of substances that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly, or otherwise impair the designated use.

1.4.2 **Discharges Threatening Water Quality.**

The permittee is not authorized to discharge storm water that the DEC determines will cause or have the reasonable potential to cause or contribute to violations of water quality standards (WQS) in the receiving water.

1.4.3 **Snow Disposal to Receiving Waters**.

1.4.3.1 The permittee must select effective snow storage and disposal sites in upland areas where direct drainage to surface waters or storm drains is not possible and where the groundwater table is low. Best Management Practices (BMPs) at disposal sites may include detention basin, dikes, berms, and vegetative buffers.

1.4.3.2 The permittee is not authorized to dispose of snow directly to waters of the United States or directly to the MS4. Discharges from the permittee's snow disposal and snow management practices are authorized under this permit when such practices are operated using appropriate BMPs required in Part 3.6.2. Such BMPs may include detention basins, dikes, berms, ditches, and vegetative buffers. BMPs must be designed, operated, and maintained to prevent and reduce pollutants in the discharge to the maximum extent practicable so as to avoid excursions above the WQS in the receiving water.

1.4.4 **Discharges to Water Quality-Impaired Receiving Waters**

1.4.4.1 For purposes of this Permit, the CWA §303(d) listed water bodies are those cited in the Final DEC 2014/2016 Integrated Report – Ship Creek, or the most current version of this report. "Pollutant(s) of concern" refer to the pollutant(s) identified as causing or contributing to the water quality impairment. Pollutants of concern for the purposes of this Permit are fecal coliform bacteria.

1.4.4.2 The permittee must conduct a storm water discharge monitoring program as required in Part 4.0.

1.4.4.3 The permittee's Storm Water Management Program (SWMP) must include a description how the activities of each minimum control measure in Part 3.0 are implemented by the permittee to control the discharge of pollutants of concern and ensure that the MS4 discharges will not cause or contribute to an excursion above applicable WQS. This discussion must specifically identify how the permittee evaluates and measures the effectiveness of the SWMP to control the discharge of the pollutant(s) of concern. For those activities identified in Part 3.0 requiring multiple years to develop and implement, the permittee must provide interim updates on progress to date. Consistent with Part 2.1, the permittee must update and submit this description of the SWMP implementation to DEC as part of the Annual Report required in Part 4.3, and must update its description annually in subsequent Annual Reports.

2.0 STORM WATER MANAGEMENT PROGRAM REQUIREMENTS

2.1 Storm Water Management Program Document

2.1.1 No later than one year from the effective date of the permit, the permittee must review, and revise as necessary its written documentation of the SWMP as implemented within its jurisdiction. The SWMP documentation must be organized according to the program components in Parts 3.0 and 4.0 of this permit. At a minimum, the permittee must include the following information:

2.1.1.1 Ordinances or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit.

2.1.1.2 A written outline describing how the permittee will implement the requirements of Parts 3.0 and 4.0 of this permit.

2.1.2 The permittee must track the annual number of inspections, official enforcement actions, and types of public education activities and outcomes, as stipulated by the respective program requirement. Information summarizing these activities during the previous reporting period must be included in the Annual Report.

2.2 General Requirements

2.2.1 The permittee must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. The SWMP must include BMPs, control techniques, system design, engineering methods, and other provisions appropriate for the control and minimize the discharge of pollutants from the MS4.

2.2.2 The SWMP developed by the permittee and submitted to DEC covers the term of this permit and must be updated as necessary or as required by DEC to ensure compliance with Section 402(p)(3)(B) of the CWA, 33 U.S.C. §1342(p)(3)(B). Modifications to the SWMP must be made in accordance with Part 2.3 of this permit. The SWMP submitted to DEC by the permittee, and all approved updates made in accordance with Part 2.3 of this permit, are hereby incorporated by reference. All components and requirements of the SWMP are enforceable as conditions of this permit.

2.2.3 The permittee must submit any plan revisions or documents which require review and approval by DEC to the address listed in Part 4.5, and in accordance with Parts 2.3 and/or 4.1 of this permit. Within 60 days of receipt of such plans or documents, DEC must have the right to disapprove or require modifications to the plans or documents for approval.

2.2.4 The SWMP actions and activities are outlined through the minimum control measures in Part 3.0 and the assessment/monitoring requirements described in Part 4.1. The permittee must implement a SWMP that provides:

2.2.4.1 BMPs that are selected, implemented, maintained and updated to ensure that storm water discharges do not cause or contribute to an exceedance of an applicable numeric or narrative WQS; and

2.2.4.2 Measurable goals, including interim milestones, for each BMP.

2.2.5 Implementation of one or more of the minimum measures may be shared with another entity that is not subject to this permit, or the entity may fully take over the measure. The permittee may rely on another entity only if:

2.2.5.1 The other entity, in fact, implements the control measure;

2.2.5.2 The control measure, or component of that measure, is at least as stringent as the corresponding permit requirement; and

2.2.5.3 The other entity agrees to implement the control measure on the permittee's behalf. A legally binding written acceptance of this obligation is required. The permittee must maintain this obligation as part of the SWMP description. If the other entity agrees to report on the minimum measure, the permittee must supply the other entity with the reporting requirements in Part 4.3 of this permit. The permittee remains responsible for compliance with the permit obligations.

2.3 Reviewing and Updating the Storm Water Management Program

2.3.1 The permittee must annually review the SWMP as part of the preparation of the Annual Report required under Part 4.3.

2.3.2 The permittee may request changes to any SWMP action or activity specified this permit according to the following procedures:

2.3.2.1 Changes to delete or replace an action or activity specifically identified in the SWMP with an alternate action or activity may be requested at any time. Modification requests to DEC must include:

2.3.2.1.1 An analysis of why the original action or activity is ineffective, infeasible, or cost prohibitive;

2.3.2.1.2 Expectations on the effectiveness of the replacement action or activity; and

2.3.2.1.3 An analysis of why the replacement action or activity is expected to better achieve the SWMP requirements.

2.3.2.2 Change requests or notifications must be made in writing and signed by the permittee in accordance with Appendix A, Part 1.12.

2.3.2.3 Documentation of the actions or activities as required by the SWMP must be submitted to DEC upon request. DEC may review and subsequently notify the permittee that changes to the SWMP are necessary to:

2.3.2.3.1 Address discharges from the MS4 that are causing or contributing to water quality impacts;

2.3.2.3.2 Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements;

2.3.2.3.3 Include other conditions deemed necessary by the DEC to comply with WQS, and/or other goals and requirements of the CWA; or

2.3.2.3.4 Address the SWMP requirements of the permit, if DEC determines that the permittee's current SWMP does not meet permit requirements.

2.3.2.4 If DEC notifies the permittee that changes are necessary, the notification will offer the permittee an opportunity to propose alternative program changes to meet the objectives of the requested modification. Following this opportunity, the permittee must implement any required changes according to the schedule set by DEC.

2.4 Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation.

2.4.1 Transfer of ownership, operational authority, or responsibility for SWMP implementation requires submittal of all corrected documentation to DEC for a 60-day review before implementation of transfer.

2.4.2 The permittee must implement the SWMP in all new areas added or transferred to the permittee's MS4 (or for which the permittee becomes responsible for implementation of storm water quality controls) as expeditiously as practicable, within one year from the date upon which the new areas were added. Such additions and schedules for implementation must be documented in the next Annual Report following the transfer.

2.5 Storm Water Management Program Resources

The permittee must provide adequate finances, staff, equipment, and other support capabilities to implement their SWMP actions and activities outlined in this permit.

3.0 MINIMUM CONTROL MEASURES

The six minimum control measures that must be included in the SWMP are:

3.1 Public Education and Outreach

3.1.1 The permittee must include the following topics in its public education and outreach program:

3.1.1.1 Appropriate storm water management practices for commercial, industrial, food service, carpet cleaners, home-based or mobile businesses, and automotive activities;

3.1.1.2 Appropriate yard care techniques for protecting water quality, including proper timing and use of fertilizers;

3.1.1.3 Proper pet waste management;

3.1.1.4 Appropriate spill prevention practices for industrial, commercial, construction, and residential settings;

3.1.1.5 Proper use, storage and disposal of household hazardous waste;

3.1.1.6 Proper recycling;

3.1.1.7 Proper management of street, parking lot, sidewalk, and building wash water;

3.1.1.8 Proper methods for using water for dust control; and

3.1.1.9 Impacts of illicit discharges and how to report them.

3.1.2 At least annually, the permittee must distribute storm water educational materials to target audiences that encourages base tenants to improve water quality.

3.1.3 The public education and outreach activities include at a minimum the following tasks:

3.1.3.1 Once annually publish article(s) in a local newspaper or Base website regarding storm water pollution prevention;

3.1.3.2 Annually create or obtain and distribute brochures on storm water pollution prevention, spill prevention BMPs and pet waste management to key audiences and at one or more base events;

3.1.3.3 Annually develop or obtain materials for and update storm water related materials for military housing tenants;

3.1.3.4 Annually create or obtain and distribute a brochure on the proper use and disposal of lawn chemicals and household hazardous products and distribute to key audiences; and

3.1.3.5 The permittee must make available to base personnel a website with information about storm water management within the MS4 and update the website at least semi-annually.

3.1.4 The permittee must document the following information related to public education and outreach in the Annual Report required in Part 4.3:

3.1.4.1 Describe the public education program and outreach activities accomplished during the previous calendar year, including at least one copy of each educational material distributed;

3.1.4.2 Describe the methods and frequency of disseminating information;

3.1.4.3 Describe the target audiences and pollutants/ sources that are addressed by the program and how they were selected;

3.1.4.4 Estimate the number of people reached by the program over the previous twelve month period;

3.1.4.5 List the measurable goals for the public education and outreach program over the next twelve month period;

3.1.4.6 List the dates by which the measurable goals will be achieved; and

3.1.4.7 Identify the person(s) responsible for implementing and coordinating the education activities.

3.2 Public Involvement and Participation

3.2.1 The permittee must comply with applicable State and local public notice requirements when implementing a public involvement/participation program.

3.2.2 The permittee must continue annually to make the SWMP and all Annual Reports available to the public by posting them on the storm water website.

3.2.3 The permittee must host a community event annually aimed at litter removal or similar clean-up within the MS4, to include areas adjacent to Ship Creek.

3.2.4 The permittee must initiate a storm drain labeling program. The permittee must use one or more of the following labeling methods: storm drain inlet covers and manhole covers, medallions, or stenciled paint on concrete containing a storm water pollution prevention message/notice (e.g., “No Dumping,” “drains to ocean” or “drains to creek”). A minimum of one hundred labelled storm drains shall be carried out each year in years two through five; with a priority for labeling in high traffic or high pollution risk areas.

3.2.5 At least quarterly, the permittee must convene a Storm Water Steering Committee to coordinate and accomplish the goals of the SWMP. The meeting schedule must be made known to the public and DEC through direct mail or e-mail notification, or other locally appropriate means.

3.2.6 The permittee must document the following information related to public involvement/participation in the Annual Report required in Part 4.3.

3.2.6.1 Describe the activities and target audiences for public involvement that the program accomplished for the preceding twelve month period, including any monitoring and/or survey results, number of storm drain covers labeled, etc.;

3.2.6.2 Describe the procedure(s) for receiving and reviewing public comments;

3.2.6.3 List the measurable goals for the public involvement/participation program over the next twelve month period;

3.2.6.4 List the dates by which the permittee will accomplish each of the upcoming measurable goals; and

3.2.6.5 Identify the person(s) responsible for implementing and coordinating the public involvement/participation activities.

3.3 Illicit Discharge Detection and Elimination

3.3.1 Annually, the permittee must update the inventory and map of the locations of industrial facilities to include in the storm sewer system map.

3.3.2 Annually the permittee must carry out a plan to detect and eliminate illicit discharges to the MS4.

3.3.3 Annually the permittee must carryout the following inspections:

3.3.3.1 Conduct wet weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-storm water discharge to the storm sewer system; and

3.3.3.2 Conduct dry weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-storm water discharge to the storm sewer system(see also Permit Part 3.3.4 and 3.3.9).

3.3.4 The permittee must maintain a program to detect and eliminate illicit discharges. Specifically, the program must incorporate detection, identification of the source, and removal of non-storm water discharges, including illegal dumping, into the storm sewer system. The permittee must, as part of this activity, develop an information management system to track illicit discharges.

3.3.5 Annually, the permittee must review the effectiveness and revise ordinances or procedures that effectively prohibit non-storm water discharges into their system through an ordinance or other regulatory mechanism, such as a base Command Policy letter, to the extent allowable under federal, state or local law. The permittee must implement appropriate enforcement procedures and actions, including enforcement escalation procedures for recalcitrant or repeat offenders.

3.3.6 The permittee must prohibit any of the non-storm water flows listed in Part 1.4.1.3 through ordinance, or other regulatory mechanism, if such flows are identified by DEC or the permittee as a source of pollutants to the MS4. The permittee must document any existing local controls or conditions placed on such discharges.

3.3.7 Annually the permittee must inform users of the system and the general public of hazards associated with illegal discharges and improper disposal of waste and provide educational outreach materials.

3.3.8 Annually the permittee must review and revise, as necessary, a comprehensive storm sewer system map. At a minimum, the map must show jurisdictional boundaries, the location of all inlets and outfalls, names and locations of all waters that receive discharges from those outfalls, and locations of all base operated facilities, including snow disposal sites.

3.3.9 The permittee must continue dry weather field screening for non-storm water flows from all outfalls. By the expiration date of the permit, all of the permittee's outfalls within the area of the MS4 must be screened for dry weather flows. The screening should include field tests of selected chemical parameters as indicators of discharge sources. Screening level tests may utilize less expensive field test kits using test methods not approved by EPA under 40 CFR Part 136, provided the manufacturers published detection ranges are adequate for the illicit discharge detection purposes. The permittee must investigate any illicit discharge within 15 days of its detection, and must take action to eliminate the source of the discharge within 45 days of its detection. Raw data and narrative review of screening and mapping must be included in the following year's Annual Report from the year the data was collected.

3.3.10 The permittee must document the following information related to illicit discharge detection and elimination in the Annual Report required in Part 4.3:

3.3.10.1 A description of the criteria used to prioritize investigations in areas suspected of having illicit discharges, for example: targeting older areas of the base, areas of high public complaints, and areas of high recreational value or high environmental value such as parks, and drinking water sources;

3.3.10.2 A description of procedures used to locate and remove illicit discharges, including detection methods;

3.3.10.3 A summary of all dry weather testing conducted to date, and of permittee activity to remove any illicit discharge(s) identified;

3.3.10.4 A copy of the established ordinance or other regulatory mechanism used to prohibit illicit discharges into the MS4. If the permittee has yet to develop this local requirement, describe the plan and schedule for doing so, and progress towards implementation;

3.3.10.5 A description of enforcement policy and jurisdiction. The program must include procedures for coordination with adjacent municipalities and/or state or federal regulatory agencies to address situations where investigations indicate the illicit discharge originates outside the permittee's jurisdiction. Where a permittee lacks legal authority to establish enforceable rules or if an illicit discharger fails to comply with procedures or policies established by the permittee, the program must include procedures for notifying DEC for assistance in enforcement of this provision of the permit;

3.3.10.6 A description of the methods used over the previous 12 month period to inform the public and/or train employees and tenants about illicit discharges and the improper disposal of waste;

3.3.10.7 A list of measurable goals for the illicit discharge detection and elimination program for the next 12 month period, and the dates by which the permittee will achieve each of the measurable goals; and

3.3.10.8 The name and title of the person(s) responsible for coordination and implementation of the illicit discharge detection and elimination program.

3.4 Construction Site Storm Water Runoff Control

3.4.1 Annually, the permittee must review and revise, as necessary, its program to reduce pollutants in any storm water runoff to the MS4 from construction activities disturbing one or more acres, in compliance with the requirements of this permit and the current version of the APDES General Permit for Storm Water Discharges from Large and Small Construction Activities in Alaska Permit (Alaska Construction General Permit or CGP, AKR100000). The permittee's program must also address storm water discharges from construction activitiy disturbing less than one acre, if that construction activity is part of a larger common plan of development or sale that would disturb one or more acres. The permittee must discuss any revisions, planned improvements, and interim implementation schedules related to this program within the Annual Report.

3.4.2 If DEC waives the permit requirements for storm water discharges associated with a specific small construction activity (i.e., a single project) in accordance with 40 CFR §122.26(b)(15)(i)(A) or (B), the permittee is not required to develop, implement, and/or enforce the program to reduce pollutant discharges from that particular site.

3.4.3 Annually the permittee must maintain an ordinance or other regulatory mechanism, such as a base Command Policy letter, to the extent allowable under federal, state or local law which requires construction site operators to practice appropriate erosion, sediment and waste control. This ordinance or regulatory mechanism must include sanctions to ensure compliance.

3.4.4 The permittee must continue to publish and distribute requirements for construction site operators to implement appropriate erosion and sediment control BMPs and to control waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality.

3.4.5 Annually the permittee must review and implement procedures for reviewing all site plans for potential water quality impacts, including erosion and sediment control, control of other wastes, and any other impacts that must be examined according to the requirements of the law, ordinance, or other enforceable mechanism of Part 3.4.3. These procedures must include provisions for receipt and consideration of information submitted by the public.

3.4.6 Annually, the permittee must review and revise as necessary standard language for inclusion in JBER construction contracts defining contractor roles and responsibilities for erosion and sediment control.

3.4.7 Annually, the permittee must review and implement procedures for site inspection and enforcement of control measures established as required in Parts 3.4.3 and 3.4.4, including enforcement escalation procedures for recalcitrant or repeat offenders. The permittee must inspect all construction sites in their jurisdictions for appropriate erosion/sediment/waste control at least once per year.

3.4.8 Biennially the permittee must conduct a training session for the local construction/design/engineering audience related to the construction ordinance and BMP requirements referenced in Parts 3.4.3 and 3.4.4.

3.4.9 The permittee must document the following information related to construction site storm water runoff control in the Annual Report required in Part 4.3:

3.4.9.1 A copy of the established ordinance or other regulatory mechanism used to require erosion, sediment and waste controls at construction sites. If the permittee has yet to develop the required regulatory mechanism, describe the plan and schedule for doing so;

3.4.9.2 A summary of the number of sanctions and enforcement actions taken by the permittee to ensure compliance with the construction site ordinance during the previous 12 month period. To the extent allowable under the legal authority of the permittee, sanctions may include both monetary and non-monetary penalties;

3.4.9.3 A copy of the written requirements for appropriate erosion, sediment and waste control BMPs at construction sites;

3.4.9.4 A summary of the number of site plan reviews conducted;

3.4.9.5 A description of the procedures for receipt and consideration of information submitted by the public;

3.4.9.6 A summary of the number of sites inspected during the previous 12 month period, including a description of the site inspection procedures, how sites will be prioritized for inspection, when and how often a site will be inspected;

3.4.9.7 A list of measurable goals for the construction site runoff control program, including dates by which the permittee will achieve each of the measurable goals; and

3.4.9.8 The name and title of the person(s) responsible for coordination and implementation of the construction site runoff control program.

3.5 Post-Construction Storm Water Management in New Development and Redevelopment

3.5.1 The permittee must annually review and continue the implementation and enforcement of a program to address post-construction storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre that discharge into the MS4, including projects less than one acre that are part of a larger common plan of development or sale that exceed one acre.

3.5.2 Annually, the permittee must review the effectiveness and revise, as necessary, ordinances or other regulatory mechanism, such as a base Command Policy letter, to the extent allowable under state or local law to address post-construction runoff from new development and redevelopment projects. If such a mechanism did not previously exist, development and adoption of a mechanism must be part of the program. The permittee must evaluate existing procedures, policies, and authorities pertaining to activities occurring on their property that may be used to assist in the development of the required regulatory mechanism.

3.5.3 Once every two years from the effective date of this permit the permittee must review and revise, as necessary, and then distribute a BMP design manual for post-construction storm water management (Post Construction Activity Manual (PCAM)) which includes a list of strategies reflecting a combination of structural and/or non-structural BMPs appropriate to the MS4. This design manual must include, but is not limited to, requirements for the appropriate design and construction of snow disposal sites, LID methods, and parking lots.

3.5.4 Annually, the permittee must revise and implement an inspection schedule and a long-term operation and maintenance plan for post-construction BMPs.

3.5.5 Within three years from the effective date of this permit, the permittee must develop and conduct at least one training for base developers, engineers, tenants, and the public regarding requirements of the base Command Policy letter and the PCAM referenced in Parts 3.5.2 and 3.5.3.

3.5.6 Within the first year of the effective date of the permit, the permittee must develop a Green Infrastructure/Low Impact Development (GI/LID) strategy that provides incentives for the increased use of GI/LID technique(s) or practice(s) described in ETL 14-1 (or subsequent document with a revised name) in development projects. The written strategy must address planning, constructing, and evaluating GI/LID projects within JBER. The strategy is to be included in the first year Annual Report. The strategy will evaluate the effectiveness of individual techniques: green roofs, rain gardens, rain barrels, bioswales, permable piping, dry wells, or permeable pavement that mimic natural processes and direct storm water to areas where it can be infiltrated, evapotranspirated, or reused. The strategy must discuss the benefits and costs of such techniques and provide guidance, in addition to that provided by ETL 14-1 (or subsequent document with a revised name), on which to base how to implement them.

3.5.7 Starting with the second year after the permit effective date, the permittee shall annually incorporate into their education materials information about GI/LID techniques, such as green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells, and permeable pavement that mimic natural processes and direct storm water to areas where it can be infiltrated, evapotranspirated, or reused. The information must discuss the benefits and costs of such strategies and provide guidance on how to implement them.

3.5.8 The permittee must conduct an evaluation of the performance of GI/LID technique(s) or practice(s) of the first project built using GI/LID during the permit term and submit a project evaluation in the subsequent Annual Report. The permittee must monitor, calculate, or model runoff quantities for the project site in the following manner:

3.5.8.1 For a retrofit project, changes in runoff quantities shall be calculated as a percentage of 100% pervious surface before and after implementation of the GI/LID technique(s) or practice(s).

3.5.8.2 For new construction projects, changes in runoff quantities shall be calculated for development scenarios both with GI/LID technique(s) or practice(s) and without GI/LID technique(s) or practice(s).

3.5.8.3 The permittee must measure runoff flow rate and subsequently prepare runoff hydrographs to characterize peak runoff rates and volumes, discharge rates and volumes, and duration of discharge volumes. The evaluation must include quantification and description of each type of land cover contributing to surface runoff for the pilot project, including area, slope, vegetation type and condition for pervious surfaces, and the nature of impervious surfaces.

3.5.8.4 The permittee must use these runoff values to evaluate overall effectiveness of various GI/LID technique(s) or practice(s) and to develop recommendations for future adoption of GI/LID technique(s) or practice(s) that address appropriate use, design, type, size, soil type and operation and maintenance practices.

3.5.9 No later than the end of the permit term, the permittee must use the recommendations obtained through the GI/LID project to revise the GI/LID Strategy for JBER.

3.5.10 The permittee must document the following information related to post-construction storm water management in the Annual Report required in Part 4.3:

3.5.10.1 A copy of the BMP design manual containing structural and non-structural BMPs that will be used to manage post-construction runoff from new development and redevelopment projects within the MS4. List any specific priority areas for this program;

3.5.10.2 An explanation of the design and performance features of the chosen BMPs that are intended to minimize water quality impacts;

3.5.10.3 A copy of the established ordinance or other regulatory mechanism used to address post-construction runoff control. If the permittee has yet to develop the required regulatory mechanism, describe the plan and schedule for doing so;

3.5.10.4 A description of how long-term operation and maintenance of the selected BMPs will be ensured, including the organizations responsible and their expected operation and maintenance schedule;

3.5.10.5 A description of the plans to inform and educate developers and the public about appropriate project designs that minimize water quality impacts;

3.5.10.6 A list of measurable goals for the post-construction runoff control program, including dates by which the permittee will achieve each of the measurable goals; and

3.5.10.7 The name and/or title of the person(s) responsible for coordination and implementation of the post-construction storm water management program.

3.6 Pollution Prevention and Good Housekeeping for Base Operations

3.6.1 Annually, the permittee must conduct storm water pollution prevention inspections, including: wet-weather outfall inspections (100% each year), snow disposal areas (100% each year), and catch basins (50% each year).

3.6.2 Annually, the permittee must maintain and implement an operation and maintenance program intended to prevent or reduce pollutant runoff from base operations. This program must address base activities occurring with potential for negative storm water related water quality impacts, including: the use of sand and road deicers; fleet maintenance and vehicle washing operations; street sweeping, cleaning and maintenance; grounds/parks, and open space maintenance operations; building maintenance; solid waste transfer activities; water treatment plant operations; storm water system maintenance; and snow disposal site operation and maintenance. In addition the permittee must address the following: materials storage; hazardous

materials storage; used oil recycling, spill control and prevention measures for refueling facilities; base new construction and land disturbances; and snow removal practices.

3.6.3 The permittee must review and implement the results of the study of the effectiveness of current street cleaning operations, storm drain cleaning operations, and other base activities with potential for storm water impacts. This study must also examine the existing practices for the disposal of waste removed from the MS4 and the MS4 operations.

3.6.4 Annually, the permittee must review and revise and conduct appropriate training for appropriate base personnel related to optimum maintenance practices for the protection of water quality.

3.6.5 The permittee must continue to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices;

3.6.6 The permittee must document the following information related to the permittee's efforts to prevent or reduce pollutant runoff from base operations through the operation and maintenance program in the Annual Report required in Part 4.3:

3.6.6.1 A description of the activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the MS4;

3.6.6.2 A description of the employee training program used to prevent and reduce storm water pollution including the targeted department personnel, frequency of such training, copy of sign-in sheet, and a copy of training materials;

3.6.6.3 A summary description of the controls for reducing or eliminating the discharge of pollutants from areas owned or operated by the permittee, including but not limited to streets, roads, and highways; municipal parking lots; maintenance and storage yards; waste transfer stations; fleet or maintenance shops with outdoor storage areas; salt/sand storage locations; and snow disposal sites operated by the permittee;

3.6.6.4 A description of procedures to ensure proper disposal of waste removed from the MS4 and the MS4 operations including dredge spoil, accumulated sediments, floatables, and other debris;

3.6.6.5 A description of procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices;

3.6.6.6 A list of all industrial facilities owned or operated by the permittee that discharge to the MS4, including industrial facilities that are subject to the APDES Multi-Sector General Permit (MSGP, AKR060000) or individual APDES permits for discharges of storm water associated with industrial activity, and/or facilities identified as part of the inventory required in Part 3.3.1 of this permit. Include the DEC permit tracking number or a copy of the Industrial Notice of Intent form for each facility, as appropriate;

3.6.6.7 A list of measurable goals for the pollution prevention and good housekeeping program, including dates by which the permittee will achieve each of the measurable goals; and

3.6.6.8 The name and title of the person(s) responsible for coordination and implementation of the pollution prevention and good housekeeping program.

4.0 MONITORING, EVALUATION, REPORTING, AND RECORD KEEPING REQUIREMENTS

4.1 Monitoring Program Plan

4.1.1 The permittee must develop, implement, and revise, as necessary, a comprehensive Monitoring Program Plan. A description of this plan must be included in the SWMP document.

4.1.1.1 The Monitoring Program Plan must be designed to assess compliance with this permit; measure the effectiveness of the permittee's SWMP; measure the chemical, physical, and biological impacts to the receiving waters resulting from storm water discharges; characterize storm water discharges; identify sources of specific pollutants; and detect and eliminate illicit discharges and illegal connections to the MS4.

4.1.2 When the permittee conducts water quality monitoring, the permittee must comply with the following:

4.1.2.1 ***Representative Monitoring***. All samples and measurements must be representative of the monitored activity.

4.1.2.2 ***Test Procedures***. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 (adopted by reference at 18 AAC 83.010), unless otherwise specified.

4.1.2.3 ***Storm Water Discharge Monitoring***. The permittee must conduct a storm water discharge monitoring program which meets the following minimum requirements:

4.1.2.3.1 The permittee must revise, as necessary, the current Storm Water Outfall Monitoring Plan consistent with the monitoring objectives described above. The outfalls selected by the permittee in the Storm Water Outfall Monitoring Plan must be representative of major land uses of JBER and include the outfall that discharges into the Port of Anchorage MS4. JBER must coordinate their storm water discharge monitoring program with the Port of Anchorage MS4 for the outfall that discharges into the Port of Anchorage MS4.

4.1.2.3.2 The permittee must begin monitoring the storm water outfalls identified in the Storm Water Outfall Monitoring Plan during wet weather events at least four times per year. The specific monitoring requirements are outlined in Part 4.1.2.5.

4.1.2.4 ***Discharge Monitoring Report***. Monitoring results must be recorded on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1) or equivalent, and submitted annually for the previous 12-month period along with the Annual Report required in Part 4.3 and 4.4.3.2.

4.1.2.5 ***Monitoring Program Plan including Quality Assurance Requirements***. Within six months of the effective date of this permit, the permittee must submit a current Monitoring Program Plan that includes a Quality Assurance Project Plan (QAPP) for all analytical monitoring to be conducted, including but not limited to the activities described in Part 3.0. Prior to beginning any analytical monitoring, the permittee must submit the plan to DEC. The plan must be submitted to the address given in Part 4.5.

4.1.2.5.1 The QAPP must be designed to assist in planning for the collection and analysis of water samples in support of the SWMP.

4.1.2.5.2 Throughout all sample collection and analysis activities, the permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5), *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5) and the DEC Quality Assurance Plan Checklist. The QAPP must be formatted as specified in these documents.

4.1.2.5.3 At a minimum, the QAPP must include the following:

4.1.2.5.3.1 Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantification limits for each target compound; type and number of quality assurance field samples; precision and accuracy requirements; sample preparation requirements; sample shipping methods; and laboratory data delivery requirements.

4.1.2.5.3.2 Map(s) indicating the location(s) of each sampling point.

4.1.2.5.3.3 Qualification and training of personnel.

4.1.2.5.3.4 Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the permittee.

4.1.2.6 Annually the permittee must review the adequacy of the QAPP based on permit compliance activities and sampling results. The permittee must amend this Monitoring Program Plan and QAPP whenever there is modification in the sample collection, sample analysis, or other conditions or requirements of the plan.

4.1.2.7 The permittee must continue monitoring the identified storm water outfalls in Part 4.1.2.3.1 during wet weather events at least four times per year. The monitoring requirements are listed in Table 4-1: Outfall Monitoring Requirements.

Table 4-1: Outfall Monitoring Requirements

Parameter	Monitoring Requirements		
	Sample Location[1]	Sample Frequency[2]	Sample Type[3]
Flow (cfs)		4 times/year	Estimated
Temperature (º C)		4 times/year	Grab or Recording
pH		4 times/year	Grab or Recording
Dissolved Oxygen (mg/L)		4 times/year	Grab or Recording
Biochemical Oxygen Demand, 5-day (mg/L)		4 times/year	Grab
Chemical Oxygen Demand (mg/L)		4 times/year	Grab
Turbidity (NTU)		4 times/year	Grab or Recording
Total Suspended Soilds (mg/L)		4 times/year	Grab
TAH, TaqH (µg/L)		4 times/year	Grab

Notes:
1. Outfall locations must be defined in the permittee's Storm Water Outfall Monitoring Plan.
2. A minimum of four (4) samples must be collected in calendar year, assuming the presence of storm events sufficient to produce a discharge.
3. Permittee may use other sample types as long as previously identified in the monitoring plan. Grab samples may be taken manually or with an automatic water sampler.

4.1.3 Records of monitoring information must include:

4.1.3.1 The date, exact place, and time the samples or measurements were taken;

4.1.3.2 The names(s) of the individual(s) who performed the sampling or measurements;

4.1.3.3 The date(s) upon which analysis of each sample was performed;

4.1.3.4 The names of the individuals who performed each analysis;

4.1.3.5 The analytical techniques or methods used; and

4.1.3.6 The results of each analysis.

4.1.4 If the permittee monitors more frequently than required by this permit using test procedures approved under 40 CFR Part 136 (adopted by reference at 18 AAC 83.010), or as otherwise specified by this permit, the results of this monitoring must be included with the data submitted as part of the Annual Report.

4.2 Evaluation of Overall Program Effectiveness

Annual Effectiveness Assessment – At least annually the permittee must evaluate its compliance with the permit conditions, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals for each of the minimum control measures in Part 3.0. This evaluation of program compliance must be documented in the Annual Report. The annual effectiveness assessment must:

4.2.1 Use the monitoring and assessment data described in Part 4.1 to specifically assess the effectiveness of each of the following:

4.2.1.1 Each significant activity/control measure or type of activity/control measure implemented;

4.2.1.2 Implementation of each major component of the SWMP (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Pollution Prevention and Good Housekeeping); and

4.2.1.3 Implementation of the SWMP as a whole.

4.2.2 Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 4.2.1.

4.2.3 Document the permittee's compliance with permit conditions.

4.2.4 Based on the results of the effectiveness assessment, the permittee must annually review their activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Base activities/control measures that are ineffective or less effective than other comparable base activities/control measures must be replaced or improved upon by implementation of more effective base activities/control measures.

4.3 Annual Reports

4.3.1 **Submission Deadlines** - According to the schedule in Table 4-2: Submission Deadlines for Annual Reports, and annually thereafter, the permittee must submit an Annual Report for the previous twelve months to DEC at the address in Part 4.5. The Annual Report must clearly refer to the permit requirements and describe in quantifiable terms the status of activities undertaken to comply with each requirement. In addition, copies of all Annual Reports must be available to the public through the municipal library system, a permittee-maintained website, or other easily accessible location.

Table 4-2: Submission Deadlines for Annual Reports

Reporting Period	Submission Deadline
1st year Annual Report (permit issuance date – December 2019)	February 15, 2020
2nd year Annual Report (January 1, 2020 – December 31, 2020)	February 15, 2021
3rd year Annual Report (January 1, 2021 – December 31, 2021)	February 15, 2022
4th year Annual Report (January 1, 2022 – December 31, 2022)	February 15, 2023
5th year Annual Report (January 1, 2023 – permit expiration date[1])	February 15, 2024

Note:
1. Unless the permit is extended to or past December 31, 2023; in that case use December 31, 2023. Subsequent reporting periods will follow similar format for the calendar year with submission deadline of February 15th the following year.

4.3.2 **Summary Annual Report** – The permittee must use the MS4 – Summary Annual Report template in Appendix D to document a summary of the past year's activities. All of the information required on this form must be submitted.

4.3.3 **Detailed Annual Report** – The permittee must also submit a detailed Annual Report that addresses the activities described in the SWMP document required in Part 2.0. The Annual Report must include, at a minimum:

4.3.3.1 An updated SWMP document as required in Part 2.0.

4.3.3.2 A description of the effectiveness of each SWMP program component or activity (see Part 4.2).

4.3.3.3 Planned activities and changes for the next reporting period for each SWMP program component or activity.

4.3.3.4 An evaluation of compliance with the requirements of this permit, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals of the SWMP for each minimum control measure.

4.3.3.5 Results of any information collected and analyzed during the previous twelve month reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the maximum extent practicable.

4.3.3.6 A summary of the activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule) for each minimum control measure.

4.3.3.7 Proposed changes and completed changes to the SWMP, including changes to any BMPs or any identified measurable goals for any minimum control measures.

4.3.3.8 Description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable WQS.

4.3.3.9 Notice if the permittee is relying on another entity to satisfy some of the permit obligations, if applicable.

4.4 Recordkeeping

4.4.1 **Retention of Records**: The permittee must retain records and copies of all information (including all monitoring, calibration and maintenance records and all original strip chart recordings for any continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the APDES permit, and records of all data used to complete the application for this permit) for a period of at least five years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended at the request of the DEC at any time. Records include all information used in the development of the storm water management program, all monitoring data, copies of all reports, and all data used in the development of the permit application.

4.4.2 **Availability of Records**: The permittee must retain the SWMP required by this permit (including a copy of the permit language and all Annual Reports) at a location accessible to the DEC. The permittee must make records, including the permit application and the SWMP, available to the public if requested to do so in writing and make those records available during normal business hours. The permittee may charge the public a reasonable fee for copying requests.

4.4.3 **Electronic Reporting (**E-Reporting) Rule

4.4.3.1 E-Reporting Rule for DMRs (Phase I). If a permittee is required to submit a DMR, the permittee must submit DMR data electronically through Network Discharge Monitoring Report (NetDMR) per Phase I of the E-Reporting Rule (40 CFR §127) upon the effective date of the Permit. Authorized persons may access permit information by logging into the NetDMR Portal (https://cdxnodengn.epa.gov/oeca-netdmr-web/action/login). DMRs submitted in compliance with the E-Reporting Rule are not required to be submitted as described in Appendix A – Standard Conitions unless requested or approved by the Department. Any DMR data required by the Permit that cannot be reported in a NetDMR field (e.g., mixing zone receiving water data, etc.), shall be included as an attachment to the NetDMR submittal. DEC has established a website at http://dec.alaska.gov/water/Compliance/EReporting Rule.htm that contains general information about this new reporting format. Training materials and webinars for NetDMR can be found at https://netdmr.zendesk.com/home.

4.4.3.2 E-Reporting Rule for Other Reports (Phase II). Phase II of the E-Reporting Rule will integrate electronic reporting for all other reports required by the Permit (e.g., Annual Reports and Certifications) and implementation is expected to begin December 2020. Permittees should monitor DEC's E-Reporting Information website (http://dec.alaska.gov/water/Compliance/EReportingRule.htm) for updates on Phase II of the E-Reporting Rule and will be notified when they must begin submitting all other reports electronically. Until such time, other reports required by the Permit may be submitted in accordance with Appendix A – Standard Conditions.

4.5 Address

Submittals required by this permit must be made to the address specified in Appendix A, Part 1.1.2 Compliance and Enforcement Program.

APPENDIX A
STANDARD CONDITIONS
APDES PERMIT
NONDOMESTIC DISCHARGES

APPENDIX - A Standard Conditions

Appendix A of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements. Appendix A, Standard Conditions is an integral and enforceable part of the permit. Failure to comply with a Standard Condition in this Appendix constitutes a violation of the permit and is subject to enforcement.

1.0 Standard Conditions Applicable to All Permits

1.1 Contact Information and Addresses

1.1.1 Permitting Program

Documents, reports, and plans required under the permit and Appendix A are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone (907) 269-6285
Fax (907) 269-3487
Email: DEC.Water.WQPermit@alaska.gov

1.1.2 Compliance and Enforcement Program

Documents and reports required under the permit and Appendix A relating to compliance are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Compliance and Enforcement Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone Nationwide (877) 569-4114
Anchorage Area / International (907) 269-4114
Fax (907) 269-4604
Email: dec-wqreporting@alaska.gov

1.2 Duty to Comply

A permittee shall comply with all conditions of the permittee's APDES permit. Any permit noncompliance constitutes a violation of 33 U.S.C. 1251-1387 (Clean Water Act) and state law and is grounds for enforcement action including termination, revocation and reissuance, or modification of a permit, or denial of a permit renewal application. A permittee shall comply with effluent standards or prohibitions established under 33 U.S.C. 1317(a) for toxic pollutants within the time provided in the regulations that establish those effluent standards or prohibitions even if the permit has not yet been modified to incorporate the requirement.

1.3 Duty to Reapply

If a permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. In accordance with 18 AAC 83.105(b), a permittee with a currently effective permit shall reapply by submitting a new application at least 180 days before the existing permit expires, unless the Department has granted the permittee permission to submit an application on a later date. However, the Department will not grant permission for an application to be submitted after the expiration date of the existing permit.

1.4 Need to Halt or Reduce Activity Not a Defense

In an enforcement action, a permittee may not assert as a defense that compliance with the conditions of the permit would have made it necessary for the permittee to halt or reduce the permitted activity.

1.5 Duty to Mitigate

A permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

1.6 Proper Operation and Maintenance

1.6.1 A permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances that the permittee installs or uses to achieve compliance with the conditions of the permit. The permittee's duty to operate and maintain properly includes using adequate laboratory controls and appropriate quality assurance procedures. However, a permittee is not required to operate back-up or auxiliary facilities or similar systems that a permittee installs unless operation of those facilities is necessary to achieve compliance with the conditions of the permit.

1.6.2 Operation and maintenance records shall be retained and made available at the site.

1.7 Permit Actions

A permit may be modified, revoked and reissued, or terminated for cause as provided in 18 AAC 83.130. If a permittee files a request to modify, revoke and reissue, or terminate a

permit, or gives notice of planned changes or anticipated noncompliance, the filing or notice does not stay any permit condition.

1.8 Property Rights

A permit does not convey any property rights or exclusive privilege.

1.9 Duty to Provide Information

A permittee shall, within a reasonable time, provide to the Department any information that the Department requests to determine whether a permittee is in compliance with the permit, or whether cause exists to modify, revoke and reissue, or terminate the permit. A permittee shall also provide to the Department, upon request, copies of any records the permittee is required to keep under the permit.

1.10 Inspection and Entry

A permittee shall allow the Department, or an authorized representative, including a contractor acting as a representative of the Department, at reasonable times and on presentation of credentials establishing authority and any other documents required by law, to:

1.10.1 Enter the premises where a permittee's regulated facility or activity is located or conducted, or where permit conditions require records to be kept;

1.10.2 Have access to and copy any records that permit conditions require the permittee to keep;

1.10.3 Inspect any facilities, equipment, including monitoring and control equipment, practices, or operations regulated or required under a permit; and

1.10.4 Sample or monitor any substances or parameters at any location for the purpose of assuring permit compliance or as otherwise authorized by 33 U.S.C. 1251-1387 (Clean Water Act).

1.11 Monitoring and Records

A permittee must comply with the following monitoring and recordkeeping conditions:

1.11.1 Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

1.11.2 The permittee shall retain records in Alaska of all monitoring information for at least three years, or longer at the Department's request at any time, from the date of the sample, measurement, report, or application. Monitoring records required to be kept include:

1.11.2.1 All calibration and maintenance records,

1.11.2.2 All original strip chart recordings or other forms of data approved by the Department for continuous monitoring instrumentation,

1.11.2.3 All reports required by a permit,

1.11.2.4 Records of all data used to complete the application for a permit,

1.11.2.5 Field logbooks or visual monitoring logbooks,

1.11.2.6 Quality assurance chain of custody forms,

1.11.2.7 Copies of discharge monitoring reports, and

1.11.2.8 A copy of this APDES permit.

1.11.3 Records of monitoring information must include:

1.11.3.1 The date, exact place, and time of any sampling or measurement;

1.11.3.2 The name(s) of any individual(s) who performed the sampling or measurement(s);

1.11.3.3 The date(s) and time any analysis was performed;

1.11.3.4 The name(s) of any individual(s) who performed any analysis;

1.11.3.5 Any analytical technique or method used; and

1.11.3.6 The results of the analysis.

1.11.4 Monitoring Procedures

Analyses of pollutants must be conducted using test procedures approved under 40 CFR Part 136, adopted by reference at 18 AAC 83.010, for pollutants with approved test procedures, and using test procedures specified in the permit for pollutants without approved methods.

1.12 Signature Requirement and Penalties

1.12.1 Any application, report, or information submitted to the Department in compliance with a permit requirement must be signed and certified in accordance with 18 AAC 83.385. Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under a permit, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be subject to penalties under 33 U.S.C. 1319(c)(4), AS 12.55.035(c)(1)(B), (c)(2) and (c)(3), and AS 46.03.790(g).

1.12.2 In accordance with 18 AAC 83.385, an APDES permit application must be signed as follows:

1.12.2.1 For a corporation, a responsible corporate officer shall sign the application; in this subsection, a responsible corporate officer means:

1.12.2.1.1 A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

1.12.2.1.2 The manager of one of more manufacturing, production, or operating facilities, if

1.12.2.1.2.1 The manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental statutes and regulations;

1.12.2.1.2.2 The manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and

1.12.2.1.2.3 Authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

1.12.2.2 For a partnership or sole proprietorship, by the general partner or the proprietor, respectively, shall sign the application.

1.12.2.3 For a municipality, state, federal, or other public agency, either a principal executive officer or ranking elected official shall sign the application; in this subsection, a principal executive officer of an agency means:

1.12.2.3.1 The chief executive officer of the agency; or

1.12.2.3.2 A senior executive officer having responsibility for the overall operations of a principal geographic unit or division of the agency.

1.12.2.4 Any report required by an APDES permit, and a submittal with any other information requested by the Department, must be signed by a person described in Appendix A, Part 1.12.2, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1.12.2.5 The authorization is made in writing by a person described in Appendix A, Part 1.12.2;

1.12.2.6 The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, including the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility; or an individual or position having overall responsibility for environmental matters for the company; and

1.12.2.7 The written authorization is submitted to the Department to the Permitting Program address in Appendix A, Part 1.1.1.

1.12.3 If an authorization under Appendix A, Part 1.12.2.4 is no longer effective because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Appendix A, Part 1.12.2.4 must be submitted to the Department before or together with any report, information, or application to be signed by an authorized representative.

1.12.4 Any person signing a document under Appendix A, Part 1.12.2 or Part 1.12.2.4 shall certify as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

1.13 Proprietary or Confidential Information

1.13.1 A permit applicant or permittee may assert a claim of confidentiality for proprietary or confidential business information by stamping the words "confidential business information" on each page of a submission containing proprietary or confidential business information. The Department will treat the stamped submissions as confidential if the information satisfies the test in 40 CFR §2.208, adopted by reference at 18 AAC 83.010, and is not otherwise required to be made public by state law.

1.13.2 A claim of confidentiality under Appendix A, Part 1.13.1 may not be asserted for the name and address of any permit applicant or permittee, a permit application, a permit, effluent data, sewage sludge data, and information required by APDES or NPDES application forms provided by the Department, whether submitted on the forms themselves or in any attachments used to supply information required by the forms.

1.13.3 A permittee's claim of confidentiality authorized under Appendix A, Part 1.13.1 is not waived if the Department provides the proprietary or confidential business information to the EPA or to other agencies participating in the permitting process. The Department will supply any information obtained or used in the administration of the state APDES program to the EPA upon request under 40 CFR §123.41, as revised as of July 1, 2005. When providing information submitted to the Department with a claim of confidentiality to the EPA, the Department will notify the EPA of the confidentiality claim. If the Department provides the EPA information that is not claimed to be confidential, the EPA may make the information available to the public without further notice.

1.14 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any action or relieve a permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under state laws addressing oil and hazardous substances.

1.15 Cultural and Paleontological Resources

If cultural or paleontological resources are discovered because of this disposal activity, work that would disturb such resources is to be stopped, and the Office of History and Archaeology, a Division of Parks and Outdoor Recreation of the Alaska Department of Natural Resources (http://www.dnr.state.ak.us/parks/oha/), is to be notified immediately at (907) 269-8721.

1.16 Fee

A permittee must pay the appropriate permit fee described in 18 AAC 72.

1.17 Other Legal Obligations

This permit does not relieve the permittee from the duty to obtain any other necessary permits from the Department or from other local, state, or federal agencies and to comply with the requirements contained in any such permits. All activities conducted and all plan approvals implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.

2.0 Special Reporting Obligations

2.1 Planned Changes

2.1.1 The permittee shall give notice to the Department as soon as possible of any planned physical alteration or addition to the permitted facility if:

2.1.1.1 The alteration or addition may make the facility a "new source" under one or more of the criteria in 18 AAC 83.990(44); or

2.1.1.2 The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged if those pollutants are not subject to effluent limitations in the permit or to notification requirements under 18 AAC 83.610.

2.1.2 If the proposed changes are subject to plan review, then the plans must be submitted at least 30 days before implementation of changes (see 18 AAC 15.020 and 18 AAC 72 for plan review requirements). Written approval is not required for an emergency repair or routine maintenance.

2.1.3 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.2 Anticipated Noncompliance

2.2.1 A permittee shall give seven days' notice to the Department before commencing any planned change in the permitted facility or activity that may result in noncompliance with permit requirements.

2.2.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.3 Transfers

2.3.1 A permittee may not transfer a permit for a facility or activity to any person except after notice to the Department in accordance with 18 AAC 83.150. The Department may modify or revoke and reissue the permit to change the name of the permittee and incorporate such other requirements under 33 U.S.C. 1251-1387 (Clean Water Act) or state law.

2.3.2 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.4 Compliance Schedules

2.4.1 A permittee must submit progress or compliance reports on interim and final requirements in any compliance schedule of a permit no later than 14 days following the scheduled date of each requirement.

2.4.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.5 Corrective Information

2.5.1 If a permittee becomes aware that it failed to submit a relevant fact in a permit application or submitted incorrect information in a permit application or in any report to the Department, the permittee shall promptly submit the relevant fact or the correct information.

2.5.2 Information must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.6 Bypass of Treatment Facilities

2.6.1 Prohibition of Bypass

Bypass is prohibited. The Department may take enforcement action against a permittee for any bypass, unless:

2.6.1.1 The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2.6.1.2 There were no feasible alternatives to the bypass, including use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. However, this condition is not satisfied if the permittee, in the exercise of reasonable engineering judgment, should have installed adequate back-up equipment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

2.6.1.3 The permittee provides notice to the Department of a bypass event in the manner, as appropriate, under Appendix A, Part 2.6.2.

2.6.2 Notice of bypass

2.6.2.1 For an anticipated bypass, the permittee submits notice at least 10 days before the date of the bypass. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the conditions of Appendix A, Parts 2.6.1.1 and 2.6.1.2.

2.6.2.2 For an unanticipated bypass, the permittee submits 24-hour notice, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting.

2.6.2.3 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.6.3 Notwithstanding Appendix A, Part 2.6.1, a permittee may allow a bypass that:

2.6.3.1 Does not cause an effluent limitation to be exceeded, and

2.6.3.2 Is for essential maintenance to assure efficient operation.

2.7 Upset Conditions

2.7.1 In any enforcement action for noncompliance with technology-based permit effluent limitations, a permittee may claim upset as an affirmative defense. A permittee seeking to establish the occurrence of an upset has the burden of proof to show that the requirements of Appendix A, Part 2.7.2 are met.

2.7.2 To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:

2.7.2.1 An upset occurred and the permittee can identify the cause or causes of the upset;

2.7.2.2 The permitted facility was at the time being properly operated;

2.7.2.3 The permittee submitted 24-hour notice of the upset, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting; and

2.7.2.4 The permittee complied with any mitigation measures required under 18 AAC 83.405(e) and Appendix A, Part 1.5, Duty to Mitigate.

2.7.3 Any determination made in administrative review of a claim that noncompliance was caused by upset, before an action for noncompliance is commenced, is not final administrative action subject to judicial review.

2.8 Existing Manufacturing, Commercial, Mining, and Silvicultural Discharges

2.8.1 In addition to the reporting requirements under 18 AAC 83.410, an existing manufacturing, commercial, mining, and silvicultural discharger shall notify the Department as soon as that discharger knows or has reason to believe that any activity has occurred or will occur that would result in:

2.8.1.1 The discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.1.1 One hundred micrograms per liter (100 µg/L);

2.8.1.1.2 Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile, 500 micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol, and one milligram per liter (1 mg/L) for antimony;

2.8.1.1.3 Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.1.4 The level established by the Department in accordance with 18 AAC 83.445.

2.8.1.2 Any discharge, on a non-routine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.2.1 Five hundred micrograms per liter (500 µg/L);

2.8.1.2.2 One milligram per liter (1 mg/L) for antimony;

2.8.1.2.3 Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.2.4 The level established by the Department in accordance with 18 AAC 83.445.

3.0 Monitoring, Recording, and Reporting Requirements

3.1 Representative Sampling

A permittee must collect effluent samples from the effluent stream after the last treatment unit before discharge into the receiving waters. Samples and measurements must be representative of the volume and nature of the monitored activity or discharge.

3.2 Reporting of Monitoring Results

The permittee shall summarize monitoring results on the annual report form or approved equivalent. The permittee shall submit its annual report at the interval specified in the permit. The permittee shall sign and certify all annual reports and other reports in accordance with the requirements of Appendix A, Part 1.12, Signature Requirement and Penalties. The permittee shall submit the legible originals of these documents to the ADEC Compliance and Enforcement Program at the address in Appendix A, Part 1.1.2.

3.3 Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than the permit requires using test procedures approved in 40 CFR Part 136, adopted by reference at 18 AAC 83.010, or as specified in this permit, the results of that additional monitoring must be included in the calculation and reporting of the data submitted in the DMR or annual report required by Appendix A, Part 3.2. All limitations that require averaging of measurements must be calculated using an arithmetic means unless the Department specifies another method in the permit. Upon request by the Department, the permittee must submit the results of any other sampling and monitoring regardless of the test method used.

3.4 Twenty-four Hour Reporting

A permittee shall report any noncompliance event that may endanger health or the environment as follows:

3.4.1 A report must be made:

3.4.1.1 Orally within 24 hours after the permittee becomes aware of the circumstances, and

3.4.1.2 In writing within five days after the permittee becomes aware of the circumstances.

3.4.2 A report must include the following information:

3.4.2.1 A description of the noncompliance and its causes, including the estimated volume or weight and specific details of the noncompliance;

3.4.2.2 The period of noncompliance, including exact dates and times;

3.4.2.3 If the noncompliance has not been corrected, a statement regarding the anticipated time the noncompliance is expected to continue; and

3.4.2.4 Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3.4.3 An event that must be reported within 24 hours includes:

3.4.3.1 An unanticipated bypass that exceeds any effluent limitation in the permit (see Appendix A, Part 2.6, Bypass of Treatment Facilities).

3.4.3.2 An upset that exceeds any effluent limitation in the permit (see Appendix A, Part 2.7, Upset Conditions).

3.4.3.3 A violation of a maximum daily discharge limitation for any of the pollutants listed in the permit as requiring 24-hour reporting.

3.4.4 The Department may waive the written report on a case-by-case basis for reports under Appendix A, Part 3.4 if the oral report has been received within 24 hours of the permittee becoming aware of the noncompliance event.

3.4.5 The permittee may satisfy the written reporting submission requirements of Appendix A, Part 3.4 by submitting the written report via e-mail, if the following conditions are met:

3.4.5.1 The Noncompliance Notification Form or equivalent form is used to report the noncompliance;

3.4.5.2 The written report includes all the information required under Appendix A, Part 3.4.2;

3.4.5.3 The written report is properly certified and signed in accordance with Appendix A, Parts 1.12.2.4 and 1.12.4;

3.4.5.4 The written report is scanned as a PDF (portable document format) document and transmitted to the Department as an attachment to the e-mail; and

3.4.5.5 The permittee retains in the facility file the original signed and certified written report and a printed copy of the conveying email.

3.4.6 The e-mail and PDF written report will satisfy the written report submission requirements of this permit provided the e-mail is received by the Department within five days after the time the permittee becomes aware of the noncompliance event and the e-mail and written report satisfy the criteria of Part 3.4.5. The e-mail address to report noncompliance is: dec-wqreporting@alaska.gov.

3.5 Other Noncompliance Reporting

A permittee shall report all instances of noncompliance not required to be reported under Appendix A, Parts 2.4 (Compliance Schedules), 3.3 (Additional Monitoring by Permittee), and 3.4 (Twenty-four Hour Reporting) at the time the permittee submits monitoring reports under Appendix A, Part 3.2. (Reporting of Monitoring Results). A report of noncompliance under this part must contain the information listed in Appendix A, Part 3.4.2 and be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

4.0 Penalties for Violations of Permit Conditions

Alaska laws allow the State to pursue both civil and criminal actions concurrently. The following is a summary of Alaska law. Permittees should read the applicable statutes for further substantive and procedural details.

4.1 Civil Action

Under AS 46.03.760(e), a person who violates or causes or permits to be violated a regulation, a lawful order of the Department, or a permit, approval, or acceptance, or term or condition of a permit, approval or acceptance issued under the program authorized by AS 46.03.020 (12) is liable, in a civil action, to the State for a sum to be assessed by the court of not less than $500 nor more than $100,000 for the initial violation, nor more than $10,000 for each day after that on which the violation continues, and that shall reflect, when applicable:

4.1.1 Reasonable compensation in the nature of liquated damages for any adverse environmental effects caused by the violation, that shall be determined by the court according to the toxicity, degradability, and dispersal characteristics of the substance discharged, the sensitivity of the receiving environment, and the degree to which the discharge degrades existing environmental quality;

4.1.2 Reasonable costs incurred by the State in detection, investigation, and attempted correction of the violation;

4.1.3 The economic savings realized by the person in not complying with the requirements for which a violation is charged; and

4.1.4 The need for an enhanced civil penalty to deter future noncompliance.

4.2 Injunctive Relief

4.2.1 Under AS 46.03.820, the Department can order an activity presenting an imminent or present danger to public health or that would be likely to result in irreversible damage to the environment be discontinued. Upon receipt of such an order, the activity must be immediately discontinued.

4.2.2 Under AS 46.03.765, the Department can bring an action in Alaska Superior Court seeking to enjoin ongoing or threatened violations for Department-issued permits and Department statutes and regulations.

4.3 Criminal Action

Under AS 46.03.790(h), a person is guilty of a Class A misdemeanor if the person negligently:

4.3.1 Violates a regulation adopted by the Department under AS 46.03.020(12);

4.3.2 Violates a permit issued under the program authorized by AS 46.03.020(12);

4.3.3 Fails to provide information or provides false information required by a regulation adopted under AS 46.03.020(12);

4.3.4 Makes a false statement, representation, or certification in an application, notice, record, report, permit, or other document filed, maintained, or used for purposes of compliance with a permit issued under or a regulation adopted under AS 46.03.020(12); or

4.3.5 Renders inaccurate a monitoring device or method required to be maintained by a permit issued or under a regulation adopted under AS 46.03.020(12).

4.4 Other Fines

Upon conviction of a violation of a regulation adopted under AS 46.03.020(12), a defendant who is not an organization may be sentenced to pay a fine of not more than $10,000 for each separate violation (AS 46.03.790(g)). A defendant that is an organization may be sentenced to pay a fine not exceeding the greater of: (1) $200,00; (2) three times the pecuniary gain realized by the defendant as a result of the offense; or (3) three times the pecuniary damage or loss caused by the defendant to another, or the property of another, as a result of the offense (AS 12.55.035(c)(B), (c)(2), and (c)(3)).

APPENDIX - B Acronyms (for the purposes of this permit)

Abbreviations	Nomenclature
673d CES/ CEANQ	673d Civil Engineering Squadron/Civil Engineering Asset Natural Resource Quality
AAC	Alaska Administrative Code
ACGP	Alaska Construction General Permit
ADOT&PF	Alaska Department of Transportation and Public Facilities
AK-CESCL	Alaska-Certified Erosion and Sediment Control Lead
AMH	Aurora Military Housing
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statute
BMP	Best Management Practice
CAG	Community Advisory Group
CAM	Construction Activity Manual
C&D	Construction and Development
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEC	Alaska Department of Environmental Conservation
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
DoD	Department of Defense
EFH	Essential Fish Habitat
EISA	Energy Independence and Security Act
ELG	Effluent Limitation Guideline
EPA	United States Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
JBER	Joint Base Elmendorf-Richardson
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
NMFS	United States National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System

Abbreviations	Nomenclature
NTU	Nephelometric Turbidity Units
NURP	Nationwide Urban Runoff Program
PCAM	Post-Construction Activity Manual
POA	Port of Anchorage
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
SPCC	Spill Prevention, Control, and Countermeasure
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WQS	Water Quality Standard

APPENDIX - C Definitions (for the purpose of this permit)

Word or Phrase	Definition
Annually	Means the reporting period covered by the annual report period specified in the permit
Best Management Practice or BMP	Means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
Control Measure	For the purposes of this permit, means any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States.
Clean Water Act	Means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or the Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500 as amended by Pub.L 95-217, Pub.L 95-576, pub.L. 96-483 and Pub.L. 97-117, 33 U.S.C. 1251 et seq.
Discharge	When used without a qualifier, refers to "discharge of a pollutant" as defined at 40 CFR §122.2.
Discharge of Storm Water Associated with Construction Activity	For the purposes of this permit, refers to a discharge of pollutants in storm water runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow areas, concrete truck washout, fueling) or other industrial storm water directly related to the construction process are located. (See 40 CFR §122.26(b)(14)(x) and 40 CFR §122.26(b)(15) for the two regulatory definitions of storm water associated with construction sites.)
Discharge of Storm Water Associated with Industrial Activity	Is defined at 40 CFR § 122.26(b)(14)
Discharge-related Activities	For the purposes of this permit include: activities which cause, contribute to, or result in storm water point source pollutant discharges and measures to control storm water discharges, including the siting, construction, and operation of best management practices to control, reduce or prevent storm water pollution.

Word or Phrase	Definition
Discharge Monitoring Report or DMR	Means the EPA uniform national form, including any subsequent additions, revisions or modification for the reporting of self monitoring results by permittees. See 40 CFR §122.2.
Facility or Activity	Means any NPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES or APDES program.
Illicit Connection	Means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.
Illicit Discharge	Defined at 40 CFR §122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.
Industrial Activity	For the purposes of this permit, refers to the eleven categories of industrial activities included in the definition of discharges of storm water associated with industrial activity at 40 CFR§ 122.26(b)(14).
Industrial Storm Water	For the purposes of this permit, refers to storm water runoff associated with the definition of discharges of storm water associated with industrial activity.
Maximum Extent Practicable	Means the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by CWA §402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR §122.34.
Measurable Goal	Means a quantitative measure of progress in implementing a component of the storm water management program.
Municipal Separate Storm Sewer System or MS4	Is used to refer to either a Large, Medium, or Small Municipal Separate Storm Sewer System. The term, as used within the context of this permit, refers to small MS4s (see definition below) and includes systems operated by a variety of public entities (e.g., military facilities, prisons, and systems operated by other levels of government).
Municipality	Means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA.

Word or Phrase	Definition
Municipal Separate Storm Sewer	Means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.
National Pollutant Discharge Elimination System or NPDES	Means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the CWA. The term includes an approved program
Outfall	For the purposes of this permit, means a point source (defined below) at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.
Owner or Operator	Means the owner or operator of any facility or activity subject to regulation under the NPDES or APDES program.
Point Source	Means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
Pollutant	Defined at 40 CFR §122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

Word or Phrase	Definition
Significant Contributors of Pollutants	Means any discharge that causes or could cause or contribute to a violation of surface water quality standards.
Small Municipal Separate Storm Sewer System or Small MS4	Is defined at 40 CFR §122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, A state, city, town, borough, county, parish, district association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, but is not defined as large or medium municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas such as individual buildings.
Storm Water	Is defined at 40 CFR §122.26(b)(13) and means storm water runoff, snow melt runoff, and surface runoff and drainage.
Storm Water Management Program	Refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.
Total Maximum Daily Load or TMDL	An analysis of pollutant loading to a body of water detailing the sum of the individual waste load allocations for point sources and load allocations for non-point sources and natural background. See 40 CFR §130.2.
Waters of the United States	Has the meaning given in 18 AAC 83.990(77).
Wetlands	Means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

APPENDIX - D Summary Annual Report Form

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM
MS4 – Summary Annual Report Form
Permit Number: AKS053651

1. MS4 Information

_____
Name of MS4

_____ _____ _____
Name of Contact Person (First) (Last) (Title)

_____ _____
Telephone (including area code) Email

_____
Mailing Address

_____ Alaska _____
City State Zip Code

What size population does your MS4 serve? _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? ☐ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your storm water program?

_____

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☐ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☐ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☐ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your storm water program? ☐ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

- Erosion and sediment control requirements? ☐ Yes ☐ No
- Other construction waste control requirements? ☐ Yes ☐ No
- Requirement to submit construction plans for review? ☐ Yes ☐ No
- MS4 enforcement authority? ☐ Yes ☐ No

B. Do you have written procedures for:

- Reviewing construction plans? ☐ Yes ☐ No
- Performing inspections? ☐ Yes ☐ No
- Responding to violations? ☐ Yes ☐ No

C. Identify the total number of active construction sites ≥ 1 acre in operation in your jurisdiction during the reporting period.

D. How many of the sites identified in 4.C did you inspect during this reporting period?

E. Describe, on average, the frequency with which your program conducts construction site inspections.

F. Do you prioritize certain construction sites for more frequent inspections? If Yes, based on what criteria? ☐ Yes ☐ No

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes	Notice Of Violation	#	No Authority	☐
☐ Yes	Administrative Fines	#	No Authority	☐
☐ Yes	Stop Work Orders	#	No Authority	☐
☐ Yes	Civil Penalties	#	No Authority	☐
☐ Yes	Criminal Actions	#	No Authority	☐
☐ Yes	Administrative Orders	#	No Authority	☐
☐ Yes	Other	#		

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☐ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?
a. b. c.

J. How often do municipal employees receive training on the construction program?

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☐ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☐ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. _____

D. Do you have documented procedures, including frequency, for screening outfalls? ☐ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period? _____

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

_____

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☐ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☐ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? _____

L. How often do municipal employees receive training on the illicit discharge program? _____

6. Storm Water Management for Municipal Operations

A. Have storm water pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces ☐ Yes ☐ No

All municipal fleet and building maintenance activities ☐ Yes ☐ No

All municipal construction activities, including those disturbing greater than 1 acre ☐ Yes ☐ No

All municipal storm water system maintenance ☐ Yes ☐ No

All municipal snow disposal site operation and maintenance activities ☐ Yes ☐ No

Other _____

B. Are storm water inspections conducted at these facilities? ☐ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? _____

D. List activities for which operating procedures or management practices specific to storm water management have been developed (e.g., road repairs, catch basin cleaning).

_____

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☐ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? _____

G. Do all municipal employees and contractors overseeing planning and implementation of storm water-related activities receive comprehensive training on storm water management? ☐ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☐ Yes ☐ No

I. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Storm Water Measures

A. Do you have an ordinance or other regulatory mechanism to require:

- Site plan reviews for storm water/water quality of all new and re-development projects? ☐ Yes ☐ No
- Long-term operation and maintenance of storm water management controls? ☐ Yes ☐ No
- Retrofitting to incorporate long-term storm water management controls? ☐ Yes ☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

_____

C. What are your criteria for determining which new/re-development storm water plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.)

_____

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☐ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

- Flow volumes ☐ Yes ☐ No
- Peak discharge rates ☐ Yes ☐ No
- Discharge frequency ☐ Yes ☐ No
- Flow duration ☐ Yes ☐ No

F. Please provide the URL/reference where all post-construction storm water management standards can be found.

_____

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____

H. How many of the plans identified in 7.G were approved? _____

I. How many privately owned permanent storm water management practices/facilities were inspected during the reporting period? _____

J. How many of the practices/facilities identified in 7.I were found to have inadequate maintenance? _____

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? _____

L. Do you have authority to take enforcement action for failure to properly operate and maintain storm water practices/facilities? ☐ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain storm water management practices? _____

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? _____

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☐ No

P. How often do municipal employees receive training on the post-construction program? _____

8. Additional Information

Please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

☐ Yes

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Per Appendix A, Part 1.12.2 This report to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official; **for a corporation**, a responsible corporate officer.

Signature

Date

Name of Certifying Official, Title

Appendix 8 – Inspection Forms

QUARTERLY STORM WATER POLLUTION PREVENTION INSPECTION CHECKLIST **JBER- ____** **BLDG. NO. _____**

Building tenant or organization:	**Inspection date and time:**
Tenant activity:	**Inspector name:**
Storm water coordinator(s): (name and rank)	**Inspector signature:**
Phone:	**Reference Source for Weather Information: NWS**
Escort (if other than storm water coordinator):	
Cloud cover: clear partially cloudy cloudy **Precipitation:** rainy snowing **Temperature:**	

		JBER SWPPP Citation Reference	***Compliant***	***Non-Compliant***	***Observations***
Vehicle/Equipment Parking Lots and Outdoor Storage Areas					
1	Evidence of spills or leaks not promptly addressed?				
2	Is drip pan use adequate?				
3	Improper disposal of loose trash or other unusable items observed?				
4	Excessive dirt/mud accumulation on pavement?				
5	Adequate cover in use to prevent precipitation from reaching sources that could contaminate runoff?				
6	Runoff control berms or curbs intact?				
7	Could run-on or runoff come into contact with sources that could contaminate storm water?				☐ Check if no deficiencies were observed

QUARTERLY STORM WATER POLLUTION PREVENTION INSPECTION CHECKLIST **JBER- ____ BLDG. NO. _____**

		JBER SWPPP Citation Reference	***Compliant***	***Non-Compliant***	***Observations***
Industrial Waste (Hazmat/Hazardous Waste) Management Areas					
8	Evidence of spills or leaks not promptly cleaned up?				
9	Individual containers closed, lids/caps/bungs secured?				
10	Secondary containment adequate?				
11	HM/HW containers properly labeled and stored when not in use?				
12	Hazardous materials and waste protected from run-on, runoff, and weather?				
13	Adequate spill response materials available on site?				☐ Check if no deficiencies were observed
Maintenance Areas					
14	HM/HW containers properly labeled and stored when not in use?				
15	Is drip pan use adequate?				
16	Evidence of spills or leaks not promptly cleaned up?				
17	Adequate spill response materials available on site?				☐ Check if no deficiencies were observed
Fueling Area(s)					
18	Evidence of fuel spills or leaks not promptly cleaned up?				
19	Secondary containment/curbing present where needed and in good condition (i.e., no cracks)?				
20	Adequate spill response materials available on site?				
21	Fuel sheen observed on water in secondary containment				
22	Any maintenance concerns with fueling system components?				☐ Check if no deficiencies were observed
Vehicle, Equipment, and Aircraft Washing					
23	All wash water draining to a proper collection system and not overflowing to surrounding area?				☐ Check if no deficiencies were observed
Loading and Unloading Materials					
24	Evidence of spills or leaks not promptly cleaned up?				
25	Any indication of off-site tracking of materials from inside?				☐ Check if no deficiencies were observed

QUARTERLY STORM WATER POLLUTION PREVENTION INSPECTION CHECKLIST **JBER- ____ BLDG. NO. _____**

		JBER SWPPP Citation Reference	***Compliant***	***Non-Compliant***	***Observations***
Storm Water Runoff					
26	Any indication of unauthorized non-storm water discharges?				
27	Evidence of contaminated runoff from facility?				☐ Check if no deficiencies were observed
	Control Measures Needing Maintenance, Repairs, or Replacement (Including Erosion Control)				
					☐ Check if no deficiencies were observed
Inspector Notes and Recommendations for Improvements to Storm Water Compliance at this Facility					

I certify that I have read and understand the findings presented on pages 1-3 of this form and will initiate proper action, if necessary, as soon as practical.

Print Name _____ Signature _____ Date _____

JBER Snow Dump Inspections

Date of Inspection	Weather
Type of Inspection	# of Days Since Last Snow
Source of Weather	Temperature

Specific Areas of Inspection and Observations

JBER-E	Area Inspected	Corrective Action Needed	Date for Corrective Action / Responsible Person
1) Cherry Hill- AF			
2) West Ramp - AF			
3) Hospital - AF			
4) Aurora Housing Chugach - AF			
5) Aurora Housing West - AF			
10) Cherry Hill - Port of Anchorage			
11) USACE Bldg Area - AF			
Comments:			

JBER-R	Area Inspected	Corrective Action Needed	Date for Corrective Action / Responsible Person
6) Richardson Dr - AF			
7) Davis Hwy - AF			
8) E Circle Dr - AF			
9) N Circle Dr Overflow - AF			
12) Mt. View Boniface Gate - MOA			
Comments:			

JBER MS4 Snow Disposal Permit Requirements 1.4.3.1	JBER MS4 Snow Disposal Permit Requirements 1.4.3.2
The permittee shall select effective snow storage and disposal sites in upland areas where direct drainage to surface waters or storm drains is not possible and where the groundwater table is low. Best management practices (BMPs) at disposal sites may include detention basins, dikes, berms, and vegetative buffers.	The permittee is not authorized to dispose of snow directly to waters of the United States or directly to the MS4. Discharges from the permittee's snow disposal and snow management practices are authorized under this permit when such practices are operated using appropriate BMPs required in Part 3.6.2. Such BMPs may be designed, operated, and maintained to prevent and reduce pollutants in the discharge to the maximum extent practicable so as to avoid excursions above the WQS in the receiveing water.

Report Completed by:

JBER Snow Dump Sites - 2019

Monthly Deicing/Anti-icing Activity Inspection

JBER Airfield Operations

Time/Date of Inspection:	Weather:
Inspection Type:	Days Since Last Snow:
Deicing Occurring/Locations:	Temperature:
Anti-icing Occurring/Locations:	Source of Weather:

Specific Areas of Inspections and Observations

SOUTH AIRFIELD AREAS

Area	Inspected (check)	Corrective Action Needed (check)	Date for Corrective Action	Responsible Person
West Ramp				
OPS Ramp				
Red Flag West				
Gold Ramp				
Blue Ramp				
Red Flag South				
Bulldog (525th FS)				

NORTH AIRFIELD AREAS

Area	Inspected (check)	Corrective Action Needed (check)	Date for Corrective Action	Responsible Person
CAC				
Red Ramp (90th FS)				
Charlie Loop (currently inactive)	N/A	N/A	N/A	N/A
East Ramp HS 18-22				
JMC HS 23-26				
HS 27, 35-38				
North Ramp				
ANG HAS 10-16/29-32				

INSPECTION BY:

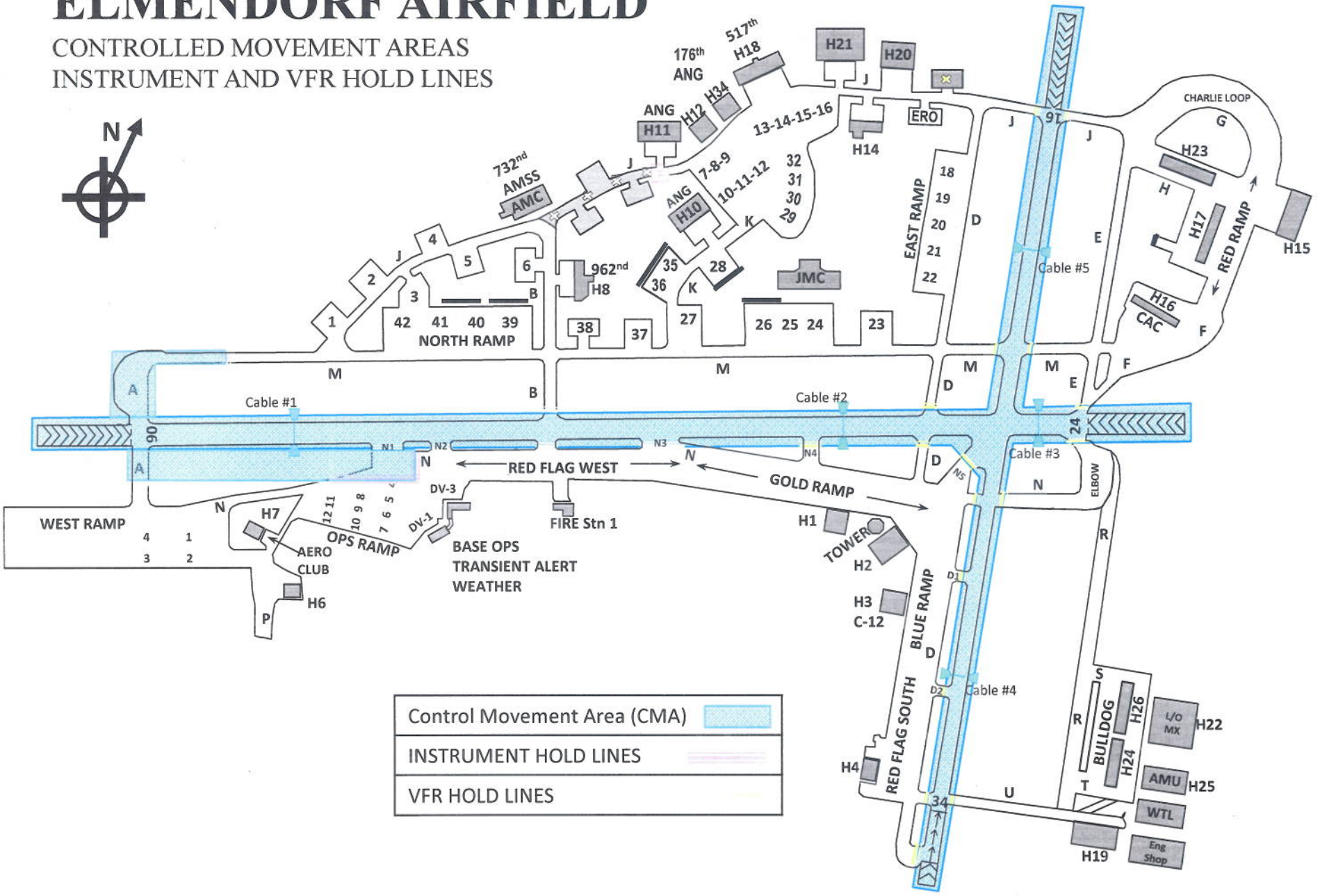
Print Name_____ Sign_____ Date_____

ESCORTED BY:

Escort Name_____

ELMENDORF AIRFIELD

CONTROLLED MOVEMENT AREAS
INSTRUMENT AND VFR HOLD LINES



OPR: 3 OSS/OSAM – 1 May 2012

Appendix 9 – JBER Catch Basin Inlet Survey Map

Inlet Survey Map

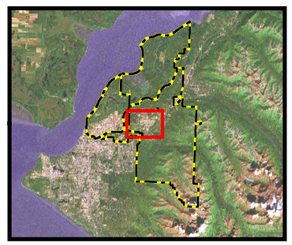
Stormwater System

JOINT BASE ELMENDORF-RICHARDSON

January, 2019

Legend

- Inspected Inlets
- Existing Inlets



N

W E

S

0 500 1,000 Feet

0 125 250 500 Meters

Map Scale 1:16,651

Data Projection:
Universal Transverse Mercator
Zone 6N, Datum: WGS 1984
Magnetic Declination 18° 0' E (Aug13)

Map Created by 773 CES/Ops Engineering
Requests and Inquiries: **geobase3@us.af.mil** or **384-2322**
Cartographer: SSgt Cunningham

Location: N:\CEO\CEOER\(GIS) Engineering Assistants\1. Projects\FY16\91. Inlet Data\11x17 Inlet Map.mxd

Appendix 10 – Corrective Action Report Form

MS4 Permit Corrective Action Form

Section I. General Information

Facility Name	APDES Permit Tracking Number

Facility Physical Address

Street	City	State	Zip Code
		Alaska	

Contact Person	Title	Phone	Email

Lead Inspector's Name	Additional Inspector's Name	Additional Inspector's Name	Inspection Date

Section II. Corrective Actions

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in the comprehensive storm water inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # of for this reporting period.

2. Is this corrective action:
   - ☐ An update on a corrective action from a previous annual report; or
   - ☐ A new corrective action?

3. Identify the condition(s) triggering the need for this review:
   - ☐ Unauthorized release of discharge
   - ☐ Numeric effluent limitation exceedance
   - ☐ Control measures inadequate to meet applicable water quality standards
   - ☐ Control measures inadequate to meet non-numeric effluent limitations
   - ☐ Control measures not properly operated or maintained
   - ☐ Change in facility operations necessitated change in control measures
   - ☐ Average benchmark value exceedance
   - ☐ Other (describe):

4. Briefly describe the nature of the problem identified:

5. Date problem identified:

6. How problem was identified:
   - ☐ Comprehensive site inspection
   - ☐ Quarterly visual assessment
   - ☐ Routine facility inspection
   - ☐ Notification by EPA or DEC
   - ☐ Other (describe):

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analysis to be conducted, etc.) or if no modification is needed, basis for that determination.

8. Did/will this corrective action require modification of your SWMP? ☐ Yes ☐ No

9. Date corrective action initiated:

10. Date corrective action completed: Or expected to be completed:

11. If corrective action not yet completed, provide the status of the corrective action as the time of the comprehensive site inspections and describe any remaining steps (including timeframes associated with each step) necessary to complete the corrective action:

Section III. Certification

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Authorized Representative | Title | Email

Signature | Date Signed