BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re: Buckley Air Force Base Municipal Separate Storm Sewer System United States Department of the Air Force, 460th Space Wing, *Permit Applicant* NPDES Permit No. CO-R042003	NPDES Appeal No. 13-07

PETITION FOR REVIEW OF NPDES PERMIT FOR BUCKLEY AIR FORCE BASE MUNICIPAL SEPARATE STORM SEWER SYSTEM AND REQUEST FOR ORAL ARGUMENT

Attachment C

Buckley Air Force Base Municipal Separate Storm Sewer System (MS4) Permitting Audit Report, dated November 2009

BUCKLEY AIR FORCE BASE

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMITTING AUDIT REPORT

NOVMEBER, 2009

Prepared by

Greg Davis,
Regional Stormwater Program Coordinator

U.S. EPA Region 8 (8P-W-WW)
1595 Wynkoop Street
Denver CO 80220

http://www.epa.gov/region8/water/stormwater

Table of Contents

Executive Summary:

Background

On August 10, 2009, EPA Region 8 conducted a facility audit of the Municipal Separate Storm Sewer System (MS4) program at Buckley Air Force Base (AFB). This audit included a review of contracts, regulations and operating procedures. Oversight inspections of industrial activities and interviews of program staff were also performed. These activities were conducted in an effort to determine the extent to which the facility's MS4 program has been developed to date and to derive specific permit conditions for the reissuance of the facility's MS4 permit.

Summary of Findings

- Buckley AFB has a strong program to address stormwater discharges from "municipal" and industrial facilities. This is likely due to a strong education program with annual training on several topics and oversight in the form of base-wide inspections and regional Air Force oversight.

- New facilities at Buckley AFB are very well designed with separation of areas exposed to industrial activities and large secondary containment features.

- Development at Buckley AFB includes detention structure but does not currently reflect low impact development practices. Implementation of a design standard which mimics pre-development hydrology will require changes in how contracts for new construction are created and managed.

- Contracting of small construction sites is a concern as violations of the construction general permit were noted during the audit. The ability to influence contractors through either contractor performance appraisals and daily quality assurance evaluations is not very effective as it is currently being implemented.

- Buckley AFB maintains a mostly daylighted storm sewer system with maintained detention structures, so visible degradation from high flows in receiving waters is not very evident. Pollutants leaving the base are likely minimal due to the strong "municipal" and industrial sites program and a commitment to tracking and properly disposing all potentially hazardous chemicals.

- Future development in the surrounding watershed will affect East Tollgate Creek and how the stormwater conveyance system at Buckley AFB needs to be managed. Communication with the City of Aurora regarding newly proposed projects is important.

Recommendations

- Buckley AFB should continue to include training on an annual basis for "municipal" and industrial operators.

- The contracting process for new construction projects will need to be modified to include a line item for the cost of permanent stormwater control measures. Environmental staff will need to review proposed projects to ensure that permanent stormwater control measures can meet hydrologic endpoints and can be maintained. Once installed, it will be necessary to retain designs and determine mechanisms so that permanent stormwater control measures are maintained to meet pollutant removal and detention/retention/infiltration goals over time.

- The contracting process for small construction projects needs to be re-evaluated so that there is more incentive to comply with the terms of the construction stormwater permit.

- A monitoring program should be initiated to ascertain receiving water quality and to evaluate the effectiveness of the MS4 program.

1.0 Introduction

An audit team consisting of staff from EPA Region 8 conducted an audit of the Fort Carson MS4 program on August 10-13, 2009. Staff on the audit included:

- Greg Davis: Regional Stormwater Program Coordinator, Regulatory oversight of the Colorado Discharge Permitting System (CDPS) permitting program

The Municipal Separate Storm Sewer System (MS4) for Buckley AFB is regulated under EPA's *General Permit for Storm Water Discharges from Federal Facility Small Municipal Separate Storm Sewer Systems in Colorado*. This permit was issued on June 23, 2003 and has been expired as of June 22, 2008. This permit authorizes stormwater discharges from the MS4 for the contiguous property of Buckley AFB.

Buckley AFB is authorized to discharge stormwater from its MS4 under the administratively extended general permit. This general permit is not going to be reissued. The eight facilities covered under the general permit will be issued individual permits. This approach is being taken so that terms specific to the operations, industrial activities, and receiving water conditions of each facility can be included in each individual permit. It is believed that this approach will result in a permit with more streamlined conditions specifically tailored to the goal of reducing pollutant loading in stormwater runoff.

The primary purpose of this audit is to review the stormwater management program so that specific conditions can be included in the facility's individual stormwater permit. Facility-specific conditions in the permit will be directly tied to findings noted in this audit and are included in each section as "Terms for Inclusion in the Reissued Permit." Upon issuance of an individual permit, Buckley AFB's authorization will no longer be administratively extended under the expired general permit.

1.1 Description of Buckley AFB

Buckley Air Force Base (Buckley AFB) is an Air Force Space Command base. During 2000, base-operating responsibilities changed from the Colorado Air National Guard (COANG) to the U.S. Air Force (USAF) and ultimately the 460th Space Wing (460 SW) became the host unit at Buckley AFB.

The 460 SW's mission is to provide combatant commanders with expeditionary warrior Airmen, and deliver global infrared surveillance, tracking, and missile warning for theater and homeland defense. Also, the 460 SW provides infrastructure and organizational support for approximately 77 tenant organizations who have facilities and operations located on Buckley AFB including the 140th Wing (140 WG) of the COANG, the Colorado Army National Guard (COARNG), the Navy Operational Support Center, Marines Corps, and Coast Guard, and reserve components of these forces.

The COANG 140 WG's state mission is to provide protection of life, property and preserve peace, order and public safety. These missions are accomplished through

emergency relief support during natural disasters such as floods, earthquakes and forest fires; search and rescue operations; support to civil defense authorities; maintenance of vital public services and counterdrug operations. Its federal mission is to maintain well-trained, well-equipped units available for prompt mobilization during war and provide assistance during national emergencies (such as natural disasters or civil disturbances). The COARNG operates the Army Aviation Support Facility (AASF) and is responsible for supplying personnel and equipment for special missions that cannot be handled by ground units alone. The mission of the AASF is to train aircrew to support their wartime and state missions, maintain mission-ready aircraft, and to rapidly respond to state emergencies. Buckley AFB hosts a variety of activities through the 460 Space Wing and its tenants, including airfield operations, administrative/office functions, retail/commercial, vehicle maintenance, public works, and recreation and open space. Buckley AFB serves more than 92,500 active duty, National Guard, Reserve, and retired personnel throughout the Front Range community. This includes 2,700 active duty members from every service, 4,200 National Guard personnel and Reservists, 3,000 civilians, contractors, retirees and dependents. The number of personnel living on Buckley AFB fluctuates, with about 350 in two dormitories and an ever-changing number in a 353-unit housing area.

1.2 Description of the Facility Hydrology and Receiving Waters

All surface water runoff on Buckley AFB is intermittent and occurs only in response to precipitation events. This runoff is controlled and managed on base by the Buckley AFB stormwater drainage system, a man-made system covered under Buckley AFB's MS4 permit. Runoff from facilities on Base discharges into this MS4 system and discharges at outfalls into natural drainage channel receiving waters. The receiving waters, also intermittent drainages, are East Toll Gate Creek (a natural drainage channel and waters of the US) and Granby Ditch (a natural channel, largely improved by man, and a component of the City of Aurora's MS4 drainage system). However, construction in the City of Aurora appears to be moving East Toll Gate Creek toward more perennial flow. Based on topography, surface water drainage from roughly the eastern side of the Base is via either an unnamed tributary to Murphy Creek, or an unnamed tributary to Sand Creek; however, this part of the Base is well vegetated, most runoff occurs as overland flows, and therefore actual runoff discharges at outfalls are believed to be rare and none have been documented.

Surface drainage from Buckley AFB and the surrounding area is generally from southeast to northwest. Sand Creek, the primary surface drainage feature in the area, is located to the north-northeast of the base; Murphy Creek is tributary to Sand Creek. East Toll Gate Creek crosses the southern part of the base and is tributary to Toll Gate Creek about 1.4 miles to the northwest, at its confluence with West Toll Gate Creek. Toll Gate Creek is tributary to Sand Creek where it joins about 3.3 miles further downstream, southwest of the I-225 and I-70 interchange. Sand Creek is tributary to the South Platte River approximately 12 miles northwest of Buckley AFB. This portion of the South Platte is designated as the U.S. Geological Survey's (USGS's) watershed Middle South Platte-Cherry Creek with hydrologic unit code 10190003. The named drainages are all classified as waters of the United States.

East Toll Gate Creek is the only receiving water or drainage basin that has any drainage area occurring upstream of the Base, so activities which may impact water quality entering the Base are limited to this drainage. The total area of the East Toll Gate Creek drainage basin is 11.1 square miles (7,100 acres). The part of the East Toll Gate Creek drainage basin located on Buckley AFB is about 20 percent of the entire basin. The upstream drainage area, which
enters (runs onto) the Base at two points along the southern boundary, is about 40 percent of the entire basin, or twice the size of the on-base drainage area. Therefore, a significant volume of runoff flows onto the Base in response to major precipitation events. The upstream drainage area, located within the limits of the City of Aurora and in unincorporated Arapahoe County, is partially developed with several commercial and residential developments currently under construction. East Toll Gate Creek (a receiving water as described in response to question #3),
located both immediately upstream and downstream of the Base, is designated by the State of Colorado as impaired, as follows:

> WBID: COSPUS16c,
> Segment Description: Tributaries to S. Platte River, Chatfield Reservoir to Big Dry Creek except specific listings
> Portion: East Toll Gate Creek, West Toll Gate Creek, Toll Gate Creek,
> Pollutant of concern: Selenium.

In addition, Sand Creek, which is a possible receiving water downstream of the Base, is designated as impaired by the State of Colorado, as follows:

> WBID: COSPUS16a,
> Segment Description: Sand Creek,
> Portion: all,
> Pollutants of concern: Selenium and *Escherichia Coli (E.coli)*. There are no TMDLs in place for waters on Base or immediately downstream.

The major soil-mapping units present on Buckley AFB include the Fondis-Weld, Alluvial Land-Nunn, and Renohill-Buick-Litle associations. The Fondis-Weld association, composed of the Fondis and Weld soil series, covers the most surface area at Buckley AFB. The Fondis soils are moderately slow permeability (< 0.63 inches per hour). The Alluvial Land-Nunn association consists of soils that have moderate permeability (0.63 inches per hour. The most common soil series within the Renohill-Buick-Litle association are the Renohill-Litle complex and the Renohill-Buick loam. Renohill soils are characterized as moderately slow to slow permeability (less than 0.63 inches per hour).

1.3 Materials Reviewed For the Audit

Materials reviewed for this audit include:

- EPA's General Permit for Federal Facility MS4s
- NOI application for coverage under the MS4 General Permit
- Permitting audit questionnaire

1.4 Interviews Conducted During the Audit

Eight interviews were conducted as part of the audit. A description of the questions and answers from each of these interviews is included in the appendices to this report. Interviews were conducted on the following topics:

1. Construction/post-construction permitting and oversight;
2. Pesticide/herbicide application practices;
3. Master planning;
4. Facility maintenance activities;
5. The construction contracting process;
6. Milcon construction contracting;
7. National Guard construction contracting;
8. Public education and outreach; and
9. General topics not referenced in other interviews.

1.5 Sites Visited During the Audit

Site visits were performed at two construction sites, facility maintenance yards, the HazMart, the Airfield, building 1302 vehicle maintenance, building 340 vehicle maintenance, and Q-Battery vehicle maintenance. In addition, photos were taken and a rough assessment of stream stability was made at the entrance (upstream) and exit (downstream) locations for East Tollgate Creek.

2 Public Education and Outreach on Stormwater Impacts

2.1 Permit Requirement

Public Education and Outreach is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

2.2 Summary

Generally speaking, Buckley AFB maintains a very strong public education and outreach program, with the centerpiece of that program being employee training. It will be necessary to continue this training to further communicate the goals of the MS4 permit in protecting and preserving water quality.

Target audiences for the Buckley AFB public education and outreach efforts include project managers, contractors, tenants, and environmental staff. These audiences can be broken down into three categories:

1. Base residents in housing and dormitories;
2. Shoppers utilizing support facilities including the base exchange, commissary, car wash, and gas station; and
3. Military and civilian populations working on base.

Messages for base residents and shoppers address household waste and proper disposal practices and automobile fluids and maintenance practices. For military and civilian populations working on the base, public outreach should include training such that each of the other minimum measures in the permit can be met. For example, training in low impact development practices is necessary for contracting officials so that new developments can be budgeted with technical oversight sufficient to meet the hydrologic endpoints described in this permit.

Outreach is performed through the base paper, the base web site, and the Aurora paper has a section titled "The Guardian", which provides information for military. The Base has also adopted outreach documents from the Keep it Clean Partnership.

All new occupants in facility housing get a new resident packet. This includes a pet waste policy and a prohibition on car washing but does not include information specific to stormwater runoff and household hazardous waste. This should be addressed in the future to include these two components.

For employees, there is minimal training for new orientation, but there is a quarterly training for all environmental programs, which includes maintenance staff. These trainings are performed in 2-hour blocks which include all environmental programs. Trainings include topics such as construction stromwater, industrial stormwater, oil/water separator maintenance, spill containment, and hazardous waste management. There is a single point of contact for every facility at Buckley Air Force Base. This person is the Facility Manager. Each facility manager receives full day trainings 4 times per year. Unit Environmental Coordinators are appointed by the base commander and receive quarterly environmental training as well. These people are responsible for taking that message to each person in their unit. There are also web-based classes through the Air Force Institute Technology for different topics.

At all industrial facilities visited during the audit, recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. At vehicle maintenance facilities, trainings for hazardous waste, spill prevention, asbsestos, lead, stormwater, and oil/water separators are all performed on an annual basis. There are also inspections by environmental staff and annual evaluations called ESOCAMPs. ESOCAMPs are broad-based internal audits by the Air Force to determine whether sites, BMPs, protocols, and inspections are up-to-date. ESOCAMPs are internal on an annual basis and external on a three-year basis. Based on this repeated

communication and auditing, facility maintenance sites appear very clean and have numerous secondary controls to prevent contamination.

During the program audit interviews, it was apparent that nearly every department had received training related to stormwater runoff and they were aware of the MS4 permit and some of the specific conditions applicable to their daily routines.

Buckley AFB has completed storm drain stenciling for a significant portion of their outfalls.

There is not a specific hazardous waste collection day for base residents. This is managed through the City of Aurora on privatized housing areas. For employees working on the base, management of potentially hazardous materials is strictly monitored and tracked. These procedures are further described in the Illicit Discharges section of this audit report.

2.3 Terms for Inclusion in the Reissued Permit

- For new residents in on-base housinig, update new resident packets or provide information through alternative sources to educate new residents with information on household hazardous waste collection and disposal and information on the potential impacts of stormwater runoff;

- Continue an education and outreach program for Buckley AFB which targets project managers, contractors, tenants, students, and environmental staff;

- Document education and outreach activities in the SWMP, including documents created for distribution and a training schedule which notes the dates that trainings occurred and the target audiences reached;

- Provide a stormwater awareness brochure and track its distribution; and

- Provide and document training to all Environmental Project Officers (EPOs), planning staff, and contracting officers to learn about LID practices, green infrastructure practices, and to communicate the specific requirements for post-construction control as specified in this permit. This includes contracting officers at the base (Milcon), and contracting officers at the US Govt. contracting office

3 Public Involvement and Participation

3.1 Permit Requirement

Public Involvement and Participation is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to comply with applicable State and local public notice requirements and is encouraged to make the SWMP and NOI available to the public and

the operator of any MS4 affected by the permittee's facility.

3.2 Summary

Public involvement and participation at Buckley Air Force Base is very strong. There are several mechanisms by which employees are involved in decision making processes which can impact environmental resources. It is not necessary to create new internal processes for environmental review. However, documenting the existing processes to ensure that they meet the goals of this permit and educating employees and contracting officials to recognize the goals of the MS4 program will be critical to ensuring that pollutants in stormwater runoff are minimized.

A Community Advisory Group addresses the public participation process. Public participation includes NEPA review, public review of projects, and listing in the base paper and other pertinent documents.

Communication mechanisms for soliciting public involvement include the base paper and the base web site. The Aurora paper also has a section titled "The Guardian," which provides information for the military.

The city of Aurora is generally receptive in communication with the base, but there have been times where the city has not been responsive in cleaning out upstream trash or notifying the base when there is a new upstream discharge which could affect the stormwater conveyance system. UDFCD has also been working with the base on a project in East Tollgate Creek which will be final in 2010. As part of the Aurora MS4 permit, it would be pertinent to include a requirement for the city to notify Buckley AFB of decisions which could impact the hydrology of East Tollgate Creek.

3.3 Terms for Inclusion in the Reissued Permit

- Maintain a log of public participation and outreach activities performed in the facility SWMP;

- Maintain a copy of the most recent version of the facility SWMP and permit in a publicly accessible format;

- Create and document a mechanism by which Aurora and Buckley AFB communicate to discuss decisions related to new development, stream maintenance, and new discharges which may affect the flow and stormwater quality in East Tollgate Creek; and

- Provide volunteer activities as practicable to actively engage residents and personnel at Buckley Air Force Base in understanding water resources and how their activities can affect water quality.

4 Illicit Discharge Detection and Elimination

4.1 Permit Requirement

Illicit Discharge Detection and Elimination is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to:

- Develop, implement, and enforce a program to detect and eliminate illicit discharges;
- Effectively prohibit, through ordinance or other regulatory mechanisms, non-storm water discharges into the MS4 and enforce appropriately;
- Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, into the system;
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper waste disposal: and
- Address other non-stormwater discharges.

4.2 Summary

Buckley AFB maintains strict control over oil and hazardous wastes through actions independent of its MS4 permit. Buckley AFB has a facility-wide hazardous waste collection and disposal permit and there are several Spill Prevention Control and Countermeasures (SPCC) plans in effect. During the facility audit, it was evident that these facility-wide plans were very effective in reducing potential pollutants from entering the stormwater system.

One process which substantially minimizes the potential for hazardous waste accumulation is the usage of Computerized Maintenance Management Systems (CMMS). All activities which require the purchase or usage of potentially hazardous wastes are tracked in a CMMS. When a new product with potentially harmful properties is brought onto the base, it is given a barcode and the use and management of the product is tracked until it is disposed of. This process includes all purchases regardless of size such that if a vehicle maintenance shop is to purchase a single can of lubricant, it must be tracked, evaluated, and monitored. This process is extremely effective in reducing the potential for improper disposal of hazardous wastes where it could impact the stormwater collection system and receiving waters.

Programs like the “Red Rag Program” have been successful in preventing mixing of waste and for recycling. The Red Rag Program is one where used oil rags are collected and washed off base prior to be re-used.

An annual snow meeting is conducted at the beginning of each year to prevent the misuse and over-application of chemical deicers.

4.3 Terms for Inclusion in the Reissued Permit

- Provide a mechanism for reporting of illicit discharges and provide this number on the Buckley AFB stormwater web site and any outreach materials as appropriate;

- Analyze any reports provided by the Buckley AFB Fire Department for trends in illicit discharge reports annually, and take action as practicable to eliminate these illicit discharges;

- Conduct dry weather screening annually at each of the major outfalls for the presence of non-stormwater discharges, to determine if there are significant erosion issues which need to be addressed, and to check that emergency shut off valves are operational ;

- Update the complete storm sewer system map in the Buckley AFB GIS prior to the end of year five of the permit;

- Develop and maintain an Illicit Discharge Detection and Elimination (IDDE) database;

- Maintain a list of potential pollutants in the SWMP which may be mobilized in stormwater discharges for all facilities not covered under a separate stormwater permit and note the source and location of these potential pollutants; and

- Evaluate each category of allowable non-stormwater discharges referenced in the permit at least once every five years. If Buckley AFB identifies any of these non-stormwater discharges as a significant contributor of pollutants, the base must include the category as an illicit discharge, include the non-stormwater discharge in the list of potential pollutants in the SWMP, and implement a plan of action to minimize or eliminate the illicit discharge as soon as practicable.

5 Construction Site Stormwater Runoff Control

5.1 Permit Requirement

Construction Site Stormwater Runoff Control is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to:

- Develop, implement, and enforce a program to reduce pollutants in stormwater runoff from construction activities;

- Use an ordinance or other mechanism to require erosion and sediment controls with sanctions for compliance;

- Develop requirements for construction site operators to implement BMPs;

- Develop requirements for construction site operators to control waste such as litter and concrete truck washout;

- Develop procedures for site plan review;

- Develop procedures for receipt and consideration of information received by the public; and

- Develop procedures for site inspection and enforcement of control measures.

5.2 Summary

At the time of the facility audit, there was a substantial amount of construction activity occurring on base. Construction activity at Buckley AFB is conducted both via contracts and via internal maintenance staff. Who conducts construction activity is largely dependent on the cost and complexity of a given project. Internal fleet maintenance have everything needed for temporary fixes including rip rap and BMPs. Otherwise, construction projects are either contracted utilizing SABER (Simplified Acquisition of Base Engineering Requirements) processes for projects under $750,000 and Milcon (Military Construction) for projects over $750,000.

Design specifications are used for construction but not post-construction. In almost all cases, the Douglas Country GESC manual or UDFCD Criteria manual specifications are used for construction BMPs.

Construction plans, specifications, inspections, and day-to-day activities are largely driven by contracts. Government construction contracts require that all applicable regulations be followed and noncompliance with contracts results in a stoppage of work. Most projects at Buckley AFB are design-bid-build and not design-build. In general, it is too costly to include design in construction contracts.

There are several mechanisms by which Buckley AFB can oversee construction projects in terms of environmental performance and adherence with the construction stormwater general permit. First, construction project SWPPPs are reviewed by environmental staff for compliance with the terms of the permit and to review whether Best Management Practices to filter and detain stormwater are likely to be effective. Second, environmental staff independently evaluate construction sites for compliance with the terms of the permit. Third, contracting office technical representatives visit construction sites daily to review whether all terms of the contract, including stormwater permit compliance, are being adhered to. And finally, all construction site contractors are provided with an evaluation at the end of the project which affects whether contractors can be given repeat

contracts.

Inspection frequency by environmental staff is case-by-case. In general, each site is inspected every 2-3 weeks but some may not be inspected for 3 months. There are people at Buckley AFB that are out on every project every day, and these people can supply advice.

Two construction projects were visited during the facility audit. During one site visit, the Squadron Operations reconstruction, several violations were noted on the site. Violations included visible tracking of sediment offsite, poorly installed BMPs (silt fence), storing equipment immediately adjacent to a receiving water, no staging areas or storage areas, and visible sediment deposition into a receiving water. Daily QAEs (Quality Assurance Evaluations) were shown not to be effective for enforcement oversight. In addition, numerous letters were sent from the 140th CE stormwater inspectors noting significant noncompliance. Follow-up on the action items (e.g., clean out sediment in the receiving water) were ignored.

For larger construction sites, compliance with stormwater regulations for construction is better. This is likely due to a secondary level of oversight from a contract through Stormwater Risk Management (SRM). Findings from SRM seem to carry a significant amount of weight. Also, because Milcon projects are larger and are carried through the Army COE, more qualified staff are provided who understand stormwater regulations.

The issues of non-compliance recognized at the one site visited show that the contracting process on base is not an effective mechanism for ensuring compliance with the construction stormwater general permit during the construction process. Construction agent inspection findings are not translated to the base- only as it pertains to being the construction agent for future contracts.

After the construction process, the CCAS process (Construction Contract Appraisal Support System), has a component to complying with environmental laws. Department of Defense contractors are evaluated for environmental performance based on whether they comply with environmental laws. In the CCAS process, contractors are given a 1-5 rating on performance by the project officers. This rating includes everything from the structure of the building to timeliness to environmental comments. Where environmental performance is not included directly in the numerical rating, comments can be provided in the CCAS rating sheet. These comments are used to evaluate contractors during the bidding process. CCAS is the single biggest reason for contractors to comply with stormwater regulations as directed through Buckley AFB environmental staff, since getting repeat government building contracts is a significant consideration.

There are concerns with the approach to construction permit oversight. During the construction process, Buckley AFB is put into a conflict of interest on sites where it is a co-permittee. If Buckley AFB gives a stop work order, the lost time and financial burden is put directly back onto them. In addition, it is apparent that construction sight contracting representatives do not prioritize compliance with the construction stormwater

permit as highly as other terms of the contract. Evidence for this statement is based on the fact that repeat notifications to contracting representatives requiring cleanup of offsite accumulations of sediment at the Squadron Operations construction site were ignored during daily QAEs.

There are no incentives for environmental performance in contracts. It is difficult to get money above and beyond the project budget. Incentives are mostly in the terms of repeat contracts. Therefore, it is important that noncompliance or exemplary performance in terms of compliance with the construction stormwater permit requirements is documented using the CCAS system.

For sites where there is chronic non-compliance, the 140th CE needs to be able to review the contracting review forms to make sure that noncompliance is incorporated, so that offenders do not get repeat contracts.

5.3 Terms for Inclusion in the Reissued Permit

- Maintain a list of policies and procedures which can be used to enforce construction site compliance within Buckley AFB independent of EPA staff directly enforcing the CGP;

- The scope of work for all construction projects shall be reviewed by stormwater staff to ensure compliance with SWMP specifications for construction BMPs;

- Implement an inspection plan and keep a copy of that plan in the SWMP which provides inspection triggers, a priority for order of inspections, and a required timeframe upon which construction sites must be inspected by Buckley AFB. All sites within this plan must be inspected at a minimum semi-annually;

- Maintain a site inspection form in the SWMP for use by Fort Carson stormwater managers at sites;

- Upon the closeout for construction projects where there has been documented non-compliance with the construction stormwater permit, contracting officials should submit a copy of the CCAS evaluation form to base environmental so that an appropriate rating and comments are included in the evaluation form;

- Provide training to contracting officials which perform daily QAEs annually regarding the maintenance and installation of Best Management Practices for construction stormwater control and the terms of the construction stormwater permit;

- Develop and maintain a list of preferred construction site BMPs in the SWMP with criteria for maintenance and installation; and

- Maintain and utilize an NOT form for Buckley AFB independent of the CGP NOT form and have Buckley AFB engineering staff inspect all construction sites prior to termination to ensure that 70% vegetative cover has been met at all areas of the site.

6 Post-Construction Stormwater Management in New Development and Redevelopment

6.1 Permit Requirement

Post-construction stormwater management in new development and significant redevelopment is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to:

- Develop, implement, and enforce a program to prevent or minimize water quality impacts related to stormwater runoff from new development and redevelopment disturbing one acre or greater;

- Develop and implement strategies including Best Management Practices (BMPs) appropriate for the community; and

- Ensure adequate long-term operation and maintenance of BMPs;

6.2 Summary

Controls for stormwater runoff from new developments are included for all projects at Buckley AFB. However, these controls are limited to detention facilities which would not be considered to be low impact development designs.

From a visual inspection during the audit, there is minimal visible downcutting and erosion in the banks of receiving waters. This is likely due to the use of detention facilities for the purpose of minimizing sediment loads, active maintenance of detention facilities, and a low degree of impervious cover in the immediate watershed, and a predominantly daylighted stormwater conveyance system. As the base and the surrounding urban area are developed, the flow and water quality in East Tollgate Creek could be more significantly impacted.

In general, there is an effort to route stormwater into existing structures at Buckley AFB. The developable footprint in at Buckley is very small given the airfield, therefore clustering of development is a requirement for master planning. Therefore, the focus of planning efforts in terms of low impact development should focus on individual site stormwater controls which mimic the natural hydrology.

The 2020/2050 master plans, when updated, need to include hydrology performance specifications for post-construction runoff controls. For planning, it's hard to guess what

is going to come and go, since so much is directed on a continually evolving purpose and need. Master plans should consider regional drainage facilities for meeting hydrologic endpoints. New designs could meet hydrologic endpoints through regional water quality facilities, but given the small developable footprint of the base, individual project or site-based stormwater controls may be more appropriate.

Offsite conditions are very hard to deal with (e.g., inflow), since the base does not control the activities in City of Aurora, which is developing within the watershed. Run-on is a bigger challenge than runoff as there is not always something in the design to address this. For permanent BMPs, there are limited funds if they don't work properly, especially if those don't include some conditions which weren't present at the time of design. This exacerbates the need to design at the site-level and not the regional level, where site-based controls can be maintained within the annual operating budget and recurring work program.

There are a few types of construction projects: Milcon (large), small 100% A/E, or SABER. Contracting decides whether a project goes to SABER: Simplified Acquisition Base Engineering Requirements. What is critical for all of these projects is that contracts include a specific requirement for post-construction stormwater controls designed to a specific standard. For large construction projects (Milcon), all 1391 forms need to include a line item in the budget and a performance standard for post-construction stormwater. If not a performance standard, there needs to be an evaluation to determine whether the specification meets the permit performance standard. For SABER projects, there are not many projects which would disturb greater than one acre of land with the exception of new parking lots. Therefore, for SABER projects, new low impact design standards for parking lots should be incorporated which meet the post-construction terms of this permit.

For construction sites contracted through the US Fiscal Property Office, which has a HQ on Buckley AFB and contracts National Guard construction, there is a goal to meet LEED silver on all construction sites. Since there is no crosswalk between stormwater runoff and LEED requirements, LEED silver does not necessarily drive requirements to meet pre-development hydrology.

There have not been any specific amendments to facility regulations to address hydrologic endpoints. However, it will not be necessary to update facility regulations as post-construction criteria are addressed through the permit. As long as the permit specifies all other criteria and Buckley AFB is not requiring things beyond the permit, contracts requiring compliance with all environmental regulations carry all the legal language required to implement the MS4 permit.

Buckley AFB is going to a Regional SABER project run out of Peterson AFB, so working with regional SABER to incorporate low impact development road and parking lot designs will be necessary to meet the goals of this permit.

The Department of Defense has several tools and guidance documents for low impact development and green infrastructure. These include:

1) Engineering Knowledge online – Army's engineering division;
2) Installation Management Command – Sustainable Development Division; and
3) Unified Facilities Criteria LID guide – DoD

6.3 Terms for Inclusion in the Reissued Permit

- Working with EPA, consider options for training the Omaha Army Corps of Engineers (COE) office related to pre-development hydrology, since they act as the construction agent for Milcon projects. This should take place at both the Louisville (design) office and the Omaha (engineering) office for the COE.

- Review Form1391 Military Construction Project Data Sheets prior to submittal by the Army COE to ensure that all new Milcon construction projects disturbing 1+ acre include a requirement to design for and provide funding for the installation of permanent stormwater control measures designed to retain, detain, infiltrate or treat runoff from newly developed impervious surfaces in a manner which mimics pre-development hydrology. A line item needs to be included in every new proposal (e.g., Department of Defense Form 1391) to ensure that performance-based or design-based post-construction stormwater requirements for new developments are met. This should include a line item for costs associated with the installation and design of permanent stormwater control measures along. A specific performance-based specification should be used for evaluation of the design and maintenance of permanent stormwater control measures proposed for new Milcon construction projects.

- Where practicable, provide information to the US Fiscal Property Office related to post-construction stormwater controls which can used to meet LEED silver requirements for new construction;

- Where practicable, include training for COE (local/Omaha office) and Architect Engineers (AEs) working on design-build projects related to post-construction stormwater controls, LID, and SWMP at Buckley AFB;

- All construction site operators shall provide maintenance specifications for post-construction BMPs to Buckley AFB prior to receiving authorization from stormwater managers to submit a Notice of Termination (NOT) to discontinue coverage under the CGP;

- Prior to year 2 of the permit, low impact designs should be included for use in SABER projects for the design and maintenance of new parking lots exceeding one acre in size such that they will significantly reduce, retain, and treat stormwater onsite. To request a work order, it is necessary to submit an Air Force Form 332. Only a portion of these go to environmental review via the

work order review board. For smaller types of projects which do not normally go to environmental review via the work order review board, it will be necessary to define if there are specific types of projects where low impact development practices can be included;

- As part of the NEPA process for new construction projects disturbing equal to or greater than one acre, stormwater staff shall review all projects to ensure that they meet pre-development hydrology where technically feasible;

- Ensure that all new post-construction BMPs are tracked and georeferenced in a data management system that includes maintenance requirements and schedules for post-construction BMPs;

- The 2020/2050 master plans, when updated, shall include hydrology performance specifications and information related to the design and maintenance of post-construction stormwater controls;

- Starting the first day of the reissued permit, no projects shall be made available for bidding without procedures, best management practices, and costs provided to ensure that runoff from newly developed impervious surfaces equal to or greater than one acre meets pre-development hydrology where technically feasible;

- Consider a one-year review coinciding with the 1-year warranty provided in contracts to ensure functioning of post-construction BMPs. There could also be a ½ year inspection for post-construction stormwater BMPs as part of the file inspection for contracts. File inspection could also include targeted outreach to the end user;

- A review process shall be incorporated into the contracting process to ensure that the post-construction stormwater controls proposed can presumptively meet that design standard pre-bid; and

- Upon closeout of new construction projects, maintenance requirements shall be incorporated into a long-term maintenance plan (e.g., the recurring work program).

7 Pollution Prevention/Good Housekeeping for Municipal Operations

7.1 Permit Requirement

Pollution prevention/good housekeeping for municipal operations is one of the six minimum measures defined in the MS4 general permit under which this facility is currently covered. In the general permit, the permittee is required to:

- Develop and implement an operation and maintenance program with the ultimate goal of preventing and reducing pollutant runoff from municipal operations which

includes an employee training component; and

- Address park and open space maintenance, fleet and building maintenance, new construction and land disturbances, new construction and land disturbances, and snow disposal.

7.2 Summary

For the purposes of this permit, Buckley AFB has several types of "municipal operations" operated through several tenants. Municipal operations are operated through tenants including the US Marine Corps and the Army National Guard, and municipal operations are also operated by the Air Force. While there are slight differences between facilities operated by the U.S. Marines, the National Guard, and the 140th, consolidation of training and contracted maintenance/recycling/waste transport activities does occur under the umbrella of the 140th as a whole.

Municipal activities include grounds/park maintenance, fleet maintenance, maintenance of the flight line, vehicle washing operations, building maintenance, stormwater system maintenance, street cleaning, materials storage, hazardous materials storage, used oil recycling, and winter road maintenance.

During the audit it was noted that operators of municipal operations were knowledgeable in environmental regulatory procedures (including stormwater). Operators were also well trained in the installation and maintenance of onsite control measures such as oil/water separators and secondary containment features.
There is not a wash rack available on base for large sized vehicles for any of the vehicle maintenance facilities. A washrack or consolidated area whereby booms or other apparatus could be used to contain wash water from large utility vehicles would be helpful.

In general, "municipal operations" at Buckley Air Force Base are very well maintained and operated. This is due to several base-wide initiatives which garner certain behaviors (e.g, site-wide SPCC plan, hazardous waste permit). This is also due to a well-established training program. Annual internal evaluations and triennial external evaluations (ESOCAMPs) are also effective in evaluating pollution control measures at all municipal operations. For this purpose, this permit does not contain prescriptive permit conditions which would duplicate or minimize the effectiveness of these existing processes.

7.3 Terms for Inclusion in the Reissued Permit

- Provide and document annual training for operators at all on an annual basis covering the topics of stormwater runoff impacts and controls and the maintenance of onsite pollution control measures. These trainings can be

provided to a single point of contract for each facility for further distribution;

- Consider deicing training if available to minimize the use of and runoff from chemical deicers and traction aggregates;

- Evaluate options for consolidated areas to wash large equipment where practicable;

- Develop and implement a schedule for cleanout of storm sewer inlets in a manner which prevents significant deposition of sediment or other debris to receiving waters;

- Include activities in recurring work contracts (e.g., the recurring work program (RWP)) specifications for maintenance of instream BMPs (sediment basins, drop structures, trash racks); and

-

- Include maintenance activities for all post-construction BMPs in IWIMs or another suitable application when turned over (as-builts, specifications, etc.) to the 140th C.E.;

8.0 Additional Permit Conditions

Monitoring of Watershed Health:

Several monitoring and planning efforts are currently under way in the area surrounding Buckley AFB and include a study from the Urban Drainage and Flood Control District.

There does not seem to be significant degradation of receiving waters as a result from activities occurring at Buckley AFB, but water quality monitoring and evaluation are necessary to determine the effectiveness of the MS4 program.

- **Permit condition:** Not later than three years from the effective date of this permit, develop a program to evaluate the water quality in East Tollgate Creek, and if deemed necessary by the permittee, Granby Ditch, as it both enters Buckley AFB and leaves Buckley AFB. This program shall at a minimum include evaluations of streambank stabilization, and water quality.

- **Permit condition:** The water quality monitoring program may include indicators such as chemical monitoring, assessment of macroinvertebrates or other aquatic life, or watershed assessment of river stability and sediment supply, provided that the monitoring program provides meaningful data to evaluate the effectiveness of the stormwater management program. The permittee is responsible for evaluating data for analysis of trends.

- **Permit condition:** The water quality monitoring program description must be sent to EPA with the Annual Report for year 3 of this permit term. Programs will be assessed by the water quality monitoring coordinator for EPA Region 8 to

determine whether the program meets the goals of this permit and whether the data is being collected and reported in compliance with EPA test procedures approved under 40 CFR Part 136.

Master Planning:

There are guidance documents available through the Army COE which can guide effective development. There are also guidance documents which address development at Federal Facilities. These require development to meet the LEED silver standard. LEED silver has not been applied to SABER projects, but research into what makes them "certifiable" is happening. Green infrastructure and sustainable infrastructure are not requirements or recommendations for development at Buckley AFB.

There is an opportunity to cross-check LEED with stormwater to meet both goals without significant replication.

Planning and development at Buckley AFB is largely dictated by the flight line and restrictions such as BASH hazards.

Lng-term life cycle costs are required, but there are no tools in place to do it and process mechanics are not in place yet. The permit could be required to do this as well.

There aren't major barriers in terms of cost/contracting which restrict the ability to treat/retain/detain water to mimic pre-development hydrology. Facility excellence standards require some design aspects (e.g., pitched roofs) which could be a barrier in LID (e.g., can't develop a green roof for some structures). Otherwise, "value engineering" offers an incentive to cut in areas which are deemed unnecessary. It's important in future contracts, that LID is stated as something which cannot be taken out for "value engineering."

Permit condition: none

PRIVATIZED HOUSING:

Aurora has claimed responsibility for the sanitary system and possibly the storm system for discharges from the employee housing areas through a lease agreement.

Buckley AFB doesn't have primacy over the privatized housing area, as Hunt owns everything. There needs to be an agreement letter that states these terms specifically.

There was an enforcement action against Hunt during the construction of on-base privatized housing, and this was sent to Aurora.

For privatized housing, these areas should be covered under the MS4 permit. However, there needs to be a letter or something which states who s responsible or what. Where Buckley AFB does not have primacy, there duties are to keep the areas of privatized

housing on notice and to report any non-compliance and provide compliance assistance where appropriate.

Permit condition: none

Appendix A – Evaluation of Public Education and Outreach Program

Purpose:

- To determine what outreach efforts are in place and how the message of protecting water quality is transmitted to the various user groups.

Questions for Staff:

1. What are the main groups targeted for public education and outreach? Does this include maintenance staff?

   Employees, transient occupants, occupants in dorms and people in on-base housing. There is minimal training for new orientation, but there is a quarterly training for all environmental programs, which includes maintenance staff. These are 2-hour blocks which include all environmental programs including stormwater.

2. Is there a way in which education and outreach efforts are tracked and/or evaluated?

   The environmental trainings manager tracks all environmental trainings.

3. Are new occupants in facility housing provided with information related to stormwater runoff and management of household hazardous wastes?

   All new occupants in facility housing get a new resident packet. This includes a pet waste policy and a prohibition on car washing but does not include information specific to stormwater runoff and household hazardous waste.

4. Describe recent activities related to management of household hazardous wastes. Does this include outreach and collection days?

   There is not a specific hazardous waste collection day. Outreach is performed through the base paper, the base web site, and the Aurora paper has a section titled "The Guardian", which provides information for military.

5. Describe the storm drain stenciling program.

   Storm drain stenciling was originally done by airmen leadership, and is now maintained by facility maintenance staff.

6. Describe any stormwater pollution prevention training courses and/or training?

   There is a construction stormwater training and an industrial stormwater training. There is a single point of contact for every facility at Buckley Air Force

Base. This person is the Facility Manager. Each facility manager receives full day trainings 4 times per year. Unit Environmental Coordinators are appointed by the base commander and receive quarterly environmental training as well. These people are responsible for taking that message to each person in their unit.

7. What other types of training/outreach have been provided (e.g., the stormwater awareness program) and who has this training been provided to? Is there a mechanism for obtaining feedback on these and other previously mentioned outreach efforts?

   Earth day events have also taken place and are very broad.

8. Provide a copy of any stormwater awareness brochure(s). Who has received it?

   Tracking of the brochure distribution has not taken place, but there is a stormwater awareness brochure. Buckley AFB has adopted outreach documents from the Keep it Clean Partnership.

Appendix B – Evaluation of Construction/Post-Construction Permitting and Oversight

Purpose:

- To determine what tools are available for oversight of the construction and post-construction programs

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Lt. Colonel Phil Landeros (Buckley AFB), Dan Kawamoto (Buckley AFB), Elizabeth Meyer (Buckley AFB)

Questions for Staff:

1. At what point during the pre-bid contract process are stormwater managers involved in review of construction BMPs, and how is this performed?

   A form 332 is initiated when there is a need. For example, we need a new building for a specific function. From there, work is requested and goes to a review board before a charette pre-design meeting. During the pre-design meeting, review for stormwater can first be initiated.

2. At what point during the pre-bid contract process are stormwater managers involved in review of post-construction BMPs, and how is this performed?

   This varies. This could be during pre-design, post-design, or during NEPA review.

3. If maintenance requirements for post-construction BMPs are provided with designs, do fleet maintenance staff have the opportunity to weigh in based on available equipment and feasibility of long-term maintenance?

   No

4. There are several methods by which enforcement of construction stormwater regulations can be employed (e.g., stop work orders, suspension of future contracts, past performance evaluations). Have any of these procedures been applied to date for failure to install or maintain appropriate erosion and sediment controls, and is there a policy stating what enforcement mechanisms are in place?

   For all sites, the wing commander still controls access to the installation, so stop work orders can be used. A stop work order was once applied through the contract officer. This is very rare, and a stop work order inevitably costs Buckley AFB extra money as the costs associated with the delay are carried on from the contractor to the project proponent. Past performance used for repeat contracts

has become the best mechanism, but this only works when the contract officer queries past performance records and when noncompliance is tracked in writing.

5. Is there a database of construction stormwater compliance, and if so, how are the data evaluated for inclusion in contract deficiency reports?

   There is not.

6. What amendments have been made to facility regulations and have these been effective. Do these address SWPPP requirements, final stabilization, permit compliance, and required design specifications? Will it be necessary to amend facility regulations to include a specific post-construction criterion.

   There have not been any specific amendments to facility regulations, however, it will not be necessary to update facility regulations as post-construction criteria are addressed through the permit. As long as the permit specifies all other criteria and Buckley AFB is not requiring things beyond the permit, contracts requiring compliance with all environmental regulations carry all the legal language required to implement the MS4 permit.

7. Do stormwater program managers have an effective way to provide input regarding evaluating contract performance and what is their role in that process?

   Not unless specifically requested.

8. What significant barriers are there to implementing the post-construction and construction site oversight minimum measures?

   Value engineering is a barrier as things like landscaping are traditionally cut first. Costs need to be included in the budget up-front. There also needs to be education, as the costs are often more reasonable then suspected. Designing to LEED silver has helped people point out where stormwater fits LEED.

9. Are there BMP design specifications for construction/ post-construction?

   Design specs. are used for construction but not post-construction. In almost all cases, the Douglas Country GESC manual or UDFCD Criteria manual specifications are used for construction BMPs. The Army COE uses performance based specs. and not design specs. for post-construction in their contracts.

10. How are post-construction BMPs tracked and how is information related to maintenance transferred to stormwater program managers upon closeout of contracts?

    During the 1-year warranty, as-builts are finalized into the database system.

11. Are projects inspected differently if they are contracted through different mechanisms?

    Inspection frequency is case-by-case. In general, each site is inspected every 2-3 weeks but some may not be inspected for 3 months. There are people at Buckley AFB that are out on every project every day, and these people can supply advice.

12. What is the process for termination of construction projects?

    Currently, CEV concurs on the NOT process. There is a more specific process being formalized.

Appendix C - Evaluation of Pesticide/Herbicide Application Practices

Purpose:

- To determine any potential pollutant sources associated with landscape management and how these should be addressed through the MS4 permit

Staff Present

Questions for Staff:

1. Are there BMPs which prescribe where and how landscape should be watered and fertilized? Are systems in place correlated to water quality goals? Are there policies/procedures related to including certain types of plant species based on habitat or water requirements?

   No / no. There aren't any specific pesticide/herbicide issues on the base. However, there is an annual tracking and performance associated with pesticide/herbicide application. A reduction is expected base-wide and this provides an incentive to apply as little as possible. Measures of Merit apply to herbicide and pesticide application. This is tracked quarterly through the Integrated Pest Management Information System (ITMIS) from Air Force Space Command.

2. Are you aware of construction stormwater regulations and how landscape activities can affect water quality?

   Not really.

3. Have you had any training related to stormwater permit requirements or related to low impact development?

   The stormwater basic training was taken in January.

4. Are there any specific issues related to noxious weeds and if so, how are these being addressed?

   Prairie dogs are always an issue. For the most part, these are addressed by having different mowing patterns on the airfield. Leave the grass longer and the prairie dogs do not stay.

5. Do you provide input or have a stake in how vegetation is provided for new construction projects?

No… this could become an issue later with more biorention sites, but it is not an issue now.

6. How is the golf course managed to ensure minimal runoff of nutrients and herbicides? Are there any other similar high maintenance areas, and if so, how are these managed?

Land is broken up into semi-improved, improved, and undisturbed lands. Only the improved lands are managed.

Appendix D - Evaluation of Master Planning

Purpose:

- To discuss mechanisms for site planning incorporating green infrastructure and sustainable infrastructure
- To evaluate regulatory barriers to low impact development
- To determine what initiatives are currently in place at Buckley AFB and the military as a whole and how they affect development patterns within the contonement area
- To determine long-term planning efforts in place and where improvements can be made to address long term cost accounting for water conveyance infrastructure

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Lt. Colonel Phil Landeros (Buckley AFB), Dan Kawamoto (Buckley AFB), Elizabeth Meyer (Buckley AFB)

Questions for Staff:

1. What guidance documents and other efforts are there to develop military installations using low impact development practices? Are any of these specific to the facility or specifically required for the facility?

   There is a guidance plan called the "General Plan." This discusses where to cite future development, capital improvement projects, and a series of 5-year budgets. The Army COE has land use planning, facility excellence plans. As a federal facility, there is a requirement to design to LEED silver for new projects as a goal, but this has not been applied to SABER projects.

2. Are there specific efforts in place via practice/guidance/regulation which guide the development patterns for the facility (e.g., long range planning document)?

   The long-range planning document is the "General Plan". This breaks up the base into functional development zones with differing restrictions.

3. Do planning efforts specific to the facility or specifically required at the facility have specific requirements for "green infrastructure" or "sustainable infrastructure?"

   No

4. Do planning efforts typically include long-term cost accounting to evaluate new developments in terms of both construction and operational costs? If so, what timeframe is used?

Long-term life cycle costs are required, but there are no tools in place to do it and process mechanics are not in place yet.

5. How are requirements to develop new impervious surfaces in a manner which mimics a natural hydrology incorporated into planning for Buckley AFB?

   They are not. Standard practices for reducing flooding are addressed via ponds and other detention structures.

6. How do low impact development practices or controls for runoff from newly developed impervious surfaces get incorporated from planning documents/guidance/procedures into contracts for new construction? Is there a mechanism by which planning staff are involved in review of new construction projects pre-bid or significant modifications to design build projects during construction?

   This is not happening at Buckley AFB. Staff review modifications for design build and hydrology is addressed for design-bid-build, but these do not specifically address LID or advanced systems for water quality as opposed to flood control.

7. Are there specific barriers are there in terms of policy (e.g., zoning/military policy) which conflict with the ability to develop Buckley AFB using low impact development or green infrastructure policies and practices?

   Zoning is specific to the design of the facility with the airfield dictating what areas can be developed.

8. Are there specific barriers in terms of policy/contract which restrict the ability to treat/detain/infiltrate runoff to mimic pre-development hydrology?

   Cost is the biggest issue, requiring cutting of other components. Value engineering has cause places to be built with extreme cuts (e.g., using bathrooms at a next door facility). Value engineering cuts need to be restricted to things otherwise required via another permit like LID required through the MS4 permit.

Appendix E - Evaluation of Facility Maintenance Activities

Purpose:

- To determine municipal operation activities (e.g., street maintenance) not covered under industrial stormwater permits

Questions for Staff:

Purpose:

- Determine how maintenance is performed at the facility and how applicable stormwater requirements are relayed between departments
- Define activities which may be stormwater pollutant sources
- Track what types of industrial activities occur at the facility and how those activities are coordinated to avoid contamination of stormwater runoff

Questions:

1. What type of industrial activities are there at the site and who maintains those (e.g., municipal storage, street maintenance, hydrostatic testing, wellhead testing, vehicle maintenance, shipping and receiving, waste storage areas, etc.)?

   No vehicle maintenance or hydrostatic testing… each unit has its own vehicle maintenance… Other areas of operation are consolidated such as waste storage, single stream recycling, and scrap recycling.

2. For each of the industrial activities, what types of systems are in place to ensure that stormwater runoff is not contaminated (e.g., SWPPPs, SOPs, etc.)?

   These are largely managed by the reoccurring work program. This specifies frequencies of inspection and protocols/BMPs for storage.

3. What types of BMPs are there for loading docks, vehicle maintenance, shipping/receiving and any other industrial activities (e.g, oil/water separators)?

   Several sites have oil/water separators. All sites have spill kits and separated storage with secondary containment for potentially hazardous materials.

4. Are industrial site BMPs regularly inspected for potential to contaminate stormwater runoff, and if so, how?

   Yes. There are inspections by environmental staff. There are also annual evaluations and ESOCAMPs. ESOCAMPs are broad-based internal audits by the Air Force to determine whether sites, BMPs, protocols, and inspections are up-to-date.

5. What type of instream BMPs are there on the facility (e.g, trash racks, sediment basins, drop structures)? Who is responsible for maintaining and tracking these?

   Trash racks and sediment basins are commonplace. These are managed through the reoccurring work program (RWP).

6. What types of outreach and/or training has been provided to you or your staff related to compliance with stormwater permits and protection of water quality from maintenance activities?

   Environmental training is provided to all facility maintenance employees with an effort of reaching all employees once per year. In addition, there is an annual snow meeting.

7. When post-construction BMPs are added to new sites, who will be responsible for maintaining those? Do you receive requirements for long-term maintenance of systems for new construction projects upon closeout of contracts?

   These will be the responsibility of either the site owner or will become part of the reoccurring work program. Maintenance specifications for stormwater BMPs are currently not provided.

8. How are oil spills and hazardous wastes reported, collected, and documented?

   These are tracked and reported through the fire department.

9. Are there any specific problem areas where you have noticed that compliance with the terms of the MS4 permit could be enhanced?

   Not really. If there are more complex post-construction BMPs installed in the future, maintenance of these could become an issue.

10. If there are storage areas (e.g., Conex boxes), are users provided with information related to management of potential pollutant sources?

    Storage areas are not provided except on a site-by-site basis for use in storing hazardous wastes or other types of wastes that need to be separated. Where hazardous wastes were stored at sites, secondary containment was always present.

11. How are parking lots and other high use vehicle areas cleaned?

    As needed sweeping occurs, but no streets are cleaned.

Appendix F - Evaluation of Construction Contracting Process

Purpose:

- To determine the contracting process used for construction projects
- Define what stormwater requirements are included in each construction project during and post-construction
- Determine what types of performance incentives or enforcement mechanisms are included in contracts for construction
- Evaluate whether maintenance is included in contracts for new facilities
- Determine how post-construction runoff requirements are evaluated and what language is included in bids for new construction

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Lt. Colonel Phil Landeros (Buckley AFB), Dan Kawamoto (Buckley AFB), Elizabeth Meyer (Buckley AFB)

Questions for Staff:

1. What type of language is included in bids for new construction as it applies to complying with the construction stormwater permit?

   Contractors need to comply with all environmental regulations including the stormwater permitting process. No specific language is otherwise included in A/E designed or SABER projects. SABER specs. don't change unless there is a change to a regulation (i.e., permit condition)

2. What is the method by which BMPs are reviewed in the contracting process to determine whether they will be effective in retaining sediment and preventing erosion?

   There is review by Buckley AFB environmental and this often includes a review signature.

3. Are there any standards for the installation and maintenance of stormwater BMPs during construction? Are there requirements for construction dewatering?

   If there is significant dewatering, there needs to be a dewatering plan. Standards include those from UDFCD/CDOT/Douglas County. Follow any of those and there is not other specific review required. There is also verbal encouragement to use preferred BMPs such as sediment logs as opposed to silt fence and straw bale, but there are limited to suggestions and not requirements.

4. What is the method by which contracts are reviewed prior to bidding to evaluate post-construction stormwater requirements?

They are not. Most small (non-Milcon) projects do not contain post-construction runoff requirements.

5. Have performance bonds been used/applied in contracts?

   A performance bond was used once with an ADF bond whereby the bond was not released until the NOT was verified.

6. Are there any design specifications for post-construction or requirements for low impact development included in contracts?

   Not yet. SABER projects are inherently simple projects. For small (non-Milcon) projects requiring 100% design, these could be provided. SABER projects with significant potential environmental impacts (e.g., parking lots) related to runoff could include stormwater requirements provided that designs and requirements are provided up-front.

7. Do contracts require maintenance of BMPs for post-construction long-term?

   No

8. What type of review takes place prior to obtaining a certificate of occupancy related to cleanout of BMPs (e.g., sediment ponds/post-construction controls) and how is information transmitted from developer to the base regarding long-term maintenance of stormwater systems?

   Generally speaking there is a one-year warranty on new projects. These are evaluated during a pre-final and a final inspection. The project proponent is included in the final inspection. There is also a 1-year warranty for projects which extends longer for specific types of installations (e.g., boilers).

9. Do contracts have incentives for environmental performance? If so, what are those incentives for and how are they realized?

   There are no incentives for environmental performance in contracts. It is difficult to get money above and beyond the project budget. Incentives are mostly in the terms of repeat contracts.

10. Have any contracts been terminated, withheld temporarily, or have any stop work orders been issued for poor performance or noncompliance with stormwater regulations?

    It is very difficult to terminate a contract. One stop-work order was done on a parking lot. The difficulty with stop work orders is that the money eventually comes back to Buckley AFB. Recommendations have been more commonly

worked through the contracting officer.

11. How have violations of EPA's construction general permit been recorded in contract records for consideration for future contracts in the past?

    Most of the time, this has not been an issue, but it has been done once before. Violations should be written into the CCAS process as comments.

12. What is the CCAS process and how has it worked effectively to reflect performance?

    In the CCAS process, contractors are given a 1-5 rating on performance by the project officers. This rating includes everything from the structure of the building to timeliness to environmental comments. Where environmental performance is not included directly in the numerical rating, comments can be provided in the CCAS rating sheet. These comments are used to evaluate contractors during the bidding process. CCAS is the single biggest reason for contractors to comply with stormwater regulations as directed through Buckley AFB environmental staff, since getting repeat government building contracts is a significant consideration.

Appendix G - Evaluation of Milcon Construction Contracting

Purpose:

- To determine the contracting process used for projects
- To determine the working relationship between the Buckley AFB and alternative contracting officials

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Vicky Dennis (COE-Omaha-via phone), Jennifer McQueen (US Army COE), Lt. Colonel Tom Nickel (Buckley AFB)

Questions for Staff:

1. How is the Army Corps of Engineers involved in the contracting process for Milcon projects?

   The Army COE is the construction agent for new Milcon projects. They provide the contract and award for Milcon projects. They are also contracting technical representatives, but are not technically referred to as "COTRs." Omaha chooses architect/engineers under the terms of the Brooks Act. Prior to award, designs are reviewed in the Omaha COE office. Buckley AFB is part of the design review team, and primarily does this to determine whether the project meets the intent (i.e., the project fits the need).

2. Does the Army Corps of Engineers review any designs pre-bid for stormwater construction controls?

   The COE reviews DoD Form 1391 which are generated by the Air Force. The Facilities Unit Board (FUB) defines priorities for what is needed for Buckley AFB and requests a congressional appropriation for funds. Once authorized, the COE gets involved in review of designs to meet the intent of the project with work coming out of several offices, notably the Louisville Office for design and the Omaha office for engineering.

3. Are you aware of the military's efforts to incorporate low impact development into new construction projects? How can the COE influence development patterns? Through contracts? Through review of designs? Through review/approval of modifications for design build contracts?

   This really depends on what is in the 1391 form. Community planning is addressed in the 2020/2050 master plans, and these evolving documents. It's hard to guess what is going to come and go, since so much is directed on a continually evolving purpose and need. There is a potential of extending the runway in the future, and numerous projects are regulated more by FAA regulations (e.g., BASH hazards).

4. Does the Army Corps of Engineers review any designs pre-bid for post-construction controls and evaluate the ability of the controls proposed in terms of the long-term ability to retain/detain/infiltrate runoff in an effort to mimic natural hydrology from newly developed impervious surfaces?

   If it is in the specs., COE will review whether certain detention or retention requirements can be met. Currently, Buckley AFB is not subject to Aurora requirements for stormwater drainage, so there are no guiding regulations for what is required for detention/retention as it pertains to water quality and not flood control. If there is a post-construction performance specification for the project, COE Omaha will review it to see if designs can meet that specification.

5. Is design build used for any construction projects? If so, how are controls set in place and what modifications can be made which could affect stormwater runoff from new impervious surfaces? What is the process for modifying such controls?

   Most projects at Buckley AFB are design-bid-build and not design-build. In general, it is too costly to include design in construction contracts. In general, there is an effort to route stormwater into existing structures. Where projects are design-build, Buckley AFB is not a co-permittee but still reviews SWPPPs. For SABER projects, Buckley AFB (460th CE) is a co-permittee. The contracting office serves as the co-permittee.

6. Does the COE inspect construction sites for compliance with stormwater regulations (e.g., BMPs in place for erosion and sediment control)? Are inspection checklists used? How are inspection findings translated to the base and potentially enforced against?

   Contractors are required to inspect and prepare inspection checklists. Currently, there is a contract with Stormwater Risk Management for oversight inspections at Milcon sites. These have been effective and thorough. Inspection checklists are not provided by the COE, but these are included as part of the SWPPP review. Since the COE is a co-permittee for design-bid-build, both parties sign the SWPPP. Inspection findings are not translated to the base, only as it pertains to being the construction agent.

7. Where deficiencies are noted in projects under which the COE is involved (e.g., inspection reports from EPA), how are these deficiencies translated to affect future contracts and future processes to avoid repeat violations? Are there examples from past events at Fort Carson or other military bases?

   The CCAS process (contingency contract administration services), has a component to complying with environmental laws. Contractors are evaluated for

environmental performance based on whether they comply with environmental laws. Contractors are given a numerical 1-5 rating on performance in a variety of areas, but there are also comments which are incorporated which have some weight. Projects are provided with a 1-year walk through as part of their warranty and that includes stormwater as a separate evaluation from that conducted by the project proponent.

8. What limitations are there in COE policy/practices which restrict compliance with stormwater regulations on the ground?

Offsite conditions are very hard to deal with (e.g., inflow). Run-on is a bigger challenge than runoff as there is not always something in the design to address this. For permanent BMPs, there are limited funds if they don't work properly, especially if those don't include some conditions which weren't present at the time of design. The 140th CE department would like to see permanent BMPs designed earlier on in the process.

9. What limitations are there in COE policy/practices which restrict Buckley AFB in being able to incorporate low impact development practices?

For permanent BMPs, there are limited funds if they don't work properly, especially if those don't include some conditions which weren't present at the time of design. If something is not in the 1391, it is difficult to fund or design at a later date. Sometimes the NOI certification extends beyond the contract warranty term. Currently, the 460th concurs on NOTs, and the COE will not submit a NOT without base concurrence, but this needs to be more closely monitored.

Appendix H - Evaluation of Construction Contracting Process
(US Fiscal Property Office – National Guard Contracting)

Purpose:

- To determine the contracting process used for construction projects
- Define what stormwater requirements are included in each construction project during and post-construction
- Determine what types of performance incentives or enforcement mechanisms are included in contracts for construction
- Evaluate whether maintenance is included in contracts for new facilities
- Determine how post-construction runoff requirements are evaluated and what language is included in bids for new construction

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Mark Schoenrock (Colorado National Guard Contracting Office)

Questions for Staff:

1. What type of language is included in bids for new construction as it applies to complying with the construction stormwater permit?

   Contractors need to comply with all environmental regulations including the stormwater permitting process. No specific language is otherwise included. All sites have a goal of meeting LEED silver.

2. What is the method by which BMPs are reviewed in the contracting process to determine whether they will be effective in retaining sediment and preventing erosion?

   There is review by Buckley AFB environmental, COTRs, and the Army environmental office.

3. Are there any standards for the installation and maintenance of stormwater BMPs during construction? Are there requirements for construction dewatering?

   If there is significant dewatering, there needs to be a dewatering plan. Standards include those from UDFCD/CDOT/Douglas County. Follow any of those and there is not other specific review required. There is also verbal encouragement to use preferred BMPs such as sediment logs as opposed to silt fence and straw bale, but there are limited to suggestions and not requirements.

4. What is the method by which contracts are reviewed prior to bidding to evaluate post-construction stormwater requirements?

   Post-construction stormwater requirements are only reviewed in the context to

ensure that systems allow for adequate conveyance to avoid flooding.

5. Have performance bonds been used/applied in contracts?

   Yes, but not for stormwater.

6. Are there any design specifications for post-construction or requirements for low impact development included in contracts?

   There are none specifically. Where design specifications do occur, tehey are normally performance based.

7. Do contracts require maintenance of BMPs for post-construction long-term?

   no

8. What type of review takes place prior to obtaining a certificate of occupancy related to cleanout of BMPs (e.g., sediment ponds/post-construction controls) and how is information transmitted from developer to the base regarding long-term maintenance of stormwater systems?

   Generally speaking there is a one-year warranty on new projects. These are evaluated during a pre-final and a final inspection. The project proponent is included in the final inspection.

9. Do contracts have incentives for environmental performance? If so, what are those incentives for and how are they realized?

   There are no incentives for environmental performance in contracts.

10. Have any contracts been terminated, withheld temporarily, or have any stop work orders been issued for poor performance or noncompliance with stormwater regulations?

    None specifically for stormwater performance…

11. What environmental training is provided to US Fiscal Property Office COTRs?

   COTRs get general training from the environmental office as well as more specific training on a case-by-case basis. This does include training on construction site BMPs and stormwater generally.

Appendix I - Evaluation of Construction Site – BRAC Infrastructure (Milcon)

Purpose:

- Determine how information is related to stormwater permit requirements is conveyed to construction site operators
- Evaluate construction oversite activities

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Jennifer McQueen (Keiwit), Jeff Moore (Keiwit), Dan Ryan (Keiwit), Lloyd Maier (Keiwit), Rich Jackson (Stormwater Risk Management), Terry McLeod (US Army COE)

Questions to Contractor:

1. How frequently are you inspected by the facility regarding stormwater runoff regulations? Was any training provided to you?

   No specific training was provided to the contractor. 140th stops by daily to perform Quality Assurance Evaluations. These evaluations are made by contractors, and can include stormwater BMPs. Compliance evaluations from the 140th CE for stormwater have occurred monthly. Oversight inspections from a contract through Stormwater Risk Management have occurred on a weekly basis as well.

2. Does the facility provide guidance on BMPs (e.g., erosion/sediment control, concrete washout, landscaping, materials storage, disposal)?

   Sometimes but not really… this is left to the terms of the permit.

3. Have you received any specialilzed training or specific advice related to construction site BMPs for stormwater?

   The contractor had received stormwater training (CDOT erosion control supervisor training).

4. Were there any problems at the site (e.g., stop work order) and how were those rectified?

   The site looked good. Street sweeping was taking place. BMPs were installed appropriately. Contractors were knowledgeable about stormwater practices and were interested in the evaluation to learn more and to have BMPs further evaluated. The secondary contract with Stormwater Risk Management seems to be effective at Buckley AFB for Milcon construction sites.

Appendix J - Evaluation of Small Construction Site– Squad Ops
(Replacement of the Squadron Operations Facility)

Purpose:

- Determine how information is related to stormwater permit requirements is conveyed to construction site operators
- Evaluate construction oversite activities

Staff Present: Greg Davis (EPA), Laurie Fisher (Buckley AFB), Corwin Oldweiler (Buckley AFB), Guy Engell (Aleut), Dee Hawkins (140th CES/CEV), Brian Fabrizius (Aleut)

Questions to Contractor:

1. How frequently are you inspected by the facility regarding stormwater runoff regulations? Was any training provided to you?

   No specific training was provided to the contractor, Aleut Facilities Support Services. 140th stops by daily to perform Quality Assurance Evaluations. These evaluations are made by contractors, and can include stormwater BMPs. However, it's apparent that compliance with stormwater regulations is a very low priority with QAE's. Most compliance with stormwater regulations is evaluated by 140th CE (Corwin Oldweiler), and is performed on an as-needed basis (roughly once/month for most projects).

2. Does the facility provide guidance on BMPs (e.g., erosion/sediment control, concrete washout, landscaping, materials storage, disposal)?

   Sometimes but not really… this is left to the terms of the permit.

3. Have you received any specialilzed training or specific advice related to construction site BMPs for stormwater?

   The contractor had not received specialized training in stormwater permits or BMP installation/maintenance.

Were there any problems at the site (e.g., stop work order) and how were those rectified?

Violations included visible tracking of sediment offsite, poorly installed BMPs (silt fence), storing equipment immediately adjacent to a receiving water, no staging areas or storage areas, and visible sediment deposition into a receiving water. Daily QAEs were shown not to be effective for enforcement oversight. In addition, numerous letters were sent from the 140th CE stormwater inspectors noting significant noncompliance. Follow-up on the action items (e.g., clean out sediment in the receiving water) were ignored.

Appendix K – Industrial Site Evaluation - HazMart

Purpose:

- To evaluate permit compliance at industrial facilities
- To determine whether individual stormwater permits or no exposure certifications are applicable at a specific facility
- To determine overall barriers to permit compliance

Questions for Staff:

1. What is the purpose of the facility?

   The hazmart is a central accumulation point for hazardous wastes. It is not a place where hazardous wastes are treated.

2. Is permitting this site under a separate permit for stormwater discharges from industrial activities required?

   Disposal facilities that have been properly closed and capped, and have no significant materials exposed to stormwater, are considered inactive and do not require permits. This is the case with the HazMart, so a separate industrial stormwater permit is not required.

3. Are stormwater BMPs are in place ?

   Yes. A floor drain to a lined (50-60mL) detention pond provides tertiary containment. Secondary containment is located in containers or on containment shelves. Corrosives and flammables are separated. Spill kits are available based on material type.

4. Are staff trained on environmental management?

   Recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. There are also annual internal ESOCAMP and triennial external ESOCAMP evaluations applicable to this facility.

Appendix L - Industrial Site Evaluation – BaseOps #909/801 Airfields

Purpose:

- To evaluate permit compliance at industrial facilities
- To determine whether individual stormwater permits or no exposure certifications are applicable at a specific facility
- To determine overall barriers to permit compliance

Questions for Staff:

1. What is the purpose of the facility?

   The airfields are for maintenance and delivery of aircraft.

2. Is permitting this site under a separate permit for stormwater discharges from industrial activities required?

   Yes. Only the portions of the airfield that are involved in vehicle maintenance or deicing operations are subject to stormwater permitting. This site does not pose a significant threat to stormwater quality, given that vehicle maintenance is performed inside and deicing is very minimal (<1,000 gal./year), but the airfield does meet the definition of an industrial activity at 40 CFR § 122.26. No exposure would not be applicable for the site given that aircraft deicing is performed outside, but including the airfield under the MS4 permit could be an option.

3. Are stormwater BMPs are in place?

   Yes. Deicing is minimal. F-16s are never deiced unless there is a mission critical flight and conditions require deicing. No washing of aircraft is done. Most deicing occurs during late spring/fall and is focused on transit craft (one transit craft is available). Propylene glycol is used, and there is a monthly log on fluid storage and usage. Airplanes are maintained in a building, and there are no inlets or floor drains. Fueling does occur on the airfield, and BMPs are available for absorption and containment in the event of a spill. Acqueous fire fighting foam systems are in place in the event of an indoor spill or fire. This may be changed to include aqueous expanding foam in the future. All airfield areas drain to a secondary containment pond in the event of a spill.

4. Are staff trained on environmental management?

   Recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. There are also annual internal ESOCAMP and triennial external ESOCAMP evaluations applicable to this facility.

Appendix M - Industrial Site Evaluation – Vehicle Maintenance
(1302 MACS 23 Maintenance)

Purpose:

- To evaluate permit compliance at industrial facilities
- To determine whether individual stormwater permits or no exposure certifications are applicable at a specific facility
- To determine overall barriers to permit compliance

Questions for Staff:

1. What is the purpose of the facility?

   Maintenance of vehicles including U.S. Marine military vehicles. GSA vehicles are maintained elsewhere.

2. Is permitting this site under a separate permit for stormwater discharges from industrial activities required?

   Yes. However, this site may be subject to a no exposure exclusion.

3. Are stormwater BMPs are in place ?

   Yes. Used oily rags are washed and reused through the red rag program. Oil/water separators run through both sides of the facility, are cleaned regularly, and discharge to the sanitary sewer. All vehicle maintenance is performed inside. Wastes are separated. There is no fuel storage on site, but there are empty fuel tanks on site. There is a consolidated wash rack which is plumbed to the sanitary sewer.

4. Are staff trained on environmental management?

   Recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. There are also annual internal ESOCAMP and triennial external ESOCAMP evaluations applicable to this facility. Trainings for hazardous waste, spill prevention, asbsestos, lead, stormwater, and oil/water separators are performed on an annual basis. Space Command contracts URS to do some of these trainings.

Appendix N - Industrial Site Evaluation – Vehicle Maintenance (Building #340)

Purpose:

- To evaluate permit compliance at industrial facilities
- To determine whether individual stormwater permits or no exposure certifications are applicable at a specific facility
- To determine overall barriers to permit compliance

Questions for Staff:

1. What is the purpose of the facility?

   Maintenance of vehicles including fire trucks, ATVs, graders, loaders, and military vehicles. GSA vehicles are maintained elsewhere. This building is split with part maintained by the Air Force and part maintained by the National Guard.

2. Is permitting this site under a separate permit for stormwater discharges from industrial activities required?

   Yes. However, these sites may be subject to a no exposure exclusion.

3. Are stormwater BMPs are in place?

   Yes. Used oily rags are washed and reused through the red rag program. Oil/water separators run through both sides of the facility, are cleaned regularly, and discharge to the sanitary sewer. All vehicle maintenance is performed inside.

4. Are staff trained on environmental management?

   Recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. There are also annual internal ESOCAMP and triennial external ESOCAMP evaluations applicable to this facility. Trainings for hazardous waste, spill prevention, asbsestos, lead, stormwater, and oil/water separators are performed on an annual basis.

Appendix O - Industrial Site Evaluation – Q Battery

Purpose:

- To evaluate permit compliance at industrial facilities
- To determine whether individual stormwater permits or no exposure certifications are applicable at a specific facility
- To determine overall barriers to permit compliance

Questions for Staff:

1. What is the purpose of the facility?

   Maintenance of vehicles. GSA vehicles are maintained elsewhere. Q battery is adjacent to the 1302 vehicle maintenance facility.

2. Is permitting this site under a separate permit for stormwater discharges from industrial activities required?

   Yes. However, this site may be subject to a no exposure exclusion.

3. Are stormwater BMPs are in place ?

   Yes. Used oily rags are washed and reused through the red rag program. Oil/water separators run through both sides of the facility, are cleaned regularly, and discharge to the sanitary sewer. All vehicle maintenance is performed inside. Wastes are separated. There is no fuel storage on site, but there are empty fuel tanks on site. There is a consolidated wash rack (for both Q battery and 1402) which is plumbed to the sanitary sewer. From a visual inspection, Q battery was not as clean or well maintained as the adjacent 1402 facility, however specific issues were not noted.

4. Are staff trained on environmental management?

   Recent training included stormwater as part of a goal to train all employees on an annual basis for a variety of applicable topics. There are quarterly training notices, but workers at Q battery are not required to take the training.

   From a visual inspection, Q battery was not as clean or well maintained as the adjacent 1402 facility, however specific issues were not noted. This could be because environmental training is not specifically required at the Q battery facility.