

**460th SPACE WING**  
**BUCKLEY AIR FORCE BASE COLORADO**



**STORMWATER MANAGEMENT PROGRAM**  
**PLAN – Rev 5**

**National Pollutant Discharge Elimination System (NPDES)  
Individual Permit # COR 042003 for Stormwater Discharges  
from Municipal Separate Storm Sewer System (MS4)**

**March 2019**







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## **1.0 INTRODUCTION**

Buckley Air Force Base (AFB) must comply with federal and state regulations related to environmental protection while ensuring mission accomplishment. One of the primary environmental laws impacting Buckley AFB is the federal Clean Water Act (CWA) and associated implementing regulations. The purpose of the CWA is to protect and restore the physical, chemical, and biological integrity of our nation's waterways by controlling and limiting discharges of pollutants to these waterways.

In accordance with the CWA and implementing regulations, Buckley AFB is a small municipal separate storm sewer system (MS4) requiring coverage under the National Pollutant Discharge Elimination System (NPDES) for stormwater discharges. Buckley AFB previously discharged municipal stormwater under a NPDES General Permit for Stormwater Discharges from Federal Facility Small MS4s in Colorado. This general permit was effective from 23 Jun 2003 through 22 Jun 2008, and was administratively extended through 2013. Region 8 of the United States Environmental Protection Agency (EPA) decided to issue individual MS4 discharge permits to Federal Facilities in Colorado rather than issuing a new General Permit.

Buckley AFB was issued NPDES Permit Number COR 042003 (MS4 Permit) from EPA Region 8. The permit effective date is 1 Jan 2014 with authorization to discharge expiring at midnight on 30 Sep 2018. On 30 Sep 2013, the Air Force filed with the Environmental Appeals Board a petition for review of the Permit. The Air Force appealed the Part 2.6 of the Permit relating to Post-Construction Stormwater Management for New Development and Re-Development, specifically Parts 2.6 through 2.6.3 of the Permit. EPA and the Air Force voluntarily agreed to enter into Alternative Dispute Resolution (ADR) to try to settle the permit appeal. As a result of ADR, EPA agreed to modify the contested provisions in the Permit to settle the appeal. The Permit modification included a completely revised Part 2.6. The modified MS4 Permit was issued on 5 Dec 2014 with an effective date of 12 Jan 2015. On 24 Apr 2018, the EPA confirmed receipt of a complete and timely renewal application and granted permit continuance until the renewal permit is issued and effective.

A requirement of the Buckley AFB MS4 Permit is development of a Stormwater Management Program (SWMP) to implement the terms and conditions of the MS4 Permit. The MS4 Permit defines the SWMP as a comprehensive program to manage the quality of stormwater discharged from an MS4 through implementation of Best Management Practices (BMPs). The MS4 Permit requires the development and implementation of BMPs to address six Minimum Control Measures (MCMs), which are (1) Public Education and Outreach on Stormwater Impacts, (2) Public Involvement and Participation, (3) Illicit Discharge Detection and Elimination, (4) Construction Site Stormwater Runoff Control, (5) Post-Construction Stormwater Management in New Development and Redevelopment, and (6) Pollution Prevention/Good Housekeeping for Municipal Operations.

### **1.1 PURPOSE**

The SWMP describes BMPs, measurable goals, and documentation procedures to comply with the MS4 Permit terms and conditions. Also, this SWMP serves as a framework for identifying, assigning, and implementing control measures and BMPs intended to reduce the discharge of

pollutants from the MS4 and protect downstream water quality. In addition to these primary objectives, this SWMP will:

- Serve as a planning and guidance document to be used by Buckley AFB's regulatory body (i.e. EPA Region 8), installation organizations, contractors, and the general public throughout the Buckley AFB community;
- Be dynamic and adaptively managed to address changes in MS4 Permit requirements, organizational structure, responsibilities, and goals;
- Define techniques and measurable goals for measuring BMP effectiveness; and
- Define a five-year schedule for BMP implementation to comply with the requirements of the MS4 Permit. Note, the schedule for BMP implementation will extend due to permit continuance until the permit renewal is issued and effective.

## **1.2 STORMWATER MANAGEMENT PROGRAM ORGANIZATION**

Section 1.0 introduces the background and requirements associated with the MS4 Permit and summarizes the purpose of this SWMP; Section 2.0 provides an overview of Buckley AFB including a description of activities, drainage basins and receiving waterbodies; Section 3.0 describes the SWMP implementation; and Sections 4.0 through 9.0 identify and describe the BMPs and associated measurable goals that will fulfill the requirements of the six MCMs outlined in the MS4 Permit.

## **2.0 BUCKLEY AFB OVERVIEW**

Buckley AFB is located on approximately 3,200 acres near the City of Aurora in Arapahoe County, Colorado. The 460 Space Wing (460 SW) is the host organization for Buckley AFB. The 460 Mission Support Group (460 MSG) provides quality of life, human resources, force protection, infrastructure and environmental stewardship to support the 460 SW, its customers, and base operational missions. The 140 Wing Colorado Air National Guard (140 WG COANG) operates and maintains the Buckley AFB airfield. The Colorado Army National Guard's (COARNG) Army Aviation Support Facility (AASF) maintains aircraft, supports airlift detachment and other mission related activities. In addition to aircraft and flightline activities, Buckley AFB hosts additional tenant organizations on the installation including: the Aerospace Data Facility – Colorado (ADF-C), 556th Intelligence Squadron, 743rd Military Intelligence Battalion, Joint Forces Headquarters, as well as Navy and Marine Corps Reserve Detachments.

The MS4 Permit covers all areas of the MS4 within the exterior boundary of Buckley AFB. Note the privatized housing area (currently operated by Hunt Housing, LLC) is not served by the Buckley MS4 system and therefore this area is not covered under the MS4 Permit. However, the permit does contain requirements to provide public education and outreach to residents, which does include the privatized housing residents. The MS4 consists of surface and subsurface conveyance including inlets, junction points, headwalls, culverts, structural controls such as detention ponds, and open channels. There are more than 24 miles of stormwater pipe, 5 miles of stormwater culverts, and 25 miles of open channel conveyance on Buckley AFB. As of June 2014, the base consists of about 620 acres of impervious area, which is approximately 20 percent of the overall land area.

Stormwater drainage on Buckley AFB is identified by four major drainage basins: Sand Creek Drainage Basin, Murphy Creek Drainage Basin, Granby Ditch Drainage Basin and East Toll Gate Creek Drainage Basin. Stormwater runoff leaving the Base flows into named and unnamed tributaries to Sand Creek, which generally flows to the northwest and discharges into the South Platte River about 12 miles downstream from Buckley AFB. Drainage from the eastern portion of the Base, Murphy Creek Drainage Basin, naturally drains overland into Murphy Creek. Murphy Creek flows to the northwest until it joins Sand Creek. Drainage from the northeastern and northern portion of the Base flows to Sand Creek. Drainage from the northwestern portion of the Base (Granby Ditch Drainage Basin) flows into the City of Aurora storm sewer system (via an open channel ditch and Granby Ditch) and then to Toll Gate Creek. Drainage on the western and southwestern portion of the Base (East Toll Gate Creek Drainage Basin) flows directly to East Toll Gate Creek.

### **2.1 MINIMUM CONTROL MEASURES AND BMPS**

“Minimum Control Measures” is the term used by the EPA for the six MS4 program elements aimed at achieving improved water quality. The MS4 Permit specifies that the SWMP must include BMPs to address requirements of the following six minimum measures:

- Public Education and Outreach on Stormwater Impacts;
- Public Involvement and Participation;
- Illicit Discharge Detection and Elimination;

- Construction Site Stormwater Runoff Control;
- Post-construction Stormwater Management in New Development and Redevelopment;  
and
- Pollution Prevention / Good Housekeeping for Municipal Operations.

BMPs have been developed pursuant to MS4 Permit requirements and to reduce the discharge of pollutants to the installation storm drain system. BMPs presented in this SWMP include operations, maintenance, planning, and construction. BMPs will be updated as appropriate to comply with the MS4 Permit requirements, as well as changes in installation mission or operations.

The BMPs described in Sections 4.0 through 9.0 will be implemented by Buckley AFB staff and outside contractors. Full development and implementation of BMPs will be completed through the 5-year implementation plan and during administrative continuance as presented in the following sections.

## **2.2 ROLES AND RESPONSIBILITIES**

Implementation of the SWMP is a team effort involving multiple organizations and personnel across Buckley AFB. The following positions have key roles and responsibilities in implementing this SWMP:

**Installation Commander (460 SW/CC)** – Responsible for mission operations on Buckley AFB and maintains overall responsibility for environmental compliance.

**Commander, 460 Civil Engineer Squadron (460 CES/CC)** – Responsible for leading, directing, and overseeing the 460 CES. The 460 CES is responsible for operations and maintenance of facilities and infrastructure owned by the 460 SW on Buckley AFB including compliance with environmental regulations. The 460 CES/CC is also responsible for coordinating with tenant organizations concerning tenant owned and operated facilities and infrastructure. The 460 CES/CC also coordinates with other commanders on Buckley AFB, as required, to meet mission requirements including environmental compliance.

**460 Civil Engineer Squadron Installation Management Flight Chief (460 CES/CEI)** - Responsible for real property, environmental, and asset management activities on Buckley AFB, including coordination with tenant organizations. The 460 CES/CEI is responsible for coordinating environmental compliance activities on Buckley AFB and supporting the Water Quality Program Manager with implementation of this SWMP.

**460 Civil Engineer Squadron Engineering Flight Chief (460 CES/CEN)** – Responsible for development and redevelopment projects on Buckley AFB, including coordination with tenants for tenant funded development and redevelopment projects. The 460 CES/CEN Flight Chief is responsible for planning, design, construction oversight, coordination with contracting agencies, conducting design reviews, incorporating storm water controls into development and redevelopment projects, developing Forms 1391, and maintaining project folders.

**460 Civil Engineer Squadron Operations Flight Chief (460 CES/CEO)** - Responsible for facility and infrastructure maintenance of 460 Space Wing owned assets. Schedules and directs recurring and non-recurring maintenance activities of facilities and infrastructure. Responsible for implementing the Buckley AFB Facility Management Program.

**460 Civil Engineer Squadron Environmental Element Chief (460 CES/CEIE)** – Responsible for overseeing and directing environmental compliance activities on Buckley AFB, including compliance with the Buckley AFB MS4 Permit. The 460 CES/CEIE Chief supervises the Water Quality and Hazardous Waste Program Managers and advocates for resources required for environmental compliance.

**460 Civil Engineer Squadron Water Quality Program Manager (460 CES/CEIEC)** – Responsible for coordination and implementation of this SWMP as well as recordkeeping and reporting related to the Buckley AFB MS4 Permit.

**Privatized Housing Contractor** – Responsible for maintaining and operating the on-base housing units on Buckley AFB. The Privatized Housing Contractor is responsible for developing and distributing informational materials to the residents of the housing areas, including the Buckley AFB Housing Rules and Guidelines. The privatized housing area is under the MS4 jurisdiction of the City of Aurora.

### **3.0 PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS**

The goal of the Public Education and Outreach (PEO) MCM is to ensure greater public awareness of water quality and MS4 Permit requirements. Specifically, this MCM is intended to educate the Buckley AFB community (hereafter referred to as “the public”), which includes, but is not limited to, project managers, contractors, tenants, residents, and environmental staff, about the importance of protecting stormwater quality for the benefit of the environment and human health. The MS4 Permit requires that Buckley AFB continue implementing a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

Buckley AFB’s PEO goals are to:

- Provide a consistent message for the length of time necessary to focus community behavior;
- Change specific behaviors which adversely affect water quality; and
- Increase the community awareness and understanding of the individual actions that can be taken to protect and improve the quality of surrounding water bodies.

The following BMPs will be implemented by Buckley AFB over the 5 year permit cycle and period of administrative continuance to satisfy the PEO MCM. Buckley AFB will utilize existing federal, state, and Air Force-developed stormwater public education and outreach materials whenever possible. When necessary, new materials will be created. The PEO BMPs are presented in the following subsections. The estimated number of people to be reached by the PEO program contained in this SWMP is in excess of 10,000 people per year which includes military, civilian, contractor, military dependents, and retired military personnel who work and utilize services on Buckley AFB. The PEO program has been developed to provide general awareness outreach to a large populace, primarily through the base newspaper, and targeted outreach to specific subsets of personnel. The Buckley AFB Water Quality Program Manager is responsible for coordination and implementation of the PEO program.

#### **3.1 PEO-1 HOUSEHOLD HAZARDOUS WASTE AND STORMWATER AWARENESS**

##### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.2.1; 2.2.2; and 2.2.3 of the Buckley AFB MS4 Permit.

##### **Implementation Details**

Buckley AFB will develop household hazardous waste and stormwater awareness educational materials which may include pamphlets, magnets, posters, etc. These materials will be provided to new personnel assigned to Buckley AFB during the base Newcomer Orientation program, during relative training events, or posted at shop specific locations. In cooperation with the privatized housing contractor, Buckley AFB will provide household hazardous waste and environmental protection awareness materials to base housing newcomers, including options for disposing of household hazardous materials. A pamphlet describing the City of Aurora’s

household hazardous waste collection program will be made available as part of the privatized housing orientation, typically provided on execution of a housing contract with new residents. The 460 CES/CEIE Chief is responsible for ensuring that environmental awareness training is provided to base newcomers.

### **Measurable Goals**

- Provide awareness at least twice per year during Newcomers Orientation (Right Start) and maintain attendance record. The Buckley AFB Force Support Squadron is responsible for maintaining the Newcomers Orientation attendance roster. (Years 1–5 and period of administrative continuance)
- Provide environmental protection awareness materials to new housing residents, including household hazardous waste. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The Force Support Squadron is responsible for providing Newcomers Orientation (Right Start) to new military and civilian personnel assigned to Buckley AFB. As part of this Newcomer Orientation, new personnel will receive basic environmental awareness information related to stormwater, water quality, and waste management. The Buckley AFB MS4 Annual Report will include a summary of methods (in person, computer-based, etc.), frequency, and type of awareness training provided to base newcomers (target audience), as well as all additional materials provided at training events or posted at shops.
- The Buckley AFB privatized housing contractor provides each new housing resident with a copy of “Buckley Family Housing House Rules, Regulations, and Tenant Guidelines” upon execution of a new lease. The 460 CES/CEIE Chief will ensure that these guidelines are reviewed at least annually by the 460 CES/CEIE to ensure appropriate information is being provided to new residents. A Memorandum for Record (MFR) will be generated to document the annual guideline review as well as verify that the housing contractor continues to provide the guidelines to all new residents. The MS4 Annual Report will include the date of the guideline review. The target audience for this outreach is Buckley AFB housing residents.

## **3.2 PEO-2 HAZARDOUS WASTE OR STORMWATER MANAGEMENT RELATED ARTICLE ON BASE WEBSITE OR IN THE BASE NEWSPAPER**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.2.1; 2.2.2; and 2.2.3 of the MS4 Permit.

### **Implementation Details**

The Buckley AFB website discusses installation specific news articles, current events and community activities. The Buckley AFB website is widely used to convey important information to the installation population and offers an excellent opportunity to reach a wide audience on Buckley AFB. The Water Quality Program Manager will coordinate the article with the Hazardous Waste Program Manager and installation Public Affairs office for publication.

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### **Measurable Goals**

- Publish one hazardous waste or stormwater management article on the Buckley AFB website that discusses hazardous waste management and/or stormwater discharge impacts that may include options for disposing of household hazardous waste, pollution prevention, or other related information. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Annual Report will include the publication date and a copy of the hazardous waste or stormwater management article that was published. The target audience for this outreach is the entire Buckley AF population.

## **3.3 PEO-3 SEDIMENT AND EROSION AWARENESS TRAINING FOR INDUSTRIAL STORMWATER PERSONNEL**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.2.1 and 2.2.2 of the MS4 Permit.

### **Implementation Details**

Unit Environmental Managers, members of the installation Stormwater Pollution Prevention Team, and personnel responsible for implementing industrial stormwater BMPs receive annual training on industrial stormwater compliance requirements. A train-the-trainer concept is utilized by several organizations. Buckley AFB will incorporate sediment and erosion awareness training into this existing stormwater training program. The Water Quality Program Manager and appropriate train-the-trainer personnel are responsible for providing training materials.

### **Measurable Goals**

- Provide training at least once per year and maintain attendance record. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- Dates and attendance rosters for industrial stormwater training will be maintained by the Water Quality Program Manager and appropriate train-the-trainer personnel. The MS4 Annual Report will include a summary of methods (in person, computer-based, etc.), frequency, and type of training provided. The target audience of this training is personnel working in industrial areas on Buckley AFB.

## **3.4 PEO-4 SEDIMENT AND EROSION AWARENESS TRAINING FOR FACILITY MANAGERS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.2.2 of the MS4 Permit.

### **Implementation Details**

Each facility on Buckley AFB has a designated Facility Manager who is the interface between the facility occupants and the Civil Engineer function. The Facility Manager is responsible for reporting maintenance requirements, conducting facility inspections, and coordinating maintenance activities. As the focal point for facility specific maintenance issues, the Facility Manager can help to identify sediment and erosion problems occurring near individual facilities. Facility Managers must attend an initial training program as well as an annual refresher. Sediment and erosion awareness training will be incorporated into this existing training program. The Water Quality Program Manager is responsible for providing training materials. The 460 CES/CEO is responsible for providing the training and documenting attendance.

### **Measurable Goals**

- Provide facility manager training at least annually (currently self-paced training) and maintain attendance record. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- Documentation of Facility Manager training will be maintained by the 460 CES/CEO. The MS4 Annual Report will include a summary of methods (in person, computer-based, etc.), frequency (monthly, quarterly, annual), and type of facility manager training. The target audience of this training is Facility Managers.

## **3.5 PEO-5 POST-CONSTRUCTION STORMWATER CONTROL AWARENESS TRAINING**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.2.4 of the MS4 Permit.

### **Implementation Details**

Buckley AFB will develop and provide an awareness fact sheet on post-construction stormwater control requirements of the MS4 Permit (see Section 8.0). The awareness fact sheet will be provided via handout/electronic methods. The Water Quality Program Manager is responsible for developing and issuing the fact sheet.

### **Measurable Goals**

- Develop post-construction stormwater control awareness fact sheet. (Year 2)
- Provide post-construction stormwater control awareness fact sheet and document the date sent/emailed, as well as a copy of the fact sheet. (Years 2–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The Buckley AFB Water Quality Program Manager will develop a post-construction awareness fact sheet that describes the post-construction stormwater control requirements along with 460 CES/CEIE contact information to obtain additional details. The fact sheet will be emailed to 460 CES/CEN project managers and 460 CES/CEIE staff. In addition,

a copy will be routed through 460 CES leadership for delivery to the 460 Contracting Flight (460 CONF) Commander.

- The target audience for this outreach is design, construction, environmental project managers, and contracting personnel. The fact sheet will also be provided to tenant organizations who have new development and re-development projects being planned/designed. The MS4 Annual Report will include the date the fact sheet was emailed as well as a copy of the post-construction stormwater control fact sheet.

## **4.0 PUBLIC INVOLVEMENT / PARTICIPATION**

The goal of the Public Involvement and Participation (PIP) control measure is to raise public awareness about urban runoff pollution through public involvement and participation in the Buckley AFB water quality protection program. It is Buckley AFB's intent that the following BMPs support the overall program in generating public participation, fostering support for the purpose and goals of the program, and ultimately reducing the discharge of pollutants. The municipal stormwater discharge permit requires Buckley AFB to at minimum, comply with applicable public notice requirements when implementing a public involvement/participation program.

The following BMPs will be implemented by Buckley AFB within the permit term and period of administrative continuance. These BMPs will involve several departments and groups in order to raise awareness and gain the community's input as it relates to Buckley AFB's stormwater management program, water quality challenges, and implementation efforts. The following sections discuss PIP BMPs at that comprise the SWMP. The Water Quality Program Manager is responsible for coordination and implementation of the PIP program.

### **4.1 PIP-1 PUBLIC NOTICE REQUIREMENTS**

#### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.3.1 of the MS4 Permit.

#### **Implementation Details**

The MS4 Permit requires compliance with all public notice requirements when implementing the public participation and involvement program. The Water Quality Program Manager and 460 SW Judge Advocate Office will meet to review and document potential situations in which public notice is required. Triggers that require public notice, if any, will be documented and used by the Water Quality Program Manager to initiate required public notices for future public involvement and participation program activities.

#### **Measurable Goals**

- The Water Quality Program Manager and 460 SW Judge Advocate Office will review and document the public notice requirements, if any, associated with the public involvement and participation program. (Year 1)
- Public notices are provided and documented for required public involvement and participation activities. (Years 1 – 5 and period of administrative continuance)

#### **Documentation and Report Procedures**

- An MFR will be generated by the Water Quality Program Manager and 460 SW Judge Advocate office documenting public notice requirements that could be triggered by the public involvement and participation program.
- Copies of any required public notices will be maintained by the Water Quality Program Manager to document compliance with the MS4 Permit.

## 4.2 PIP-2 SWMP PUBLIC REVIEW

### Permit Cross-Reference

This BMP supports compliance with Paragraph 2.3.2 of the MS4 Permit.

### Implementation Details

Buckley AFB is committed to informing the base populace of stormwater management initiatives and obtaining input from installation personnel. The MS4 Annual Report will be posted on the Buckley AFB website along with contact information for the Water Quality Program.

### Measurable Goals

- Make MS4 annual reports available on the Buckley AFB website ([www.buckley.af.mil](http://www.buckley.af.mil)). (Years 1–5 and period of administrative continuance)

### Documentation and Report Procedures

- The Water Quality Program Manager will provide a copy to 460 SW Public Affairs office who will post MS4 Annual Report on the Buckley AFB website ([www.buckley.af.mil](http://www.buckley.af.mil)). While not specifically required, the MS4 Annual Report will provide the website address where the reports are published to document compliance with the specific MS4 Permit Condition.

## 4.3 PIP-3 STORMWATER ACTION LINE AND EMAIL ADDRESS

### Permit Cross-Reference

This BMP supports compliance with Paragraph 2.3.3; 2.5.10.5; and 2.4.3 of the MS4 Permit.

### Implementation Details

Buckley AFB has established a stormwater email action line in which the public can ask questions or identify stormwater issues. The action line email address goes directly to the Water Quality Program staff and 460 CES/CEIE Chief. Additionally, appropriate outreach materials include the phone number for the 460 CES/CEIE. The action line email address and phone number is advertised on stormwater related outreach materials to promote public involvement. The stormwater action line and email address also support compliance with Paragraph 2.5.10.5 of the MS4 Permit related public input concerning construction activities. The Water Quality Program Manager is responsible for continued distribution and advertisement of the action line email address, documenting action line emails, and responses taken to emails.

### Measurable Goals

- Maintain stormwater action line email address. Document action line emails received from the public and actions taken in public participation log. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Permit requires a log of public participation and outreach activities. Emails to the action line, including dates and action taken, description of question/concern, and follow up action will be logged as public participation.
- Paragraph 2.5.10.5 of the MS4 Permit requires the Annual Report to include a description of procedures for receipt and consideration of information submitted by the public concerning construction stormwater management. The above procedures concerning the action line, receipt of input from the public, and follow up action documentation will be reported.

#### **4.4 PIP-4 ANNUAL MEETING WITH CITY OF AURORA**

##### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.3.4 of the MS4 Permit.

##### **Implementation Details**

In accordance with the MS4 Permit, the Water Quality Program Manager and other Buckley AFB representatives will attempt to meet annually with the City of Aurora staff in Public Works Department and Aurora Water. The purpose of the annual meeting is to discuss development, maintenance, and new discharges, if any, to East Toll Gate Creek. The Water Quality Program Manager is responsible for implementing this BMP.

##### **Measurable Goal**

- The Water Quality Program Manager will conduct a meeting between appropriate Buckley AFB and City of Aurora stormwater/water quality managers at least once per year to discuss water quality and discharges to East Toll Gate Creek. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- An MFR will be generated by the Water Quality Program Manager to document the East Toll Gate Creek discussion (or efforts to meet) between Buckley AFB and the City of Aurora.

#### **4.5 PIP-5 VOLUNTEER AND CLEAN UP OF MS4 RECEIVING WATER ACTIVITIES**

##### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.3.3 and 2.3.5 of the MS4 Permit.

##### **Implementation Details**

Buckley AFB must document volunteer activities to actively engage residents and personnel at Buckley AFB in understanding water resources and how their activities can affect water quality. Additionally, Buckley AFB must document any events or other activities to clean up MS4 receiving waters. The permit does not require a specific number of volunteer or cleanup

activities, but documentation of volunteer and cleanup activities accomplished must be reported annually.

### **Measurable Goals**

- Buckley AFB will maintain a log of public participation activities related to water quality protection and cleanup of MS4 receiving waters. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Permit requires a log of public participation and outreach activities performed at Buckley AFB. The log will include the date as well as a description of public participation activities related to water quality protection and cleaning up MS4 receiving waters. Activities may include base clean up days, specific stream cleanup activities, or other volunteer events related to water quality. Scheduled and unscheduled maintenance activities performed during the duty day, as part of the normal job responsibilities, are not classified as volunteer activities.

## 5.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

An illicit discharge is defined as any discharge to a MS4 that is not composed entirely of stormwater, except for the following allowable non-stormwater discharges identified in Paragraph 1.3.2 of the Buckley AFB MS4 Permit:

- Discharges authorized by a separate NPDES permit;
- Discharges in compliance with instruction of an On-Scene-Coordinator pursuant to 40 CFR Part 300 or 33 CFR 153.10(e);
- Water line flushing;
- Landscape irrigation;
- Diverted stream flows;
- Rising ground waters;
- Uncontaminated ground water infiltration;
- Uncontaminated pumped ground water;
- Discharges from potable water sources;
- Foundation drains;
- Air conditioning condensate;
- Irrigation water;
- Springs;
- Water from crawl space pumps;
- Footing drains;
- Lawn watering;
- Individual residential car washing;
- Flows from riparian habitats and wetlands;
- De-chlorinated swimming pool discharges;
- Street wash water;
- Power washing where no chemicals are used;
- Roof drains;
- Fire hydrant flushing;
- Non-storm water discharges resulting from a spill which are the result of an unusual and severe weather event where reasonable and prudent measures have been taken to minimize the impact of such discharge;
- 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; and
- Discharges or flows from firefighting activities.

Illicit discharge sources must be controlled and illegal behavior prohibited in accordance with the MS4 Permit. The illicit discharge detection and elimination procedures presented in this

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section represent the Buckley AFB IDE program. Typical sources of illicit discharges include sanitary wastewater, effluent from septic tanks, car wash wastewaters, improper used oil disposal, radiator flushing disposal, roadway spills, and the improper disposal of auto and household chemicals. Buckley AFB has performed annual dry weather screening of major outfalls and completed a stormwater system inventory and condition assessment study in 2013. Based on these investigations, Buckley AFB representatives have determined that no known cross-connections currently exist in which sanitary wastewater is entering the stormwater system.

Buckley AFB has reviewed allowable non-stormwater discharges and will implement local controls (BMPs) as necessary to ensure that they are not significant contributors of pollutants to stormwater.

The following BMPs will be implemented by Buckley AFB during the five year permit term and period of administrative continuance. The Water Quality Program Manager is responsible for coordinating and implementing the IDE BMPs.

## **5.1 IDE-1 STORM SEWER SYSTEM MAP**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.4.8 of the MS4 Permit.

### **Implementation Details**

Buckley AFB has developed a map of the installation storm sewer system that identifies drainage conveyance, storm drain inlets, basins, culverts, outfalls and BMPs. By the end of Year 3, the current storm water system map will be updated to account for modifications of the system and update existing map. The Water Quality Program Manager is responsible for implementing this BMP.

### **Measurable Goal**

- Update the complete storm sewer system map in the Buckley AFB GIS. (Year 3)

### **Documentation and Report Procedures**

- By the end of Year 3, complete an update of the Buckley AFB storm sewer map within the Buckley AFB GIS. Document the comprehensive update using an MFR or report documenting update activities.

## **5.2 IDE-2 DRY WEATHER SCREENING OF MAJOR OUTFALLS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.4.6 of the MS4 Permit.

### **Implementation Details**

Buckley AFB will conduct visual dry weather screening of major stormwater outfalls on the installation at least once per year. This visual monitoring will occur during dry periods, so that any flow through the storm conveyance system can be noted and tracked to its source. If an unallowable non-stormwater discharge is identified, an assessment of the discharge will be made.

Additionally, dry weather screening will annotate any significant erosion issues at the outfall locations. The Water Quality Program Manager is responsible for ensuring that the dry weather screening is accomplished. Dry weather screening efforts will be documented and maintained in an information system for tracking purposes.

### **Measurable Goal**

- Conduct dry weather screening of major outfalls once per year. Document findings of dry weather screening and erosion evaluation. Document results of any follow up illicit discharge investigation or assessments. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- Annual dry weather screening and erosion assessment activities will be documented via MFR to be signed by the person conducting field screening activities and co-signed by a Duly Authorized Representative. The MFR will annotate date, screening locations, results, and actions to investigate/assess any potential illicit discharges.

## **5.3 IDE-3 ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.4.1; 2.4.3; 2.4.4; and 2.4.5 of the MS4 Permit.

### **Implementation Details**

Buckley AFB is committed to detecting, investigating, and eliminating illicit discharges to the storm sewer system. Buckley AFB recognizes the impact an illicit discharge can have on receiving waterways and the importance of taking corrective actions in a timely manner. The primary method to detect illicit discharges is dry weather screening described in IDE-2. Illicit discharges can also be reported by installation personnel using the stormwater action line described in PIP-2 or through the Base Fire Department. The Base Fire Department will notify the 460 CES/CEIE of illicit discharges and spills as required by the Buckley AFB Spill Plan.

If dry weather screening or other evidence of an illicit discharge is identified, Buckley AFB representatives will investigate using the EPA's *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* to help identify and investigate the potential illicit discharge. This document will be provided as training reference material to key Buckley AFB 460 CES/CEIE staff whose work duties may include illicit discharge detection. A corrective action plan (CAP) will be developed for any confirmed illicit discharge. The CAP will outline the necessary steps to eliminate the illicit discharge and any remediation necessary.

### **Measurable Goals**

- Maintain one printed copy of the EPA Illicit Discharge Detection and Elimination Manual in the Environmental Element's library. (Years 1–5 and period of administrative continuance)

- At a minimum, the Water Quality Program Manager, Spill Program Manager, and 460 CES/CEIE Chief will conduct an annual review of the EPA Illicit Discharge Detection and Elimination Manual. This review will serve as training for illicit discharge investigation and response techniques. (Years 1–5 and period of administrative continuance)
- Document the time required to investigate, plan, and correct confirmed illicit discharges identified on Buckley AFB. For confirmed illicit discharges, Buckley AFB will develop a CAP within 15 business days and implement the corrective action within 45 business days of discovery. If corrective action will require more than 45 business days, permission must be obtained from EPA. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Annual Report must describe any illicit discharges identified and actions taken to eliminate the source of the illicit discharge. Buckley AFB will utilize a spreadsheet or other information management system to track illicit discharges, investigations, and corrective actions. An excerpt of the information management system must be provided with the MS4 Annual Report.
- The MS4 Annual Report must include a description of the training materials and frequency training is provided on illicit discharge response. As described above, the illicit discharge response training program will be conducted annually to key Environmental Element staff members. The training program consists of reviewing and familiarization with the EPA Illicit Discharge Detection and Elimination Manual document. An MFR, signed by the Water Quality Program Manager, will be used to document one printed copy of the EPA guidance document is maintained as well as the dates in which key members of the Environmental Element are trained.

## **5.4 IDE-4 ILLEGAL DUMPING AND NON-COMPLIANCE ENFORCEMENT PROCEDURES**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.4.2 of the MS4 Permit.

### **Implementation Details**

Buckley AFB will maintain existing illegal dumping and non-compliance enforcement procedures. As a military installation, all personnel working, visiting, or otherwise having access to the installation are subject to specific laws, regulations, and policies while on Buckley AFB. Enforcement procedures for non-compliance with laws, regulations, and policies are included in the Uniform Code of Military Justice, contracts subject to Federal Acquisition Regulations, Air Force Instruction (AFI) 51-202 *Nonjudicial Punishment*, AFI 36-704 *Discipline and Adverse Actions*, AFI 36-2907 *Unfavorable Information File (UIF) Program* among others. Enforcement procedures can vary based on specific situations. Military and civilian employees can receive verbal reprimands, written reprimands in employment records, demotions, loss of pay, and discharge from Federal service as examples.

In the most severe cases, the 460 SW/CC has the authority to bar individuals from accessing Buckley AFB. Enforcement procedures on Buckley AFB are administered by individual supervisors, commanders, Security Forces Squadron, and potentially off-installation law enforcement officers. These existing illicit discharge and illegal dumping procedures have worked effectively for Buckley AFB under the installation's previous MS4 Permit. The Water Quality Program Manager will document illicit discharge and illegal dumping enforcement procedures.

### **Measurable Goal**

- Document any illicit discharge and illegal dumping enforcement actions taken. (Years 1–5 and period of administrative continuance and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Annual Report must include a description of the mechanism used to prohibit illicit discharges into the MS4. The above description concerning illegal dumping and enforcement procedures can be reported as an appropriate regulatory mechanism to prohibit and enforce illicit discharges on Buckley AFB.

## **5.5 IDE-5 ALLOWABLE NON-STORMWATER DISCHARGES AND CONTROLS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.4.7 of the MS4 Permit.

### **Implementation Details**

The MS4 Permit provides a listing of allowable non-stormwater discharges. These discharges are specifically authorized under the MS4 Permit unless the permittee determines that these allowable non-stormwater discharges are significant contributors of pollution. If the permittee determines that these discharges are significant contributors of pollution, then the discharge is considered illicit and controls must be put in place to minimize or eliminate pollutants from the associated discharge. The Water Quality Program Manager will conduct an annual review of the allowable non-stormwater discharge list and determine if any of the listed categories are significant contributors of pollution on Buckley AFB. If a category is determined to be a significant contributor, the Water Quality Program Manager will develop and implement a plan to minimize or eliminate the discharge.

### **Measurable Goal**

- Conduct annual review of allowable non-stormwater discharges listed in Paragraph 1.3.2 of the MS4 Permit. Identify if any category of allowable, non-stormwater discharge is a significant contributor of pollutants to the MS4. If a category of allowable, non-stormwater discharge is determined to be significant, the category is then considered an illicit discharge and controls must be enacted to minimize or eliminate the discharge. (Years 1–5 and period of administrative continuance)

**Documentation and Report Procedures**

- The annual review of allowable, non-stormwater discharges occurring on Buckley AFB will be documented via MFR signed by the Water Quality Program Manager. The MFR will identify if any category of allowable non-stormwater is a significant contributor of pollutants to the MS4.

## **6.0 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL**

The purpose of the Construction Site Stormwater Runoff Control (CON) MCM is to prevent soil and construction materials and wastes from leaving the site and entering the stormwater drainage system. Sediment is usually the primary pollutant of concern.

The following BMPs will be implemented by Buckley AFB during the five year permit term and period of administrative continuance and represent a program to reduce pollutants in stormwater runoff from construction sites. Pollutants of concern specifically targeted by the BMPs established in this section include sediment, solid waste, phosphorous, nitrogen, pesticides, oil and grease, concrete truck washout wastewater, construction chemicals, and construction debris. The CON BMPs are presented in the following subsections.. The Water Quality Program Manager is responsible for coordination and implementation of the construction site runoff control program.

### **6.1 CON-1 CONSTRUCTION PROJECT OVERSIGHT PROGRAM**

#### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.5.1; 2.5.2; 2.5.5; 2.5.7; and 2.5.9 of the MS4 Permit.

#### **Implementation Details**

Minimizing erosion and sediment runoff from construction sites is one of the primary ways to minimize the discharge of pollutants to the stormwater drainage system. For development and re-development projects that result in a land disturbance of greater than or equal to one acre, or disturbance of less than one acre, if the development or redevelopment is part of a larger common plan of development that would disturb one acre or more, requires coverage under the NPDES General Permit for Stormwater Discharges for Construction Activity in Colorado, COR12000F (i.e., the 2012 and 2017 Construction General Permit or “CGP”). For these regulated projects, an operator specific Notice of Intent (NOI) and site-specific Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented to meet permit requirements and control the discharge of pollutants off of the construction site. A construction project oversight program will be developed to oversee compliance with the CGP and project-specific SWPPPs. The construction oversight program will include construction site inspection criteria, scheduling, responsibilities, procedures to address noncompliance, and inspection form. The Water Quality Program Manager is responsible for developing the construction project oversight program.

#### **Measurable Goal**

- Develop a written construction oversight program and inspection plan for use by Buckley AFB stormwater managers. The construction oversight program will include a list of policies and procedures that can be used to enforce compliance with applicable stormwater discharge permits related to construction activities. The program will be continuously reviewed and updated annually as needed (Years 1–5 and period of administrative continuance).

## **Documentation and Report Procedures**

- The MS4 Annual Report must include a description of the regulatory mechanism used to require sediment and erosion controls. Typically, the construction contract and standard specifications related to environmental and stormwater management include provisions for erosion and sediment controls, as well as compliance with applicable discharge permits. Government contractors must comply with Federal Acquisition Regulations and contract requirements, including environmental protection. Acquisition regulations and contracts contain specific enforcement provisions for non-compliance by contractors. Enforcement provisions include cure notices, contract termination, stop work orders, liquidated damages, negative contractor performance ratings, and being precluded from future government contracts. Enforcement against government contractors is a contracting officer responsibility with input and support from quality assurance evaluator and subject matter experts on Buckley AFB.
- The MS4 Annual Report must include a description of the procedures to address noncompliance and enforcement mechanisms used at Buckley AFB to ensure construction activities are in compliance with applicable stormwater discharge permits. Construction contracts include provisions for non-compliance with contract requirements and specifications as well as legal procedures for enforcing contract provisions.

## **6.2 CON-2 CONSTRUCTION PROJECT OVERSIGHT INSPECTIONS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.5.6 of the MS4 Permit and will implement the inspection plan developed as part of CON-1.

### **Implementation Details**

Construction oversight inspections accomplish the following:

- Ensure detailed on-site knowledge of construction project permitting and compliance requirements.
- Allow Buckley AFB additional opportunities to provide guidance and education regarding construction site runoff control.
- Enable Buckley AFB to establish a relationship with construction personnel.
- Enable Buckley AFB to provide timely feedback on construction site stormwater compliance.
- Enhance Buckley AFB MS4 protection efforts.

The Water Quality Program Manager will perform periodic inspections of construction site to assess compliance.

### **Measurable Goal**

- Conduct oversight compliance assistance inspections of permitted construction sites (greater than 1 acre in size or part of a large common plan of development that will cumulatively disturb 1 acre or more) at least semi-annually and prior to construction

permit termination to verify final stabilization has been met on all areas of the site. Buckley AFB has developed a spreadsheet based prioritization model to guide additional construction oversight inspections based on project location, size, nature of construction activity, site characteristics, and compliance history of construction contractor. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Annual Report must include a description of permitted construction activities occurring on Buckley AFB during the term of the MS4 Permit. For each permitted construction project, semi-annual inspections are required and must be documented using an installation developed inspection form.

## **6.3 CON-3 CONSTRUCTION SITE STORMWATER TRAINING**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.5.8 of the MS4 Permit.

### **Implementation Details**

Construction project oversight is a team effort at Buckley AFB. The Water Quality Program Manager provides guidance but responsibility for executing effective construction site stormwater controls resides with contractors and other base personnel. Oversight of stormwater compliance at these sites requires training on stormwater compliance requirements. The Water Quality Program Manager will facilitate (provide training resources and other support) construction site stormwater training annually for quality assurance evaluators. The training will include, at a minimum, BMP installation and maintenance as well as CGP compliance requirements. The 460 CES/CEN and 460 CES/CEI Flight Chiefs are responsible for approving and monitoring of training for quality assurance personnel.

### **Measurable Goal**

- Document the number of Buckley AFB construction site quality assurance personnel who have received construction stormwater compliance annual training. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The 460 CES/CEN Flight Chief and Water Quality Program Manager will oversee the construction site stormwater training program. The training program can be performed using internal Buckley AFB resources, established Air Force wide training programs, outside training sources, or other training mechanism agreed upon by the 460 CES/CEN Flight Chief and Water Quality Program Manager. A roster of personnel who receive approved construction site stormwater management training will be maintained and the number of personnel who receive training on an annual basis will be reported in the MS4 Annual Report.

## 6.4 CON-4 DESIGN REVIEW AND CONSTRUCTION SITE BMP INFORMATION

### Permit Cross-Reference

This BMP supports compliance with Paragraph 2.5.3 and 2.5.4 of the MS4 Permit

### Implementation Details

Buckley AFB currently implements a design review process for design and construction projects. This existing design review process provides Buckley AFB environmental management, engineers, and planners the opportunity to review site plans, evaluate statements of work, and incorporate consideration of potential water quality impacts. The construction contractor must prepare and implement a CGP compliant SWPPP, implement construction site stormwater BMPs, and comply with requirements of construction project specifications and drawings. CGP and SWPPP compliance guides as well as SWPPP template are made available to construction contractors to support this BMP. Information on construction site BMPs that includes typical details for installation and maintenance is also made available to construction contractors. Industry reference documents such as from Urban Drainage and Flood Control District, City of Aurora, and Colorado Department of Transportation are typical utilized. The 460 CES/CEN is responsible for implementing the design review process.

### Measurable Goal

- Maintain existing review process for design and construction projects planned for Buckley AFB. (Years 1–5 and period of administrative continuance)
- Maintain existing process for identifying construction site BMPs and providing such information to project construction contractors (Years 2–5).
- Hold preconstruction meetings with the contractors and project management staff to ensure BMP related questions and requirements are addressed prior to BMP installation on 50% of new construction projects (Years 4-5 and period of administrative continuance).

### Documentation and Report Procedures

- In accordance with AFIs and the *United States Air Force Project Managers' Guide for Design and Construction* requirements, all development and redevelopment projects planned for Buckley AFB must be reviewed by 460 CES representatives. The designated government design and construction management agent is responsible for maintaining review comments with the official project folder. The 460 CES Water Quality Manager will provide CGP, SWPPP, SWPPP templates, and reference BMP documents to 460 CES Engineering Flight personnel.
- A description of the procedures for site plan review, including the review of preconstruction site plans, which incorporate consideration of potential water quality impacts and applicable specification language will be reported in the MS4 Annual Report.

- Document the projects and dates for all pre-construction meetings and provide in the MS4 Annual Report.

## **6.5 CON-5 SITE PLAN AND CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN REVIEW**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.5.4 of the MS4 Permit.

### **Implementation Details**

Buckley AFB has established procedures for site plan review by reviewing construction site SWPPP for construction activities requiring coverage under the CGP. During the review process, the Buckley AFB Environmental Element provides comments concerning the contractor's SWPPP. The contractor maintains ultimate responsibility for complying with the CGP and site-specific SWPPP. This process will be maintained and the Water Quality Program Manager will document comments made to contractor SWPPPs.

### **Measurable Goal**

- Maintain existing site plan and SWPPP review process. Document site plan and SWPPP reviews and record any comments provided to the construction entity pertaining to the contractor's SWPPP. Dates and copies of SWPPP review comments will be maintained by the 460 CES/CEIE. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The date and a copy of comments provided to contractors pertaining to site-specific SWPPPs will be maintained by the 460 CES/CEIE. Comments can be submitted electronically or via hard copy to contractors. Records will be maintained as appropriate and depending on submittal method.

## **7.0 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND RE-DEVELOPMENT**

The Post-Construction Stormwater Management (PC) MCM focuses on site and design considerations as they relate to stormwater quality, which are addressed in the planning and design stages of project development. The modified MS4 Permit, which specifies in Part 2.6 conditions and requirements for Post-Construction Stormwater Management for New Development and Re-Development, was issued on 5 Dec 2014 with an effective date of 12 Jan 2015 (see Section 1.0 for additional background). Therefore, following PC BMPs will be implemented by Buckley AFB over four years of the permit term (Permits Years 2—5; CYs 2015 – 2018). The PC BMPs are presented in the following subsections. The Water Quality Program Manager is responsible for coordination and implementation of the post-construction stormwater management program.

### **7.1 PC-1 POST-CONSTRUCTION STORMWATER MANAGEMENT PROCESS**

#### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.6.1 and 2.6.1.1 of the modified MS4 Permit.

#### **Implementation Details**

The modified MS4 Permit requires the establishment and implementation of a process to ensure that all new development and re-development projects, disturbing equal to or greater than one acre and that discharge into the Buckley AFB MS4, are designed and constructed with permanent post-construction stormwater control measures to prevent or minimize water quality impacts using structural or nonstructural BMPs appropriate for Buckley AFB. Such BMPs shall be selected based on their ability to maintain on-site pre-development runoff conditions and shall be implemented on-site, except to the extent it is impracticable to do so.

For the purposes of compliance with the modified MS4 Permit, the pre-development runoff conditions at Buckley AFB are defined as site conditions as of 12 Jan 2015 (the effective date of the modified MS4 Permit). Such site conditions include all current, in-progress, projects, as well as previously completed projects, and new development and re-development projects that are funded for design on or before 12 Jan 2015. Pre-development runoff conditions include rate, volume, and duration of stormwater flow from either a project site or a drainage basin that includes the project site.

Buckley AFB currently implements a design review process for new development and re-development projects. This existing design review process provides Buckley AFB environmental management, engineers, and planners the opportunity to review site plans, evaluate statements of work, and structural or nonstructural, permanent, post-construction BMPs to prevent or minimize water quality impacts. The 460 CES/CEN is responsible for implementing the design review process.

#### **Measureable Goal**

- Maintain existing review process for new development and re-development projects planned for Buckley AFB. Include evaluation of pre-development and post-development

runoff conditions in design review process (Years 2–5 and period of administrative continuance).

### **Documentation and Report Procedures**

- This BMP is applicable to new development and re-development projects occurring on Buckley AFB that disturb equal to or greater than one acre. Projects disturbing less than one acre in size are not specifically subject to the post-construction stormwater control requirements of Paragraph 2.6.1 of the modified MS4 Permit. The second trigger for the modified MS4 Permit Paragraph 2.6.1 compliance is that stormwater from the new development or re-development project must enter the Buckley AFB stormwater conveyance system (MS4). The majority of new development and re-development projects on Buckley AFB will discharge into the stormwater conveyance system.
- For projects that trigger both requirements, project design consultant engineers may, as determined by the size of the site, its setting within a drainage basin, and other site-specific factors, perform a hydrologic analysis that compares pre-development and post-development runoff conditions. Alternatively, runoff condition guidelines (aka rules-of-thumb) and/or standard BMP details may be applied, especially at relatively small and flat sites. Permanent post-construction stormwater controls shall be designed and installed to attempt to maintain pre-development runoff conditions for rate, volume, and duration of flow. Applicable hydrologic condition documentation will be maintained with the project folder.

## **7.2 PC-2 IMPRACTICALITY DETERMINATION DOCUMENTATION FOR POST-CONSTRUCTION STORMWATER CONTROLS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.6.1.2 and 2.6.1.3 of the modified MS4 Permit.

### **Implementation Details**

The existing design review process for new development and redevelopment projects occurring on Buckley AFB (i.e., PC-1) provides Buckley AFB environmental management, engineers, and planners the opportunity to review site plans including post-construction stormwater controls, which may include identifying impracticality conditions or situations. The modified MS4 Permit and Statement of Basis contain specific scenarios for impracticability determinations related to post-construction stormwater control measure design and installation. The 460 CES/CEN is responsible for implementing the design review process and, as applicable, will include documenting impracticality determinations. A copy of all impracticality determinations shall be provided to the Water Quality Program Manager. In accordance with As required the modified MS4 Permit, the following information must be detailed for all new development and redevelopment projects in which predevelopment runoff conditions cannot be maintained:

- 1). Name, locations, and identifying project description;
- 2). The reason(s) for making the impracticability determination;
- 3). Any information developed or relied upon to support the impracticability determination (e.g., feasibility analyses, geologic studies, groundwater data, etc.)

### **Measureable Goal**

- Document all impracticability determinations and provide supporting documentation to the Water Quality Program Manager (Years 2–5 and period of administrative continuance).

### **Documentation and Report Procedures**

- In accordance with several AFIs and the United States Air Force Project Managers' Guide for Design and Construction, all new development and redevelopment projects planned for Buckley AFB must be reviewed by 460 CES representatives. The designated government design and construction management agent is responsible for maintaining review comments with the official project folder.
- The MS4 Annual Report must include a description of any impracticability determinations made during the reporting period, including:
  - 1). Name, locations, and identifying project description;
  - 2). The reason(s) for making the impracticability determination; and
  - 3). Any information developed or relied upon to support the impracticability determination (e.g., feasibility analyses, geologic studies, groundwater data, etc.)

## **7.3 PC-3 INVENTORY, VISUAL INSPECTION, AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER CONTROLS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.6.3; 2.6.5; and 2.6.6 of the modified MS4 Permit.

### **Implementation Details**

The modified MS4 Permit requires all post-construction stormwater controls to be included in a georeferenced data management system. Buckley AFB has developed a map of the installation storm sewer system that identifies drainage conveyance, storm drain inlets, basins, culverts, outfalls and BMPs. This map will be updated as new post-construction BMPs are added. Construction contractors are required to provide as-built drawings of storm sewer system modifications to the 460 CES/CEN for incorporation into the georeferenced data management system. The Water Quality Program Manager and 460 CES/CEN will conduct an annual review of the Buckley AFB structural post-construction stormwater controls inventory/map to ensure updates are being made. Any structural post-construction stormwater controls missing from the inventory will be added during the annual review.

Inspection and maintenance of the post-construction stormwater controls is critical to ensuring long-term operation and improved downstream water quality. To properly maintain existing and future structural BMPs, the Water Quality Program Manager will perform a visual inspection of each structural post-construction stormwater BMP at least annually. Structural post-construction stormwater BMPs for the purposes of this BMP include the following structural control measures: detention ponds, bioretention areas, outfalls, and check dams. Inlets and culverts will be inspected as part of P2-4 presented in the next section of this SWMP. Maintenance will be initiated based on inspection findings.

### **Measurable Goal**

- Conduct annual review of the post-construction stormwater controls inventory/map and make required updates. (Years 2–5 and period of administrative continuance)
- Inspections of any permanent post-construction stormwater control measures that are under warranty, typically one year following installation will be annotated and the appropriate official responsible for warranty enforcement will be notified. (Years 2–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- Structural post-construction stormwater BMPs, defined as detention ponds, bioretention areas, outfalls, and check dams for the purposes of this BMP, will be inspected at least annually. Any maintenance requirements will be identified on the inspection report. As required, BMP maintenance and repairs will be requested through the appropriate organizations.
- This BMP will be accomplished in conjunction with the annual review of the Buckley AFB storm sewer system GIS map (IDE-1). The annual review will be documented via MFR to be signed by the Water Quality Program Manager. The MFR will annotate the date in which the review was accomplished as well as results of the review process.

## **7.4 PC-4 VISUAL INSPECTION OF NEW POST-CONSTRUCTION STORMWATER CONTROLS**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.6.4 of the modified MS4 Permit.

### **Implementation Details**

In accordance with the modified MS4 Permit, all newly installed post-construction stormwater control measures must be inspected to ensure functionality prior to closing out contracts. The Water Quality Program Manager is responsible for implementing this inspection process in conjunction with the contracting agent.

### **Measurable Goal**

- Document inspections of all newly installed post-construction stormwater control measures prior to closing out contracts. (Years 2–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- All new post-construction stormwater control measures will be inspected for functionality and inspection results will be documented. For new post-construction stormwater control measures installed at locations not permitted under the CGP, the Water Quality Program Manager will be required to perform the inspection after installation. Coordination with the 460 CES/CEN is required to identify all new post-construction stormwater controls being installed on Buckley AFB.

## **7.5 PC-5 NATURAL RESOURCE MANAGEMENT PLAN UPDATE**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.6.2 of the modified MS4 Permit.

### **Implementation Details**

In accordance with the modified MS4 Permit, hydrologic performance specifications and information related to the design and maintenance of permanent stormwater control measures will be incorporated into updated natural resource management plans. The 460 CES/CEIE is responsible for implementing this BMP.

### **Measurable Goal**

- Hydrologic performance standards and information related to design and maintenance of permanent post-construction stormwater controls are included in natural resource plans when these plans are updated. (Year 5)

### **Documentation and Report Procedures**

- During the next major rewrite and update of Buckley AFB natural resource management plans, hydrologic specifications as well as information related to design and maintenance of post-construction stormwater control measures will be incorporated into the updated natural resource plans. References to existing Department of Defense and Air Force guidance, such as Unified Facilities Criteria, can be used to meet this requirement. The MS4 Annual Report will include the date of the natural resource plan updates and a summary of recommended changes to address post-construction stormwater controls.

## **8.0 POLLUTION PREVENTION / GOOD HOUSEKEEPING FOR FACILITIES OPERATION AND MAINTENANCE**

The purpose of this MCM is to implement Pollution Prevention and Good Housekeeping (P2) practices to prevent or reduce pollutant runoff from municipal operations at Buckley AFB. The following BMPs are either existing or will be implemented by Buckley AFB over the five year permit term and period of administrative continuance. The P2 BMPs are described in the following subsections.

### **8.1 P2-1 CONDUCT ANNUAL STORMWATER TRAINING FOR ALL FLEET MAINTENANCE AND CIVIL ENGINEER SHOPS**

#### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.7.1 of the MS4 Permit

#### **Implementation Details**

Buckley AFB will develop and provide annual training to fleet maintenance and civil engineer shop personnel. The annual training must include stormwater runoff impacts, controls, and maintenance of onsite pollution control measures. The specific delivery method of annual training is not specified in the MS4 Permit; however the permit does allow a train-the-trainer approach in which training can be provided to a single point of contact for each facility for further distribution to fleet maintenance and shop personnel. The awareness training can be provided in person or via handout/electronic methods. The Water Quality Program Manager is responsible for overseeing this training.

#### **Measurable Goal**

- Conduct annual training of fleet maintenance and civil engineer shops. Maintain attendance roster and training date as applicable. If not applicable, maintain a distribution list and dates of distribution. (Years 1–5 and period of administrative continuance)

#### **Documentation and Report Procedures**

- The Water Quality Program Manager will develop training targeted at fleet maintenance and civil engineer shop personnel. The training will describe impacts of stormwater runoff, control measures, and maintenance of control measures. The training will also provide contact information for additional details concerning the Buckley AFB stormwater program. The training will be emailed or delivered to 460 CES/CEO personnel, 140 CES Operations Flight personnel, 460 LRS fleet maintenance personnel, 140 LRS fleet maintenance personnel, and appropriate tenant unit environmental coordinators. At a minimum, the following tenant units will receive the training: Colorado Army National Guard, Marines, Navy Reserve, ADF-C with instructions to provide the training information to appropriate fleet maintenance personnel. It is assumed that all personnel receiving the training will review the content. The MS4 Annual Report will include the date in which the training was conducted or delivered as well as a copy of the fleet maintenance and civil engineer shop personnel training.

## 8.2 P2-2 SNOW AND ICE CONTROL TRAINING

### Permit Cross-Reference

This BMP supports compliance with Paragraph 2.7.2 of the MS4 Permit

### Implementation Details

The seasonal conditions in Colorado require Buckley AFB to be prepared for extreme weather events. To ensure that base personnel are prepared for snow and ice control prior to the winter season, annual training will be provided to snow and ice control operations personnel. Training will include sand, salt, deicing and anti-icing agent application; snow removal and dump guidance; and equipment training. The 460 CES Operations Flight is responsible for providing and documenting this training.

### Measurable Goal

- Conduct training once per year and maintain attendance roster. (Years 1–5 and period of administrative continuance)

### Documentation and Report Procedures

- Dates and attendance rosters for annual snow and ice control training will be maintained by the 460 CES/CEO. A description of training content and list of positions trained must be provided with the MS4 Annual Report. In accordance with AFI 32-1002 Snow and Ice Control, training is required for Buckley AFB personnel who operate snow and ice control equipment, including deicing and traction equipment. Training includes equipment operation, priorities, and snow dump locations. Training must be provided prior to the deicing season, typically in September.

## 8.3 P2-3 STREET SWEEPING

### Permit Cross-Reference

This BMP supports compliance with Paragraph 2.7.5 of the MS4 Permit.

### Implementation Details

Buckley AFB executes a street sweeping program to remove debris and materials deposited on streets to collect these materials and prevent them from entering the stormwater drainage system. The installation will continue this service on base roads and parking lots. The sweeping program will focus on areas of sediment and debris accumulation rather than a set route. The 460 CES/CEO is responsible for executing the street sweeping program.

### Measurable Goal

- Accomplish an average of 20 hours of street sweeping per month. (Years 1–5 and period of administrative continuance)
- Perform an annual evaluation of the schedule and document the evaluation (Years 2–5 and period of administrative continuance).

### **Documentation and Report Procedures**

- The number of hours of street sweeping per month is maintained by the 460 CES/CEO and is tracked in the IWIMS or other Air Force approved system. Street sweeping is accomplished based on need versus a set schedule. The MS4 Permit requires the SWMP to include a description of the street sweeping program. The MS4 Annual Report requires a description of any evaluations performed on street cleaning operations or any new measures taken related to street sweeping to minimize the negative impacts to water quality. Any street sweeping evaluations performed will be reported in the MS4 Annual Report.

## **8.4 P2-4 STORM DRAIN INLET INSPECTION AND MAINTENANCE SCHEDULE**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.7.4 of the MS4 Permit.

### **Implementation Details**

Buckley AFB, or a contractor hired by Buckley AFB, will inspect storm drain inlets and culverts for maintenance requirements. The results of each inspection will be recorded and developed into a maintenance plan. The plan will identify a proposed cleaning schedule and methods to accomplish the required maintenance. The 460 CES/CEO will manage this task and update the maintenance plan annually.

### **Measurable Goal**

- Inspect an average of five (5) percent of storm drain inlets and culverts per quarter. Document cleaning activities, waste disposal practices, and amount of debris collected during maintenance (Years 2–5 and period of administrative continuance).
- Develop maintenance schedule based on inspection results. Perform an annual evaluation of the schedule and document the evaluation (Years 2–5 and period of administrative continuance).

### **Documentation and Report Procedures**

- The 460 CES/CEO is responsible for managing maintenance of the stormwater conveyance system including inspection and clean out. The MS4 Annual Report requires a description of any evaluations performed on cleaning operations or any new measures taken related to cleaning to minimize the negative impacts to water quality. Any evaluations performed will be reported in the MS4 Annual Report.

## **8.5 P2-5 VEHICLE WASHING LIMITATION**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.7.3 of the MS4 Permit.

### **Implementation Details**

Buckley AFB has established policies that limit municipal vehicle washing to approved vehicle wash racks to consolidate areas to wash vehicles and large equipment. This policy will remain in effect so that vehicle wash waters can be controlled and appropriately discharged.

### **Measurable Goal**

- Maintain copy of current policy. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- A copy of the current municipal vehicle washing policy will be maintained by the Water Quality Program Manager.

## **8.6 P2-6 POST-CONSTRUCTION STORMWATER CONTROL MEASURE MAINTENANCE**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.7.6 and 2.7.7 of the MS4 Permit.

### **Implementation Procedures**

Buckley AFB will maintain all permanent post-construction stormwater control measures. Most post-construction stormwater controls on Buckley AFB are passive in nature and require minimal routine maintenance. Maintenance requirements of typical post-construction stormwater controls on Buckley AFB include sediment removal, trash/debris removal, and vegetation maintenance. Significant maintenance activities, such as large scale sediment removal, are typically required on a 15 to 20 year maintenance cycle for large, regional type structures. Inlets, pipes, and culverts may require more frequent maintenance. Vegetation maintenance on Buckley AFB is completed by the 140 CES (airfield areas) and the grounds maintenance contractor.

As presented in PC-3 and P2-4, Buckley AFB will inspect all post-construction stormwater controls, including instream controls, to determine maintenance requirements. If sedimentation, obvious signs of stormwater pollution, or post-construction stormwater control maintenance (such as trash accumulation) is identified during these other stormwater related activities, the Water Quality Program Manager will be notified. Post-construction stormwater BMP maintenance requirements, which require additional equipment or resources to accomplish, will be entered into the appropriate Work Order Request System.

### **Measurable Goal**

- Document post-construction stormwater control maintenance requirements during annual post-construction stormwater control inspection. (Years 1–5 and period of administrative continuance)
- Initiate a Work Order using the appropriate work request system/database, for any post-construction stormwater control maintenance activity that requires additional equipment, manpower, or resources to accomplish. (Years 1–5 and period of administrative continuance)

### **Documentation and Report Procedures**

- The MS4 Annual Report must describe how post-construction stormwater controls are maintained. The inspection forms for each individual post-construction stormwater controls should have a specific entry for maintenance requirements. If any minor maintenance of the post-construction stormwater control is completed during the routine inspection, the activity should be annotated on the form. Any significant maintenance for erosion, sediment removal, significant trash removal, etc. (additional CES support is required), a Work Order should be initiated through CES Customer Service. The Work Order system (IWIMS or Air Force-approved alternative) will be used to track post-construction stormwater control maintenance requests that will be accomplished via Work Order.

## **8.7 P2-7 CONSOLIDATED WASH RACK EVALUATION**

### **Permit Cross-Reference**

This BMP supports compliance with Paragraph 2.7.3 of the MS4 Permit.

### **Implementation Procedures**

By the end of Year 3, Buckley AFB will evaluate options for a consolidated area to wash large equipment. The evaluation will include an inventory of existing washing areas, summary of large equipment washing requirements, and potential locations for a consolidated wash area.

### **Measurable Goal**

- Document completion of the consolidated wash area evaluation including methodology and recommendations. If a consolidated wash area is recommended, a Form 1391 will be generated. (Year 3)

### **Documentation and Report Procedures**

- An MFR will be generated to document the consolidate wash area evaluation and results. The MFR will be signed by the Water Quality Program Manager. The MS4 Annual Report will include the date the evaluation was completed.

## **9.0 MONITORING**

Part 3.1.1 of the Buckley AFB MS4 Permit requires the installation to develop a monitoring program to assess streambank stabilization and water quality for East Toll Gate Creek at a minimum. Buckley AFB must develop and submit a description of the monitoring program to EPA Region 8 with the Year 3 MS4 Annual Report. EPA Region 8 will review the submittal and determine whether or not it meets the goals of the MS4 Permit as well as if the data is being collected and reported in compliance with procedures approved under 40 Code of Federal Regulations (CFR) Part 136. Buckley AFB will comply with the monitoring program development requirements and monitoring program will begin once the proposed program has been reviewed by EPA Region 8.

## **10.0 RECORDKEEPING**

Buckley AFB must retain records of all applicable monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and a copy of the NPDES permit for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. Buckley AFB must submit these records to EPA only when specifically asked to do so. The Environmental Element's Water Quality Program Manager will retain a description of the SWMP, annual reports, and monitoring report associated with complying with this permit.

## **11.0 ANNUAL REPORT**

Buckley AFB is required to develop and submit an annual report to EPA Region 8. The annual report is due to EPA Region 8 by 1 April each year and will cover actions taken during the previous calendar year (1 January through 31 December) to comply with the MS4 Permit. The initial annual report is due on 1 April 2015. The Annual Report must also address any changes made to the SWMP and/or BMP implementation for the following year. The Buckley AFB Annual Report will be reviewed for Anti-terrorism/Force Protection concerns. Any information that cannot be released to the general public will be marked "confidential" or "for official use only."

Each annual report must be signed by a principal executive officer, ranking elected official, or duly authorized representative of that person. For purposes of this section, a principal executive officer of a Federal agency includes: (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA). A person is a duly authorized representative only if:

- The authorization is made in writing by a person described in principal executive officer or ranking elected official and submitted to the EPA; and
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility for environmental matter for the regulated entity.

The person signing the annual report must include the following 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 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.”