Annual Report Format

National Pollutant Discharge Elimination System Stormwater Program

MS4 Annual Report Format

Check box if you are submitting an individual Annual Report with one or more cooperative program elements. ☐

Check box if you are submitting an individual Annual Report with individual program elements only. ☒

Check box if this is a new name, address, etc. ☐

1. MS4(s) Information

Department of the Air Force, Kirtland Air Force Base, 377th MSG/CEIE
Name of MS4

Gregory | Vierra | Water Quality Program Manager
Name of Contact Person (First) (Last) (Title)

505-846-6362 | gregory.vierra.1@us.af.mil
Telephone (including area code) E-mail

2050 Wyoming Blvd SE, Building 20685
Mailing Address

Kirtland AFB | NM | 87117-5663
City State ZIP code

What size population does your MS4(s) serve? 23,000 NPDES number NMR04A009

What is the reporting period for this report? (mm/dd/yyyy) From 07/01/2018 to 06/30/2019

2. Water Quality Priorities

A. Does your MS4(s) discharge to waters listed as impaired on a state 303(d) list? ☒ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4(s). Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
Tijeras Arroyo NM -9000.A_70	N/A	☐ Yes	☒ No	☐ Yes	☒ No
Rio Grande NM-2105_50N	E.Coli, dissolved oxygen, PCB	☒ Yes	☐ No	☒ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

2. B. Continued

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

KAFB is continuing to collect data involving dissolved oxygen, sediment control, and bacteria reduction.

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☒ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☒ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☒ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

Pesticides, herbicides, oil products, sanitary waste, pet waste (domestic), sediment, and floatables.

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

N/A

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☒ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

- Erosion and sediment control requirements? ☒ Yes ☐ No
- Other construction waste control requirements? ☒ Yes ☐ No
- Requirement to submit construction plans for review? ☒ Yes ☐ No
- MS4 enforcement authority? ☒ Yes ☐ No

B. Do you have written procedures for:

- Reviewing construction plans? ☒ Yes ☐ No
- Performing inspections? ☒ Yes ☐ No
- Responding to violations? ☒ Yes ☐ No

C. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. 11

D. How many of the sites identified in 4.C did you inspect during this reporting period? 11

E. Describe, on average, the frequency with which your program conducts construction site inspections.

Inspections of active construction sites occur monthly by KAFB and at least bi-monthly by contractor's qualified stormwater inspectors. A total of 40 CGP inspections were conducted by KAFB personneal and 66 by contractors.

F. Do you prioritize certain construction sites for more frequent inspections? ☒ Yes ☐ No

If Yes, based on what criteria? An inspection deficiency may warrant increased inspections, reporting, or corrective actions to regain compliance.

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes	Notice of violation		No Authority	☒
☐ Yes	Administrative fines		No Authority	☒
☒ Yes	Stop Work Orders	0	No Authority	☐
☐ Yes	Civil penalties		No Authority	☒
☐ Yes	Criminal actions		No Authority	☒
☐ Yes	Administrative orders		No Authority	☒
☒ Yes	Other	Federal Acquisition Regulations - withholding project funds, punitive fees, negative contractor performance ratings.		

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☒ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?

Poor maintenance of concrete washouts, the SWPPP site map not updated with BMPs and/or identifying features, and metal items not being raised off the ground.

J. How often do municipal employees receive training on the construction program? N/A

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☒ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☒ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. 10 outfalls (5 MSGP & 5 MS4)

D. Do you have documented procedures, including frequency, for screening outfalls? ☒ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

5 (MS4 Outfalls)

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? 5

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

The five MS4 outfalls are screened at least monthly during the wet season.

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☒ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☒ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? 0

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? N/A

L. How often do municipal employees receive training on the illicit discharge program? N/A

6. Stormwater Management for Municipal Operations

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces	☐ Yes	☒ No
All municipal construction activities, including those disturbing less than 1 acre	☒ Yes	☐ No
All municipal turf grass/landscape management activities	☒ Yes	☐ No
All municipal vehicle fueling, operation and maintenance activities	☒ Yes	☐ No
All municipal maintenance yards	☒ Yes	☐ No
All municipal waste handling and disposal areas	☒ Yes	☐ No

Other: KAFB maintains an installation SWPPP for MSGP NMR050000 sectors K, L, P and S. KAFB maintains coverage for active construction sites under CGP NMR100000.

B. Are stormwater inspections conducted at these facilities? ☒ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? Quarterly

D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

See Kirtland MSGP SWPPP and MS4 SWMP at http://www.kirtland.af.mil/Home/environment

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☐ Yes ☒ No

F. If Yes, which activities and/or facilities receive most frequent inspections?

G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? ☒ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☒ Yes ☐ No

I. If so, how frequently and/or under what circumstances?

All personnel complete one-time env. awareness training. Annual face-to-face training to Unit Env. Coordinators. Quarterly face-to-face training with MSGP shop personnel and monthly training to CGP personnel during inspections.

7. Long-term (Post-Construction) Stormwater Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for stormwater/water quality of all new and re-development projects?	☒ Yes	☐ No
Long-term operation and maintenance of stormwater management controls?	☒ Yes	☐ No
Retrofitting to incorporate long-term stormwater management controls?	☐ Yes	☒ No

B. If you have retrofit requirements, what are the circumstances/criteria?

Design reviews are conducted for all construction plans, whether new facilities or modifications to existing facilities. An environmental checklist is completed that includes requirements for stormwater management controls.

C What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.)?

All activities regardless of size are reviewed and must implement BMPs to ensure stormwater pollutants are contained to the maximum practicable extent and do not enter the storm drain system.

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☒ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☒ Yes	☐ No
Peak discharge rates	☒ Yes	☐ No
Discharge frequency	☒ Yes	☐ No
Flow duration	☒ Yes	☐ No

F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

https://www.epa.gov/sites/production/files/2016-08/documents/swstdsummary_7-13-16_508.pdf

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection?

H. How many of the plans identified in 7.G were approved?

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? N/A

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? N/A

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? Remedy within 24hr or provide corrective action plan to remedy within 7 days.

L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☒ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? None

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☒ Yes ☐ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☒ Yes ☐ No

P. How often do municipal employees receive training on the post-construction program? N/A

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period?

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit?

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source:	Department of Defense Appropriations	Amount $		OR % 100
Source:		Amount $		OR %
Source:		Amount $		OR %

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? 0.75

E. Do you share program implementation responsibilities with any other entities? ☐ Yes ☒ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	**Began Tracking (year)**	**Frequency**	**Number of Locations**
Example: E. coli	2003	Weekly April–September	20
E. coli	2015	Annually July - October	5
Dissolved Oxygen	2015	Annually July - October	5
Sediment	2015	Annually July - October	5

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

KAFB is in the data collection phase. Trend analysis will be performed when more data is available.

10. Additional Information

Please attach any additional information on the performance of your MS4 program, including information required in Parts I.C, I.D, and III.B. If providing clarification to any of the questions above, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

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

☒ Yes ☐ No

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official.

Signature		Gregory Vierra, Water Quality Manager	10/14/2019
		Name of Certifying Official, Title	Date (mm/dd/yyyy)

Kirtland Air Force Base 2018-19 MS4 Annual Report

Supplemental Information

Kirtland Air Force Base (KAFB) is a military installation located in central New Mexico, southeast of and adjacent to the City of Albuquerque and is a Phase II MS4 that is classified as a Class B Permittee. The installation encompasses 51,585 acres with elevations ranging from 5,200 to almost 8,000 feet above mean sea level. The Manzanita Mountains on its eastern boundary rise to over 10,000 feet. The land within the installation is owned by the United States Air Force (USAF), United States Forest Service (USFS) (withdrawn to the Department of Defense (DoD)), Bureau of Land Management (BLM) (withdrawn to the DoD), and the Department of Energy (DoE). The base urbanized area is 2,795 acres or 4.37 square miles, and is entirely located within Bernalillo County at the approximate latitude of 35.06^{o}N and longitude of 106.5^{o}W. Surrounding land uses adjacent to KAFB include the USFS Cibola National Forest to the northeast and east; the Isleta Pueblo Reservation to the south; Bernalillo County developments to the southwest; residential and business areas of the City of Albuquerque to the west and north; and the Albuquerque International Sunport, directly to the northwest. KAFB is the sixth largest installation in the USAF and is operated by the 377th Air Base Wing, a unit of Air Force Global Strike Command's (AFGSC) 20th Air Force and host unit at the base. KAFB has over 20,000 employees on base, including over 4,000 military, 3,500 civil service, and 12,500 contractors. There are more than 100 mission partners, to include training units, research laboratories, and three Major Air Force Commands, Reserve, and National Guard components. Missions at KAFB fall into four major categories: research, development, and testing; readiness and training; munitions maintenance; and support to installation operations.

The following information provides an implementation status of the KAFB stormwater program, the Storm Water Management Plan (SWMP), and best management practices (BMPs) for the reporting period of July 1, 2018 to June 30, 2019. There have been no changes to the SWMP or BMPs for the reporting year. The sections underlined below are tied to the MS4 Annual Report Form.

2.C. <u>What specific sources contributing to the impairment(s) is [KAFB] targeting in the stormwater program?</u>

KAFB is continuing to collect data on dissolved oxygen, sediment discharge, and bacteria reduction as discussed below.

Dissolved Oxygen

During the reporting year, stormwater pollutants that affect dissolved oxygen levels are reviewed including fertilizers, pesticides, herbicides and animal waste. Programs to manage the use of pesticides and fertilizers have been in place at KAFB since 2007. KAFB has an extensive Base Maintenance Contract (BMC) with a formal, written Performance Work Statement (PWS). The base maintenance contractor is responsible for implementing the Pest Management Plan (PMP) at KAFB. This plan establishes the strategy and methods for conducting a safe, effective, and environmentally-sound Integrated Pest Management (IPM) program that reduces pollution and other risk factors associated with the use of pesticides. The maintenance and implementation of this PMP is an important aspect of KAFB's Pest Management Program, which is comprised of the following eight elements:

1. PMP
2. IPM
3. Pest Management Program Reviews and Audits
4. Training and Certification of Pest Management Personnel
5. Pesticides and Pest Management Equipment
6. Contracting for Commercial Pest Management Equipment
7. Specialized Pest Management Operations
8. Pest Management and Disease Vector Control in Military Contingency Operations

KAFB implements processes and procedures to minimize contaminate exposure to stormwater and reduce impacts to dissolved oxygen by: using oil water separators (OWSs) at vehicle and equipment maintenance facilities to limit pollutants from entering stormwater, installing dikes and berms to prevent contaminants from flowing to exposed areas, and appointing Facility Managers and Unit Environmental Coordinators (UEC) whose responsibilities include inspecting dumpsters and material storage areas for leaks and cracks.

Sediment

The BMC includes a sweeping schedule (in Appendix 5.3 of BMC) which reduces the quantity of sediment discharged during storm events. The contractor is also responsible for maintaining, repairing, and constructing ditches, culvert storm drains, catch basins, impoundments, subsurface drains, and outlets to allow free flow of waters to natural basins or collecting points at all times. This includes inspecting and ensuring continuous free flow of water in open drainage systems, outfalls, spill gates, and flood gates; maintaining surface drainage ditches to be free of shrubs, trees, silt, and trash to prevent erosion and ensure continuous flow of water; and removing all trash and debris collected in ditches and ditch banks and disposing of this

material properly. As needed, the base maintenance contractor will conduct maintenance activities at the request of the Water Quality Program Manager in addition to routine maintenance. The Water Quality Program Manager, submitted five (5) AF 332 Work Order Requests that were submitted/completed during the reporting year.

- 8/29/2018 – Outfall D, clearing of fine sediments, grasses, and debris
- 8/29/2018 – Outfall E, clearing of fine sediments, grasses, and debris
- 5/9/2019 – Outfall J, clearing of sediment and debris
- 5/9/2019 – Outfall G, clearing of vegetation and debris
- 5/17/2019 – Outfall F, tubing replacement

Furthermore, the United States Air Force, AFGSC, and the 377th Air Base Wing developed a *Programmatic Environmental Assessment (PEA) Addressing Upgrade of the Stormwater Drainage System, Kirtland Air Force Base, New Mexico*. The purpose of the PEA is to enable future projects that will upgrade stormwater drainage systems on KAFB to meet current standards, reduce flooding and standing water issues, and address erosion and sedimentation issues that occur on the installation. The PEA was finalized August 19, 2019.

Bacteria

The base maintenance contractor operates, repairs, and maintains domestic sanitary sewage and industrial collection systems, force mains, valves, manholes, vaults, clean-outs, facility sewage services, and leak detection equipment, from the collection drain to the sewer main. This includes: operating, repairing, and maintaining all sanitary sewage, septic tank systems, industrial-holding tanks, and all electronic, mechanical, and electrical control systems associated with the sanitary sewage collection systems; operating, repairing, and maintaining all lift stations from the collection point to the sewage main; maintaining the pumps, piping, pump mounting hardware, valves, main connections, and all electronic, mechanical, and electrical control and leach fields prior to the sewer mains; establishing and submitting an inspection schedule to verify operational integrity and operational reliability; correcting any discrepancies to ensure continuous operation of the system; providing for the removal of solids and the cleaning of systems and equipment upon any noticeable accumulation of solids or debris; and maintaining records of inspection dates. Also, throughout the reporting period KAFB Family Housing supplied pet waste bags and disposal bins along walking paths in the housing areas.

3.B. Pollutant Sources Addressed in Public Education and Outreach Program

Educational materials posted on the KAFB Environment web page during the reporting year included:

- A poster providing information on how to keep stormwater clean that addresses pesticides, general trash, household chemicals, automotive fluids, and pet waste. It provides information on how to recognize stormwater pollution and provides a telephone number for reporting issues.

  http://www.kirtland.af.mil/Portals/52/documents/AFD-100301-029.pdf?ver=2016-06-27-120059-030

- A "When It Rains, It Drains" brochure that explains how stormwater gets polluted and what everyone can do to help keep stormwater clean.

  http://www.kirtland.af.mil/Portals/52/documents/AFD-100301-030.pdf?ver=2016-06-27-120127-517

- An EPA document on Protecting Water Quality from Urban Runoff that explains how development in an area can impact runoff volume and stormwater quality.

  http://www.kirtland.af.mil/Portals/52/documents/AFD-100301-031.pdf?ver=2016-06-27-120155-593

In addition, Kirtland Family Housing (KFH) has an email outreach, provides welcome bags to newcomers with stormwater information, and posts information on their website. They also host a newcomer briefing on a monthly basis and organize an Earth Day event to promote awareness.

- 513 welcome bags were issued to new residents during the reporting period.

Reporting Potential Stormwater Issues:

Section 1.1.4.1 of the BMC PWS requires implementation of a 24-hour, 7-days per week Customer Service Desk telephone line to field reports and requests by Kirtland personnel to address emergency conditions and non-emergency work orders. The base maintenance contractor alerts the Water Quality Program Manager to potential issues related to dry weather or non-stormwater flows and other stormwater pollution concerns. Reports received are investigated to determine whether the flow is an allowable discharge or potential illicit discharge. Potential illicit discharges identified are investigated so that the source can be determined and eliminated.

- No potential stormwater events were logged by service desk during the reporting period.

5.B. Sanitary and Storm Sewer System Maps

KAFB has government and contract support to maintain and update a Geographic Information System (GIS) database in which sanitary and storm drainage system maps are available. The base maintenance contractor maintains and updates the GIS and drawings for all utilities systems. This required an initial effort to migrate legacy data to the GIS system and perform field verification where discrepancies were identified.

GIS is updated when final design packages are submitted to the BMC. The GIS system was updated during the reporting period and on an ongoing basis. Updates are confirmed via a collaborative effort between CE GIS personnel and the base maintenance contractor.

5.J. Illicit Discharge Detection and Elimination Program:

The base maintenance contractor is responsible for maintaining OWSs, the sanitary sewer, storm sewer and septic systems at KAFB. They perform routine inspections of this infrastructure and respond to emergency conditions. KAFB also contracts with an Environmental Consultant to provide support to the Stormwater Program. In addition to collecting wet weather and dry weather samples, the consultant assists with responding to and investigating potential illicit discharges. There were no illicit discharges detected during the reporting period.

6.D. List activities for which operating procedures or management practices specific to stormwater management have been developed:

KAFB is required to comply with a comprehensive list of Air Force Instructions (AFI) that outline requirements for environmental compliance requirements. The following are examples of the AFIs that support the implementation of the Stormwater Program at KAFB:

AFI 32-7001	Environmental Management
AFI 32-7044	Storage Tank Environmental Compliance
AFI 32-1001	Snow and Ice Control
AFI 32-1067	Water and Fuel Systems
AFI 32-7086	Hazardous Materials Management
AFI 32-7042	Waste Management
AFI 23-201	Fuels Management
AFI 32-1053	Integrated Pest Management Program

6.G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management?

Environmental Awareness Training materials were reviewed during the SWMP implementation evaluation and initial revisions have been completed. KAFB is in the process of implementing a new training platform to deliver computer-based training courses. A one-time Environmental Management System Awareness Training is required for all employees and contractors. Unit Environmental Coordinators coordinate job specific training needs for their organizations. The Environmental Management office provides training for KAFB personnel.

SWMP Measurable Goal Updates for the 2018-2019 MS4 Annual Report

Table 7-1: Dissolved Oxygen Strategy Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
DO-1.a	**Investigate Contributors to Reduced Dissolved Oxygen in Receiving Waters**	Inventory and investigate structural controls to determine their potential effect on dissolved oxygen in receiving waters.	Document inventory and investigation results then revise BMPs, as needed.	This program is not yet fully implemented but additional progress toward implementation will be conducted during reporting year 2019-2020.
DO-1.b		Inventory and investigate natural or man-made topographical and geological formations for potential effects on dissolved oxygen in receiving waters.	Document inventory and investigation results then revise BMPs, as needed.	This program is not yet fully implemented but additional progress toward implementation will be conducted during reporting year 2019-2020. KAFB Water Quality Program Manager to work with CE GIS personnel to determine the presence and impact of these formations.
DO-1.c		Review MS4 operations for potential effect on dissolved oxygen in receiving waters.	Annually evaluate standard operating procedures and BMPs, report revisions in Annual Report.	Implemented 22 March 2015 and ongoing.
DO-1.d		Review chemicals and materials used through standard procedures to determine if any items impact dissolved oxygen.	Annually review purchases and determine feasibility of alternative products. Provide quarterly EESOH-MIS training for users.	Implemented 01 July 2012 and ongoing. KAFB reviewed purchases for chemicals and materials that may affect dissolved oxygen in stormwater. KAFB implements processes and procedures to minimize chemical exposure to stormwater and therefore reduce impacts to

				dissolved oxygen (*refer to page 2 and the "Dissolved Oxygen" section for additional information)*.

Table 7-2: Sediment Pollutant Load Reduction Strategy Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
SED-1.a	**Sediment Assessment**	Develop sediment assessment plan that includes standard operating and QA procedures.	Develop sediment assessment plan and validate data.	Implemented 22 March 2015 and ongoing.
SED-1.b		Conduct sediment assessment per developed plan.	Conduct sediment assessment.	Implemented 22 March 2015 and ongoing.
SED-2.a	**Estimate Baseline Sediment Loading**	Estimate baseline sediment loading and relative potential for contamination of sediments utilizing results from assessment.	Document baseline sediment loading estimate.	Implemented 22 March 2015 and ongoing.
SED-3.a	**Targeted Controls and BMPs for Sediment Pollutant Load Reduction**	Develop targeted controls and BMPs for sediment pollutant load reduction based on results of the sediment assessment and estimate of baseline sediment loading; putting a priority on areas that are expected to generate the highest annual average pollutant loads.	Develop and document targeted controls and BMPs, and update this SWMP as appropriate.	Baseline controls and BMPs including routine sweeping, track-out controls, and construction inspections are consistently performed. New controls and BMPs are implemented as areas of sediment discharge are identified. Implement controls 5-10 years from permit effective date.
SED-3.b		Conduct interim monitoring and evaluate BMPs.	Conduct annual monitoring and evaluations.	Implemented 22 March 2015 and ongoing. Monitoring is being performed.

Table 7-2: Sediment Pollutant Load Reduction Strategy Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
SED-4.a	**Progress Evaluation**	Assess the overall success of the sediment pollutant load reduction strategy by analyzing and interpreting data collected over the course of the implementation. This assessment should include assessment of both direct and indirect measures of success.	Document and report on the strategy's assessment in this SWMP and in the fifth annual report as appropriate.	5 years from permit effective date.

Table 7-2: Sediment Pollutant Load Reduction Strategy Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update

Table 7-3: Impaired Waters Requirements Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
IW-1.a	**TMDL Required Control Measures**	Evaluate the Bacteria Reduction Plan to determine gaps in TMDL requirements and monitor compliance.	Annually evaluate the Bacteria Reduction Plan and BMPs, report revisions in Annual Report.	Implemented 22 March 2015 and ongoing. Additional data is needed to complete this goal. It is anticipated additional analytical data collected during the permit term will allow for a complete evaluation of this plan.
IW-2.a	**Sanitary Sewer System Evaluation**	Review maintenance reports, sanitary sewer infrastructure, and other sources for improvement areas.	Annually document inadequacies, if any, and prioritize for repair.	Implemented 01 January 2013 and ongoing through Base Maintenance Contract.
IW-2.b		Evaluate sanitary sewer lift stations for inadequacies and overflow controls.	Annually document inadequacies, if any, and prioritize for repair.	Implemented 01 January 2013 and ongoing through Base Maintenance Contract.
IW-3.a	**Illicit Discharges**	Reduce waste sources of bacteria through proper disposal and illicit discharge prevention.	Annual satisfactory rating of BMC performance, on-time response and compliant disposal procedures.	Implemented 01 January 2013 and ongoing.
IW-4.a	**Residential and Animal Source Evaluation**	Expand existing management programs to identify and target animal sources and residential discharges.	KFH personnel to monitor grounds, maintain pet scoop stations and report issues quarterly.	Implemented 01 January 2003 and ongoing.

Table 7-4: Construction Site Runoff Control Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 1-1.a	**Construction Project Review**	Conduct reviews of new construction projects to evaluate CGP requirements, site BMPs, and provide comments.	Document 95% of construction project reviews and comments.	Implemented 15 September 2003. 171 project reviews took place during the reporting period. This goal is consistently achieved.
MCM 1-1.b		Review AF Form 103 Digging Permit Request, AF Form 332 Work Order Requests, AF Form 813 Request For Environmental Impact Analysis, Environmental Baseline Surveys, and Environmental Assessments affecting stormwater and provide comments.	Document 95% reviews and comments on Digging Permits, Work Orders, Request For Environmental Impact Analysis, Environmental Baseline Surveys, and Environmental Assessments.	Implemented 1 October 2009. 223 Digging Permits, 686 Work Orders, and 135 Request For Environmental Impact Analysis requests were processed during the reporting period. These document review goals are consistently achieved.
MCM 1-2.a	**Track Construction Projects**	Maintain inventory of active construction sites and previously closed construction sites.	Annually report on-going projects under CGP.	Implemented 15 September 2003. • This reporting year consisted of 115 construction sites, 11 of which had CGP and/or LEW permitting.
MCM 1-2.b		Ensure all projects with land disturbance have been evaluated.	Annually review CE project listing and provide comments on 813.	Implemented 3 February 2010. This goal is consistently achieved.

Table 7-4: Construction Site Runoff Control Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 1-3.a	**National Pollutant Discharge Elimination System – Storm Water Construction General Permit, Compliance and Enforcement**	For projects requiring CGP coverage, personnel shall assess and document that contractors develop the required SWPPP, NOI, and NOT.	Document 100% of installation projects subject to CGP.	Implemented 15 September 2003. This goal is consistently achieved.
MCM 1-3.b		Conduct monthly inspections of all active CGP sites to ensure compliance with site-specific SWPPP.	Conduct and document monthly construction site inspections.	Implemented 15 September 2003 through F2F Contract. This goal is consistently achieved.
MCM 1-3.c		Identify deficiencies noted during site inspections. Communicate deficiencies to Contracting Officer Representative (COR) for appropriate corrective action, and document inspection reports.	Document deficiencies identified in inspections. Retain a copy of communication to COR and corrective actions.	Implemented 15 September 2003. Deficiencies entered into Finding Tracker. Deficiencies are communicated to construction contractor and COR via email and followed up to closure.
MCM 1-4.a	**Construction Project Contractor Education**	Place CGP awareness boards at all active and permitted construction sites.	Document 100% of boards in monthly inspection records.	Implemented 29 June 2010 and ongoing. Compliance is documented on the monthly site inspection report for each construction site.
MCM 1-4.b		Require CGP compliance training prior to start of project activities.	Document 90% of contractor personnel completing training.	Implemented 1 December 2010 and ongoing.

Table 7-5: Post-Construction Runoff Control Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 2-1.a	**Post-Construction Storm Water Management Planning**	Review AF 813 forms and project designs to ensure Section 438 of EISA and sustainable practices are integrated into construction designs.	Review and record 100% of AF 813 forms and design reviews.	Implemented February 2010 and ongoing. This goal is consistently achieved. Review of AF 813s is documented and tracked by the CE NEPA office. Project Design meetings are attended by CE Environmental staff including the KAFB Water Quality Program Manager.
MCM 2-1.b		Annually review UFCs, AFIs, Installation Development Plan and regulations for changes in requirements concerning sustainable design. Incorporate watershed protection elements during scheduled document review/revision.	Document policy revisions and BMPs changes in annual report, if necessary.	Implemented 1 February 2010 and ongoing. This goal is consistently attained via review performed by KAFB Water Quality Program Manager.
MCM 2-1.c		Ensure timely establishment of the 70% pre-existing vegetative cover for final stabilization.	Annually inspect final stabilization and NOTs.	Implemented 01 June 2007 and ongoing via follow-up inspections performed by KAFB Water Quality Program Manager.
MCM 2-2.a	**Existing Site Post-Construction Storm Water Controls**	Estimate the acreage of impervious area.	Document impervious area on 90% of projects.	Implemented 01 July 2015 and ongoing.
MCM 2-2.b		Inventory and prioritize KAFB assets that can be retrofitted with control measures to minimize the frequency, volume, and peak intensity of stormwater discharges.	Develop inventory and prioritization of assets for modernization.	This program is not yet fully realized. Implement controls 5-10 years from permit effective date.

Table 7-5: Post-Construction Runoff Control Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 2-2.c		Coordinate with BMC to ensure structural BMPs are inspected, maintained, and repaired. Coordinate with KFH Grounds Maintenance for operation and maintenance of the KFH area structural stormwater BMPs.	Annually coordinate with BMC and KFH and document BMP inspection, maintenance, and repair.	Implemented 17 March 2009 and ongoing.
MCM 2-2.d		Require contractors to submit as-built plans to CE within 90 days of project acceptance.	Annually review contract close-out and deliverables.	Implemented 01 January 2009 and ongoing. KAFB Water Quality Program Manager coordinates with CE and BMC Project Managers
MCM 2-3.a	**Post-Construction Management Review**	Revise post-construction management process to incorporate improvements in control techniques. Consider water quality monitoring results in review.	Annually review 75% of projects and incorporate lessons learned.	Implemented 3 January 2011 and ongoing. KAFB Water Quality Program Manager to coordinate with CE and BMC Project Managers.

Table 7-6: Pollution Prevention/Good Housekeeping Goals

BMP Name	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 3-1.a	**Vehicle Maintenance/ Washing Controls**	Provide educational information regarding vehicle maintenance and washing to installation tenants and residents.	Annually review educational materials on the KFH webpage.	Implemented 17 March 2008 and ongoing. This goal is consistently met.
MCM 3-1.b		Provide guidance document addressing car washes to installation tenants and residents.	Annually review guidance document for car washes.	Implemented 28 March 2014 and ongoing. This goal is consistently met.
MCM 3-2.a	**Response Procedures and Plans**	Maintain HazMat inventory and response procedures to address release of HazMat.	Annually review Hazardous Waste Management Plan.	Implemented 1 June 2007 and ongoing. This goal is consistently met.
MCM 3-2.b		Conduct weekly inspections of IAPs per Hazardous Waste Management Plan.	Document weekly IAP inspections and record in binder.	Implemented 1 June 2007 and ongoing. This goal is consistently met.
MCM 3-2.c		Maintain SPCC Plan to address oil spill response procedures.	Annually review SPCC Plan and re-certified every 5 years.	Implemented 1 June 2007 and ongoing. SPCC updated February 16, 2018.
MCM 3-2.d		Conduct annual inspections for impacts from industrial activities and operations.	Document annual inspections IAW the MSGP, SPCC Plan, and other program requirements.	Implemented 1 June 2007 and ongoing. This goal is consistently met.
MCM 3-3.a	**Base Contracted Services**	Ensure contractor follows and implements requirements found in BMC.	Conduct comprehensive annual evaluation of BMC and enforce or modify as needed.	Implemented 1 June 2012 and ongoing. This goal is consistently met.
MCM 3-3.b		Maintain dog feces collection stations situated throughout the installation.	Check stations weekly, empty stations and insert new bags.	Implemented 14 Sept. 2006 and ongoing. This goal is consistently met.

Table 7-6: Pollution Prevention/Good Housekeeping Goals

BMP Name	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 3-3.c		Monitor waste diversion and recycling through the Solid Waste Program.	Annually document percentage of waste diversion and quantity recycled.	Implemented 1 June 2007 and ongoing. This goal is consistently met through required semi-annual environmental data calls and is documented in KAFB's EESOH-MIS database.
MCM 3-4.a	**Stormwater Infrastructure**	Inventory, inspect and upgrade stormwater facilities by drainage basin.	Annually inventory and inspect selected stormwater facilities.	Implemented 1 January 2010 and ongoing. The Fence-to-Fence Environmental Services Contractor reviewed stormwater facilities throughout the reporting year. Repairs to sampling equipment were made as necessary (*refer to the "Sediment" section of page 2-3 for examples*).

Table 7-6: Pollution Prevention/Good Housekeeping Goals

BMP Name	General BMP	BMP Description	Measurable Goal	2018-2019 Update

Table 7-7: Illicit Discharges and Improper Disposal Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 4-1.a	**Maintain Maps and Inventories**	Maintain sanitary and storm sewer maps (i.e. lines, points, attributes, etc.).	Annually update sanitary and storm sewer system maps.	Implemented 1 June 2007. Maps are maintained by CE GIS personnel.
MCM 4-1.b		Maintain OWS and septic tank inventories. Routinely inspect systems. OWS inspections are conducted every 3 years by an assigned contractor. Last completed in 2017.	Annually update and maintain sanitary sewer asset inventory.	Implemented 1 June 2007 and ongoing. This requirement is met through the BMC.
MCM 4-2.a	**Illicit Discharge and Improper Disposal Detection**	Review telephone complaints, inspection reports, staff knowledge, and other available records to develop source reduction strategies, if needed.	Annually review complaint records to prioritize inspection efforts and reduce complaints 3%.	Implemented 5 December 2007 and ongoing.
MCM 4-2.b		Screen high priority areas and the entire jurisdiction for illicit discharges.	Annually Screen high priority areas and screen the entire jurisdiction within 5 years.	Implemented 1 June 2007 and ongoing. Areas are screened during quarterly inspections and when issues are reported.
MCM 4-2.c		Investigate suspected or reported illicit discharges and develop corrective action.	Investigate suspected or reported discharges within **48 hours** and develop corrective action plan within one week.	Implemented 1 June 2007 and ongoing.
MCM 4-3.a	**Illicit Discharge Education and Outreach**	Maintain and replace storm drains and storm grate inlet illegal dumping labels.	Maintain and replace storm drain/grate labels every 5 years.	Implemented 19 December 2007 and ongoing.
MCM 4-3.b		Maintain phone and web-based information services for reporting of pollution prevention issues.	Ensure systems are maintained and respond to inquiries within **48 hours**.	Implemented 5 December 2007 and ongoing through the BMC.

Table 7-6: Pollution Prevention/Good Housekeeping Goals

BMP Name	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 4-4.a	**Waste Discharge Design in Construction Projects**	Ensure construction or renovation projects connect to the proper collection system to avoid cross-connections.	Review 95% of project designs and identify appropriate collection system.	Implemented 1 June 2007 and ongoing. This goal is consistently implemented.

Table 7-6: Pollution Prevention/Good Housekeeping Goals

BMP Name	General BMP	BMP Description	Measurable Goal	2018-2019 Update

Table 7-8: Control of Floatable Discharges Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 5-1.a	**Identify Floatables**	Characterize Floatables and Trash removed from sample locations.	Annually estimate volume and characterize floatables.	Implemented 20 March 2015 and ongoing. During the reporting period the majority of floatables and trash was found within Sampler I which is gated-off, maintained, and owned by the City of Albuquerque.
MCM 5-2.a	**Partner with Kirtland CE Grounds Keeping Department**	Ensure proper floatable and trash reduction training.	Annually validate maintenance staff training records.	Implemented 20 March 2015 and ongoing through KAFB's Pollution Prevention Efforts.
MCM 5-2.b		Provide documents on grounds keeping practices that minimize floatables and trash accumulation.	Annually review maintenance staff training material.	Implemented 20 March 2015 and ongoing. Training is required for new employees.
MCM 5-3.a	**Partner with KFH Grounds Keeping Department**	KFH grounds keeping department to ensure floatable and trash reduction training.	Annually validate maintenance staff training records.	Implemented 20 March 2015 and ongoing. Training is required for new employees.
MCM 5-3.b		Provide documents on grounds keeping practices that minimize floatable and trash accumulation.	Annually review maintenance staff training material.	Implemented 20 March 2015 and ongoing through the BMC.

Table 7-9: Public Education and Outreach Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 6-1.a	**Partner with Kirtland CE Grounds Keeping Department (BMC)**	Ensure proper pesticide and herbicide application and storage training.	Annually validate maintenance staff training records.	Implemented 1 June 2007 and ongoing through the BMC.
MCM 6-1.b		Ensure proper OWS and septic system maintenance training.	Annually validate maintenance staff training records.	Implemented 1 June 2007 and ongoing through the BMC.
MCM 6-1.c		Provide documents on grounds keeping practices that minimize pollutant discharges.	Annually review maintenance staff training material.	Implemented 17 March 2009 and ongoing through the BMC.
MCM 6-2.a	**Partner with KFH Grounds Keeping Department**	KFH to ensure proper pesticide and herbicide application and storage training.	Annually validate maintenance staff training records.	Implemented 1 June 2007 and ongoing through the BMC.
MCM 6-2.b		CE operations team is responsible for septic system maintenance training.	Annually validate maintenance staff training records.	Implemented 1 June 2007 and ongoing through the BMC.
MCM 6-2.c		Provide documents on grounds keeping practices that minimize pollutant discharges.	Annually review maintenance staff training material.	Implemented 17 March 2009 and ongoing through the BMC.
MCM 6-3.a	**Employee Training and Education**	Monitor training through EMS. Consider employee turnover in training schedule.	Annually audit EMS training records during inspection.	Implemented 3 January 2011 and ongoing. Change in training platforms in progress.
MCM 6-3.b		Provide educational materials, upon request, to contractors related to storm water management for construction projects.	Annually review educational materials.	Implemented 3 January 2011 and ongoing.

Table 7-9: Public Education and Outreach Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 6-3.c		Publish announcements that increase awareness of stormwater protection.	Annually publish two stormwater announcements by email per year.	Implemented 5 March 2010 and ongoing. Email from KAFB Housing and Newcomer's Info Fair. Briefed stormwater compliance BMPs during the EMS Cross Functional Team meeting in July 2019.
MCM 6-3.d		Track shop compliance through review of self-assessments and identify training gaps.	Annually validate completed checklist in MICT database.	Implemented 5 January 2015 and ongoing.
MCM 6-4.a	**Develop and Distribute Educational Materials to Base Residents**	KFH to provide pamphlets and/or materials in new resident induction packages.	Annually review stormwater education pamphlets.	Implemented 17 March 2007 and ongoing. This goal is consistently met.
MCM 6-4.b		Display stormwater-related materials on KFH web.	Annually review stormwater materials on KFH webpage.	Material to be created by KAFB Stormwater Program Manager and once approved will be posted on the KFH webpage.

Table 7-10: Public Involvement and Participation Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 7-1.a	**Solicit Public Input on Storm Water Related Issues and Activities**	Post reports for public comment and solicit comments at public meetings, if necessary, concerning storm water topics.	Annually post reports for public comment. Incorporate comments in documents, as appropriate.	Implemented 31 March 2010 and ongoing. This goal is consistently met.
MCM 7-1.b		Seek public input to assess public behavioral change.	Receive 25% response on feedback questionnaires.	A questionnaire was developed, but rigorous Air Force protocols for survey collection are still pending, so results were not obtained by the end of this reporting period.
MCM 7-2.a	**Involvement Opportunities**	Participate in MS4 Technical Advisory Group and outreach opportunities.	Attend regional storm water group meetings every other month.	Implemented 01 July 2013 and ongoing. This goal is consistently met via attendance by KAFB Water Quality Program Manager.
MCM 7-2.b		Partner with organizations to provide routine collection days for special items for recycling and not disposal.	Provide semi-annual collection days for bulk items, prescription drugs, and hazardous waste items.	Implemented 13 March 2008 and ongoing.
MCM 7-2.c		Conduct Cross Functional Training (CFT) and ESOHC meetings.	Attend quarterly EMS CFT meetings and semi-annual ESOHC meetings. Discuss stormwater compliance at least annually. Meetings required by the KAFB EMS Framework.	Implemented 3 January 2010 and ongoing. This goal is consistently met by participating KAFB Water Quality Program Manager.

Table 7-10: Public Involvement and Participation Goals

BMP Number	General BMP	BMP Description	Measurable Goal	2018-2019 Update
MCM 7-3.a	**SWMP Accessibility**	Provide public accessibility of SWMP document and annual reports online and at the MS4 operator's main office in the KAFB CE building.	Maintain SWMP and annual reports online and at the main office.	Implemented 22 March 2015 and ongoing. This goal is consistently met and the SWMP is posted each year by the 15 October deadline.