



FINAL
Back River
Bacteria Total Maximum Daily Load Action Plan

JBLE-Langley Virginia

Permit Year 2: 1 July 2024 - 30 June 2025



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LIST OF ABBREVIATIONS AND ACRONYMS

BASH	Bird/Wildlife Aircraft Strike Hazard
BMP	Best Management Practice
cfu/yr	Colony Forming Units per Year
DOD	Department of Defense
EPA	Environmental Protection Agency
EWN	Engineering With Nature
GHP	Good Housekeeping Program
IDDE	Illicit Discharge Detection and Elimination
INRMP	Installation Natural Resources Management Plan
JBLE–Langley	Joint Base Langley Eustis–Langley
LF	Linear Feet
LFH	Langley Family Housing
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NMP	Nutrient Management Plan
NRCS	Natural Resources Conservation Service
P2	Pollution Prevention
SABER	Simplified Acquisition of Base Engineer Requirements
SMF	Stormwater Management Facility
SSO	Sanitary Sewer Overflow
SWIFT	Sustainable Water Initiative for Tomorrow
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VESCP	Virginia Erosion and Sediment Control Program
VPDES	Virginia Pollution Discharge Elimination System
WLA	Wasteload Allocation

1.0 INTRODUCTION

The Virginia Department of Environmental Quality (VDEQ) *2006 303(d) Total Maximum Daily Load Priority List and Report* listed the Back River as not supporting its designated uses for shellfish harvesting and recreation due to fecal coliform bacteria standards violations (VDEQ, 2017). Based on the 303(d) listings in the Back River, VDEQ prepared a total maximum daily load (TMDL) for 11 impaired shellfish harvesting sites and one impaired recreational site in the Back River watershed (VDEQ, 2017). A TMDL is the maximum amount of a pollutant that a waterbody can assimilate and still support its designated use(s). VDEQ updated the 2006 TMDLs in 2014 and again in 2017 to account for additional bacteria impaired areas, define wasteload allocations (WLA) for Municipal Separate Storm Sewer System (MS4) permittees, and update water quality standards based on improved measuring methods (VDEQ, 2014; VDEQ, 2017). The [2017 TMDL](#) was approved by the U.S. Environmental Protection Agency (EPA) on 09 February 2018.

JBLE–Langley is authorized to discharge stormwater from the base in accordance with two permits issued by VDEQ under the Virginia Pollutant Discharge Elimination System (VPDES) Program: the Industrial Stormwater Permit (VPDES Permit No. VAR052285) and the MS4 Permit (VPDES Permit No. VAR040140) which expires on 31 October 2028. Part II of the MS4 Permit requires JBLE–Langley to annually update the MS4 Program Plan with a TMDL Action Plan that identifies methods used to address bacteria impairment in the Back River.

The purpose of this Bacteria TMDL Action Plan is to reduce fecal bacteria sources and loadings at JBLE–Langley by planning and implementing objectives outlined in Part II B.5 of the MS4 Permit. This Action Plan includes:

1. An assessment of significant pollutant sources,
2. Management practices and plans used to address the pollutant, and
3. A schedule of completed and anticipated actions during this MS4 permit cycle (1 November 2023 through 31 October 2028).

2.0 TMDL WATERBODIES AND POLLUTANT SOURCE ASSESSMENT

The Back River is located along the western shore of the Chesapeake Bay about five (5) miles south of the Poquoson River mouth. The 2017 TMDL for Back River assigns an individual WLA to JBLE–Langley (VPDES Permit No. VAR040140) and is presented in Table 2-1.

Table 2-1. JBLE–Langley Fecal Bacteria WLA and Assigned Percent Reduction for Back River Watershed

TMDL Year	TMDL Status	MS4 Entity Named in TMDL	Existing Load (cfu/yr)	Wasteload Allocation (cfu/yr)	Percent Reduction Assigned to Permitted Sources (%)
2017	Final	Langley Air Force Base	3.22E+13	3.02E+13	6.21

Acronyms:

cfu/yr – colony forming units per year

Source: VDEQ 2017, Table 4.4

The 2017 TMDL report identifies both natural and anthropogenic sources of bacteria in the Back River (VDEQ, 2017, Table 3.7) that were used to inform TMDL reduction requirements based on land use (VDEQ, 2017, Table 4.7).

Table 2-2. Fecal Bacteria Source Allocations (%) in the Back River Watershed

Source Category	Source	Percent (%)
Wildlife	Deer	4.3
	Ducks/Birds	43.2
	Muskrats	0.6
	Nutria	1.3
	Racoons	0.3
Human	Human-SSO	6.1
	Human-Septic	0.0
	Marina (slips)	0.4
Livestock	Livestock	9.0
Pets	Dog	34.6
Total		100.0 ¹

Acronyms:

SSO – sanitary sewer overflow

Source: VDEQ 2017, Table 3.7

¹ Minor calculation discrepancies are accounted for in rounding.

JBLE–Langley has identified likely significant sources of fecal bacteria sources where the expected pollutant loading is greater than the average pollutant loading for the land use identified in Table 4.7 in the TMDL report (VDEQ, 2017).

The site evaluation in 2025 included visual field assessments of these sources, which include base-wide wildlife, horse stables and pastures, the dog training center and associated dog kennels, and resident housing area.

3.0 STRATEGIES FOR BACTERIA REDUCTION

The MS4 permit outlines strategies for bacterial reduction in Table 5 of Part II B.5 to address the identified significant pollutant sources. As JBLE–Langley is considered a nontraditional permittee, at least one strategy listed in Table 5 must be selected to reduce the load of bacteria to the MS4. Table 5 is shown below as Table 3-1.

Table 3-1. Strategies for Bacteria Reduction Stormwater Control/Management Strategy

Source	Strategies
Domestic Pets (dogs and cats)	<ul style="list-style-type: none"> - Provide signage to pick up dog waste, providing pet waste bags and disposal containers. - Adopt and enforce pet waste ordinances or policies, or leash laws or policies. - Place dog parks away from environmentally sensitive areas. - Maintain dog parks by removing disposed of pet waste bags and cleaning up other sources of bacteria. - Protect riparian buffers and provide unmanicured vegetative buffers along streams to dissuade stream access.
Urban Wildlife	<ul style="list-style-type: none"> - Educate the public on how to reduce food sources accessible to urban wildlife (e.g., manage restaurant dumpsters and grease traps, residential garbage, feed pets indoors). - Install storm drain inlet or outlet controls. - Clean out storm drains to remove waste from wildlife. - Implement and enforce urban trash management practices. - Implement rooftop disconnection programs or site designs that minimize connections to reduce bacteria from rooftops. - Implement a program for removing animal carcasses from roadways and properly disposing of the same (either through proper storage or through transport to a licensed facility).
Illicit Connections or Illicit Discharges to the MS4	<ul style="list-style-type: none"> - Implement an enhanced dry weather screening and illicit discharge, detection, and elimination program beyond the requirements of Part I E 3 to identify and remove illicit connections and identify leaking sanitary sewer lines infiltrating to the MS4 and implement repairs. - Implement a program to identify potentially failing septic systems. - Educate the public on how to determine whether their septic system is failing. - Implement septic tank inspection and maintenance program. - Implement an educational program beyond any requirements in Part I E 1 through E 6 to explain to citizens why they should not dump materials into the MS4.
Dry Weather Urban Flows (irrigations, car washing, power washing, etc.)	<ul style="list-style-type: none"> - Implement public education programs to reduce dry weather flows from storm sewers related to lawn and park irrigation practices, car washing, power washing and other non-stormwater flows. - Provide irrigation controller rebates. - Implement and enforce ordinances or policies related to outdoor water waste. - Inspect commercial trash areas, grease traps, washdown practices, and enforce corresponding ordinances or policies.

Source	Strategies
Birds (Canadian geese, gulls, pigeons, etc.)	<ul style="list-style-type: none"> - Identify areas with high bird populations and evaluate deterrents, population controls, habitat modifications and other measures that may reduce bird-associated bacteria loading. - Prohibit feeding of birds.
Other Sources	<ul style="list-style-type: none"> - Enhance maintenance of stormwater management facilities owned or operated by the permittee. - Enhance requirements for third parties to maintain stormwater management facilities. - Develop Best Management Practices (BMPs) for locating, transporting, and maintaining portable toilets used on permittee-owned sites. Educate third parties that use portable toilets on BMPs for use. - Provide public education on appropriate recreational vehicle dumping practices.

Source: Permit Part II B 5, Table 5

While only one strategy is required for implementation, JBLE–Langley has taken a conservative approach and implemented multiple strategies to stay ahead of potential future requirements and demonstrate the base’s commitment to environmental conservation and stewardship. A summary of these practices and plans are described in the subsections below.

3.1 Domestic Animals

The base has installed domestic pet waste disposal stations throughout the residential housing areas. Waste disposal stations are maintained by Langley Family Housing (LFH) staff who work for Balfour Beatty Communities, the private real estate company that manages LFH. As described in the base’s MS4 Program Plan (JBLE–Langley, 2024c), residents with pets are briefed on the impact of pet waste on stormwater and water quality. To help educate dog owners on the importance of proper waste disposal, the Household Stormwater Pollution Brochure is distributed at newcomer orientations and various outreach events, and is included for reference in Appendix A.

JBLE–Langley maintains a military dog training center with associated dog kennels and approximately 15 acres of horse stable and pasture. Dog training areas are covered with artificial turf and are surrounded by vegetated buffers that provides filtration of pollutants prior to entering surface waters. The horse stables at JBLE–Langley are maintained by the Langley Saddle Club, a private co-operative boarding facility not affiliated with the Department of Defense (DOD), which serves a solely recreational purpose. The Langley Saddle Club has a maximum theoretical capacity of 18 horses; however, due to stall limitations, currently only allows for a maximum actual capacity of 15 horses. Horse stable bedding and manure are consistently contained under cover with stalls scooped and retained in a covered dumpster for removal. Any manure produced while in the field is left to decompose naturally. Club members are informed of the importance of minimizing exposure to stormwater. Potential sources of bacteria in stormwater runoff from both the dog training center and the horse stables are addressed through stormwater treatment practices and training as described here and in the MS4 Program Plan (JBLE–Langley, 2024c).

3.2 Wildlife

The base employs strategies to control the wildlife population through the Natural Resources Program as described in the Installation Natural Resources Management Plan (INRMP) to address bird/wildlife aircraft strike hazard (BASH) safety concerns, reduce the disease burden on local wildlife, and lower predation pressure on nesting Diamondback Terrapins. JBLE–Langley works with the United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) to remove deer, coyotes, large birds, cats, and other animals through a predation removal program.

Additionally, the base takes steps to prevent wildlife from being drawn to the flightline including maintaining low-cut grass around the airfield, use of grass seed for re-stabilization efforts that do not attract geese, removing wetlands in the airfield clear zone, restricting stormwater management facilities (SMF) that retain water for over 48 hours, and installing fencing around the airfield.

Urban trash management practices are also implemented at JBLE–Langley, with dumpsters required to be covered at all times to prevent attracting excess or nuisance wildlife. Enforcement is accomplished through the base’s Illicit Discharge program, discussed in greater detail below.

3.3 Illicit Connections or Illicit Discharges to the MS4

The JBLE–Langley Illicit Discharge Detection and Elimination (IDDE) Program is designed to help detect, identify, and address non-stormwater discharges to the stormwater network. Non-stormwater discharges include the discharge of untreated sewage which contains fecal bacteria from a spill or sanitary sewer overflow (SSO). To help detect and identify illicit discharges, the base regularly screens the stormwater outfalls (industrial and non-industrial) to determine if any non-stormwater related discharges are occurring. Dry weather screening is conducted at non-industrial outfalls annually as outlined in the IDDE Procedures Manual (JBLE–Langley, 2024b). Any SSOs that occur will be immediately addressed as outlined in the IDDE Policy and Procedure Manual (JBLE–Langley, 2024b).

Fifty (50) of the 87 non-industrial outfalls were inspected during Year 2 of the current MS4 permit (01 July 2024 – 30 June 2025). (Note: The MS4 permit requires that a minimum of 50 outfalls be screened annually if there are more than 50 total outfalls.) The outfall inspections include the collection of the following data: outfall type, outfall pipe diameter and material type, flow description, physical indicators of illicit discharges, and an overall preliminary rating based on these indicators. Details on the IDDE Program and procedures used to identify illicit discharges are provided in the JBLE–Langley IDDE Procedures Manual (JBLE–Langley, 2024b). Additional details regarding the base’s IDDE initiatives are presented in the JBLE–Langley MS4 Program Plan (JBLE–Langley, 2024c). No new cross connections were identified during the previous permit year.

Improperly discharged sewage from recreational boats is also a potential source of bacteria. The base maintains a recreational boat marina used by members of the JBLE–Langley community. To avoid illicit or accidental discharge of raw sewage at the marina, the base provides required training to all boat-slip renters on the proper use of the sewage pump-out station. When properly utilized by boat owners, this

device will help to minimize sewage leaks and associated bacteria inputs to the Southwest Branch Back River and Back River.

A current project, known as the 2017 Inflow and Infiltration Order, to assess how groundwater and stormwater may be entering the sanitary sewer system as well as how sanitary pipes may be leaking into the surrounding groundwater is near completion. This twelve step milestone project includes repairs or replacement of gravity sanitary sewers lines and manholes identified by priority. In calendar year 2023, 29 line segments totaling 4,123 linear feet of older sanitary sewer were replaced at JBLE–Langley. In calendar year 2024, 36 line segments totaling 4,762 linear feet of older sanitary sewer were replaced at JBLE–Langley. This project is currently at milestone ten, which consists of a flow, pressure, and rainfall evaluation plan. The evaluation involves collecting data for a calendar year to verify required reductions were met. There is a final 100 linear feet under Building 25 scheduled for replacement in calendar year 2025. The replacement of older sanitary systems which may be failing can significantly reduce the potential of bacterial contamination to surrounding groundwater and the Back River.

3.4 Post-Construction Stormwater Management

The JBLE–Langley Post-Construction Stormwater Management Program helps reduce pollutants in runoff from new development and redevelopment projects across the base through SMFs). Many stormwater SMFs, such as bioretention basins and dry extended detention ponds, can reduce the level of pollution for multiple pollutants, including nutrients (e.g., nitrogen, phosphorus), sediment, and fecal bacteria by filtering pollutants from stormwater runoff before they reach surface waters.

During PY2 (01 July 2024 – 30 June 2025), JBLE–Langley performed a comprehensive inventory and inspection of existing SMFs to assess and prioritize maintenance and retrofit opportunities. Field crews evaluated SMF retrofit opportunities using maps of existing SMFs, retrofit checklists and a list of removal efficiencies for each SMF type from the Chesapeake Bay TMDL Action Plan Guidance Document (VDEQ, 2021). General retrofit opportunities include removing trash and debris, removing undesired vegetation, maintaining desirable vegetation, and removing sediment from dry detention basins and vegetated swales that is causing improper drainage issues (JBLE–Langley, 2024d).

3.5 Construction Site Stormwater Runoff Controls

JBLE–Langley addresses Stormwater Management and Erosion and Sediment Control for design, construction, maintenance, and management of the base’s facilities through Section 01 12 00 Environmental Management Special Conditions and Simplified Acquisition of Base Engineer Requirements (SABER) General Provisions. All construction contractors must comply with Section 01 12 00 Special Conditions and SABER General Provisions. The JBLE–Langley Construction Site Stormwater Runoff Program is designed to verify that a Virginia Erosion and Sediment Control Plan (VESCP) can meet the applicable erosion prevention criteria (Refer to 9VAC25-840-40, Minimum Standards). Reducing sediment in runoff from construction sites can help reduce bacteria levels, since bacteria are often bound to sediment. Additional details on construction site stormwater runoff controls for JBLE–Langley are presented in the MS4 Program Plan (JBLE–Langley, 2024c).

Additionally, a BMP Fact Sheet has been developed to address the use of portable toilets on construction sites. The fact sheet covers placement procedures, guidelines, considerations, and maintenance as well as spill response procedures to ensure a prompt response time to any incidents. This Fact Sheet has been included within Appendix A for reference.

3.6 Pollution Prevention and Good Housekeeping

The JBLE–Langley MS4 Program Plan outlines the requirements for Minimum Control Measure (MCM) 6, Pollution Prevention/Good Housekeeping for Municipal Operations, in Section 3.6.1. Requirements include:

- Develop and implement written procedures to prevent pollutant discharge from daily operations;
- Develop high priority MS4 facility stormwater pollution prevention plans (SWPPPs);
- Develop and implement Turf and Landscape Nutrient Management Plans (NMP);
- Prohibit deicing agents containing urea or other forms of nitrogen or phosphorus; and
- Provide employee pollution prevention training.

As part of the base’s Pollution Prevention (P2) and Good Housekeeping Program (GHP), JBLE–Langley develops and implements SWPPPs for high priority MS4 facilities and provides P2 training for staff. This training is hosted online for personnel to take on an as-needed basis. The base has also developed the P2 / GHPs in July 2017 (and revised in May 2024) to minimize the use of pollutants that may enter the stormwater drainage system. High priority SWPPP training was provided for JBLE–Langley personnel in June and July of 2023. Training on topics such as illicit discharges, good housekeeping and pollution prevention practices, pesticide application, sediment and erosion control regulations and spill response is also provided to JBLE–Langley personnel and contractors, as applicable. Training on proper handling and disposal of waste streams that may contain fecal bacteria can help reduce the levels of bacteria delivered to receiving streams. Strategies for public education and outreach are summarized in the JBLE–Langley MS4 Program Plan (JBLE–Langley, 2024c).

3.7 Additional Control Measures

JBLE–Langley has implemented several additional control measures to address potential fecal bacteria pollution from the base. Over the past seven years, JBLE–Langley has completed 9,295 linear feet (LF) of shoreline stabilization along the eastern and southeastern shorelines of the Back River and Southwest Branch Back River. JBLE–Langley constructed an additional 1,566 LF of stabilization in 2020 along portions of the Southwest Branch Back River near the marina. Additional shoreline restoration is planned for the near future. These areas of stabilization increase resilience to major storm events and flooding, provide habitat for native animals and plants, and reduce erosion and suspension of sediment and associated bacteria in the Back River and Chesapeake Bay.

4.0 PUBLIC EDUCATION AND PARTICIPATION

JBLE–Langley regularly distributes educational materials and coordinates events to help educate and involve the public in preventing bacteria pollution within the watershed. A summary of public education and public participation efforts conducted by the base is provided below.

4.1 Public Education

JBLE–Langley utilizes websites, email messages, newspaper articles, handouts and educational materials related to high-priority water quality conditions identified in the MS4 Program Plan including fecal bacteria and distributes them at locations where members of the target audience are anticipated to be (e.g., Clean the Bay Week, Earth Day/Week, International Coastal Cleanup and annual Base Clean-Up Day, car wash events and in LFH). Handouts include pamphlets or other one-page informational sheets that present information and provide a means to contact the Stormwater Program Manager with any questions or comments.

Educational materials include brochures on household pollution that are distributed during events such as Clean the Bay Week, Earth Day/Week and International Coastal Cleanup and to residents of LFH upon moving in and at periodic resident meetings. Education and outreach information is also conveyed through the base’s [website](#), [Facebook](#) page, and the [LFH Facebook](#) page. Strategies for public education and outreach are summarized in the JBLE–Langley MS4 Program Plan (JBLE–Langley, 2024c). Appendix A of this plan incorporates some of the traditional training materials utilized for public education at JBLE–Langley, including the Household Stormwater Pollution Brochure, a Portable Toilets BMP Fact Sheet, and the Stormwater Pollution Prevention and Illicit Discharge Training slides.

4.2 Public Involvement/Participation

JBLE–Langley engages the public through its website and social media presence across [Facebook](#) and [X](#) (formerly Twitter). The base has hosted several local events to raise awareness and facilitate public involvement on the topics of reducing pollutants in stormwater, improving water quality, and supporting local restoration and clean-up projects (JBLE–Langley, 2024a).

Each year, the base holds a series of events, such as International Coastal Cleanup, Clean the Bay Week, Earth Day/Week and annual Base Clean-Up Day, to help mobilize volunteers to participate in clean-up efforts across the base. For International Coastal Cleanup Day, JBLE–Langley leads volunteers to clean up the base’s shoreline. For Clean the Bay Week, JBLE–Langley coordinated a volunteer effort to pick up litter along the base’s shoreline. For Earth Day/Week, JBLE–Langley typically distributes stormwater related educational material and conducted educational events including a nature trail preservation effort, family housing cleanup, Sustainable Water Initiative for Tomorrow (SWIFT) tour, spring bird count, base litter pick-up, and Arbor Day ceremony.

In previous years, typical activities included the cleanout of stormwater ditches and drains by volunteers, an Earth Day Community Awareness Fun Fair with interactive stormwater displays, a stormwater workshop at Booker Elementary school, and a rain-barrel construction and maintenance workshop.

Activities, such as storm drain marking and community involvement, can help reduce the levels of pollutants such as fecal bacteria before they enter the storm drains and flow to the receiving stream. Strategies for public involvement and participation are summarized in the JBLE–Langley MS4 Program Plan (JBLE–Langley, 2024c).

In June 2017, JBLE–Langley partnered with the Chesapeake Bay Foundation and Booker Elementary school to implement an oyster reef restoration project in the Back River near the base marina. Oyster reefs form a complex ecosystem for filter feeders that filter bacteria and other pollutants from the water column. Through this project, 75 bushels of oyster shells and 2,000 young oyster spat were used to begin building the reef habitat. This project also helped to educate children on the role oysters play in filtering pollutants, improving water quality and providing habitat within the Back River and Chesapeake Bay. In August 2018, and again in June 2019, the base expanded the reef habitat through oyster reef building workshops, involving both elementary school students and base residents. These classes were led by instructors from the Chesapeake Bay Program.

In 2022, JBLE–Langley initiated a partnership with the United States Army Corps of Engineers Engineering With Nature (EWN) Program to develop a plan for implementing natural infrastructure around the base. EWN is a program that implements an ecosystem-based approach for planning, designing, constructing, and operating projects where social, economic, and environmental factors are equitably weighed in the decision-making process (EWN, 2024). A large stakeholder meeting was held in November 2023 to showcase a couple large scale designs currently proposed.

Three projects of import were identified from this meeting:

1. Grandview Nature Preserve and Factory Point/Plum Tree Island Nature Walk Trail – Wetland and habitat enhancement along with thin layer placement on marshes at both Grandview Island and Factory Point as well as Plum Tree Island Nature Walk Trail. Creation of ephemeral islands and sand motors, enhancement of submerged aquatic vegetation beds and oyster reefs.
2. End of Flightline/Willoughby Point – Offshore living breakwaters from gabion-style breakwater system, consisting of oyster castles or reef material to enhance shellfish recruitment. Biological beds of SAV as well as living sill fronting a perched beach. Landward re-grading of slope to support wetland migration and removal of impervious surfaces.
3. Nature Walk Trail – Thin layer placement of sediment on the existing marsh to enhance marsh and resilience to sea level rise, with proposed living shoreline reef structure to protect Tabbs Point. Elevation of Worley Road and surrounding area to reduce mowing with native plant species and mitigate recurring flooding. Possibility for horizontal levee feature to improve resilience of munitions area.

Conceptual design for these options was scheduled for completion in February 2024. Specifics on each project status and applicability to this TMDL Action Plan will be incorporated with yearly updates, as available.

5.0 BMP IMPLEMENTATION SCHEDULE AND ASSESSMENT

5.1 Implementation Schedule

JBLE–Langley will implement the fecal bacteria load reducing components described in [STRATEGIES FOR BACTERIA REDUCTION](#) and [PUBLIC EDUCATION AND PARTICIPATION](#) of this Action Plan. The base is currently in permit reporting year 2 (01 July 2024 – 31 June 2025) of its third MS4 permit cycle. In subsequent years, the base plans to refine its initial assessments of potential sources and control measures, with the goal of improving resource allocation across the base. Table 5-1 outlines the implementation plan for bacteria controls at JBLE–Langley as it moves forward into the next MS4 permit cycle.

Table 5-1. Implementation Schedule for Addressing Bacteria Impairments

Permit Cycle	Actions
First Permit Cycle (03 August 2017 – 31 October 2018)	<ul style="list-style-type: none"> Reviewed the final Back River Bacteria TMDL report approved by the EPA to identify actions to address sources of bacteria.
	<ul style="list-style-type: none"> Developed the Bacteria TMDL Action Plan and implementation schedule (JBLE–Langley, 2018).
	<ul style="list-style-type: none"> Identified and maintained a list of existing source controls and management practices that are applicable to reducing fecal coliform bacteria.
	<ul style="list-style-type: none"> Identified opportunities for enhancing education and outreach programs to address bacteria impairment.
	<ul style="list-style-type: none"> Assessed significant sources of bacteria using desktop evaluations, field investigations and collaboration with key base staff.
	<ul style="list-style-type: none"> Determined if additional source controls are needed. Prepared a summary of potential controls and identified programs and activities to support their implementation.
	<ul style="list-style-type: none"> Evaluated new bacteria-related datasets for the watersheds collected by other agencies (e.g., VDEQ) as available.
Second Permit Cycle (01 November 2018 – 31 October 2023)	<ul style="list-style-type: none"> As funding permits, implement activities identified in the implementation schedule (from previous years) as appropriate.
	<ul style="list-style-type: none"> Evaluate new bacteria-related datasets for the watersheds collected by other agencies (e.g., VDEQ) as available.
	<ul style="list-style-type: none"> Identify any current or additional activities to be performed during the subsequent permit cycle.
	<ul style="list-style-type: none"> Update the Bacteria TMDL Action Plan to reflect activities performed during the year. Adjust the implementation schedule as needed to reflect findings from field and desktop assessments. Report on progress annually.
	<ul style="list-style-type: none"> Submit an estimated end date for achieving the bacteria WLAs.

Permit Cycle	Actions
	<ul style="list-style-type: none"> • Provide an update to the plan within 18 months of new permit effective date (due 01 May 2025) to VDEQ.
	<ul style="list-style-type: none"> • Maintain already implemented BMPs and activities as funding permits.
Third Permit Cycle (01 November 2023 – 31 October 2028)	<ul style="list-style-type: none"> • Evaluate new bacteria-related datasets for the watersheds collected by other agencies (e.g., VDEQ) as available.
	<ul style="list-style-type: none"> • Identify any current or additional activities to be performed during the subsequent permit cycle.
	<ul style="list-style-type: none"> • Update the Bacteria TMDL Action Plan to reflect activities performed during the year. Adjust the implementation schedule as needed to reflect findings from field and desktop assessments. Report on progress annually.

5.2 BMP Effectiveness Assessment

The base will implement the fecal bacteria load reducing components described in [STRATEGIES FOR BACTERIA REDUCTION](#) and [PUBLIC EDUCATION AND PARTICIPATION](#) of this Action Plan. As bacteria load reducing measures are implemented and evaluated, opportunities for improving or enhancing their effectiveness will be evaluated on an annual basis. An assessment of the bacteria control measures will be conducted through the MS4 Annual Report, which documents progress toward implementing the MCMs and the TMDL special conditions identified in the MS4 Permit.

5.3 Permit Part II.B.2.a.1 – Evaluation of Previous Action Plan

As required by Permit Part II.B.2.a.1, for TMDLs approved by the EPA prior to 01 July 2018, this Action Plan must include:

“An evaluation of the results achieved by the previous action plan.”

After evaluating the performance of this plan against the requirements of the MS4 Permit VAR04 under 9VAC25-890-40, this plan has been found to be effective at mitigating Bacterial contamination and contributions to the Back River and is recommended to continue management strategies outlined within.

5.4 Permit Part II.B.2.a.2 – Adaptive Management Strategies

As required by Permit Part II.B.2.a.2, for TMDLs approved by the EPA prior to 01 July 2018, this Action Plan must also include:

“Any adaptive management strategies incorporated into updated action plans based on action plan evaluations.”

This Action Plan does not include any new adaptive management strategies identified based on Action Plan evaluations.

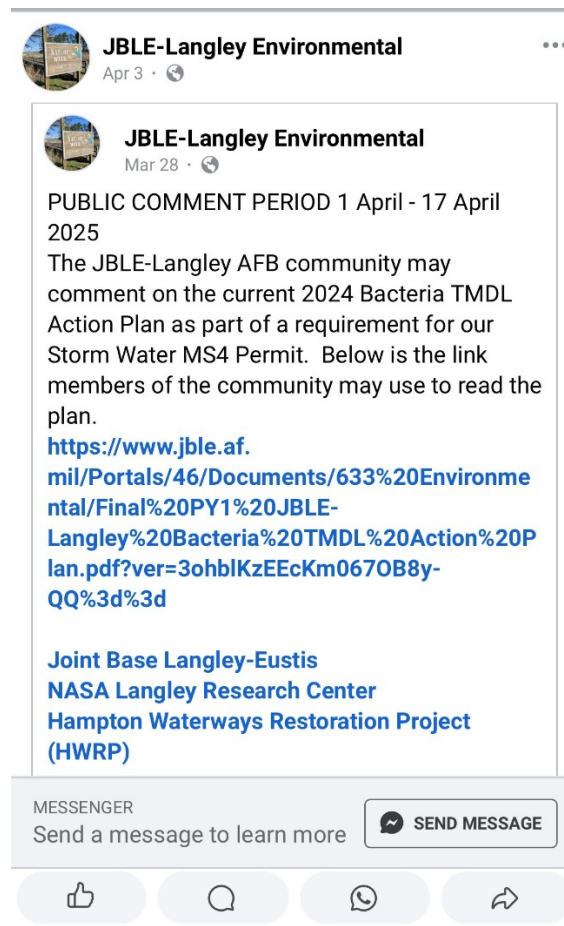
6.0 PUBLIC COMMENT

Part II B.9 of the General Permit requires that JBLE–Langley provides an opportunity for receipt and consideration of public comment regarding the proposed actions to meet the local TMDL for no less than 15 days. The EPA states in Federal Register Volume 64, No. 235, page 68,750 on 08 December 1999, regarding “public” and its applicability to MS4 programs, the following:

“EPA agrees with the suggested interpretation of ‘public’ for DoD facilities as ‘the resident and employee population within the fence line of the facility.’ The department recommends that nontraditional MS4 operators, such as state and federal entities and local school districts, utilize this statement as guidance when determining their applicable ‘public’ for compliance with this permit.”

Therefore, JBLE–Langley has adopted this definition and defines the “public” as anyone who lives or works within the jurisdictional boundary of the installation.

This Action Plan was updated as required as part of the Third Permit Cycle as defined in Table 5-1. The Draft Bacteria TMDL Action Plan allowed for a public comment period, by posting a Notice of Availability of the document on the [JBLE–Langley Environmental Facebook page](#). The public comment period was open from 01 to 22 April 2025 and no comments were received. A screenshot of the post is available below. Further details are available upon request.



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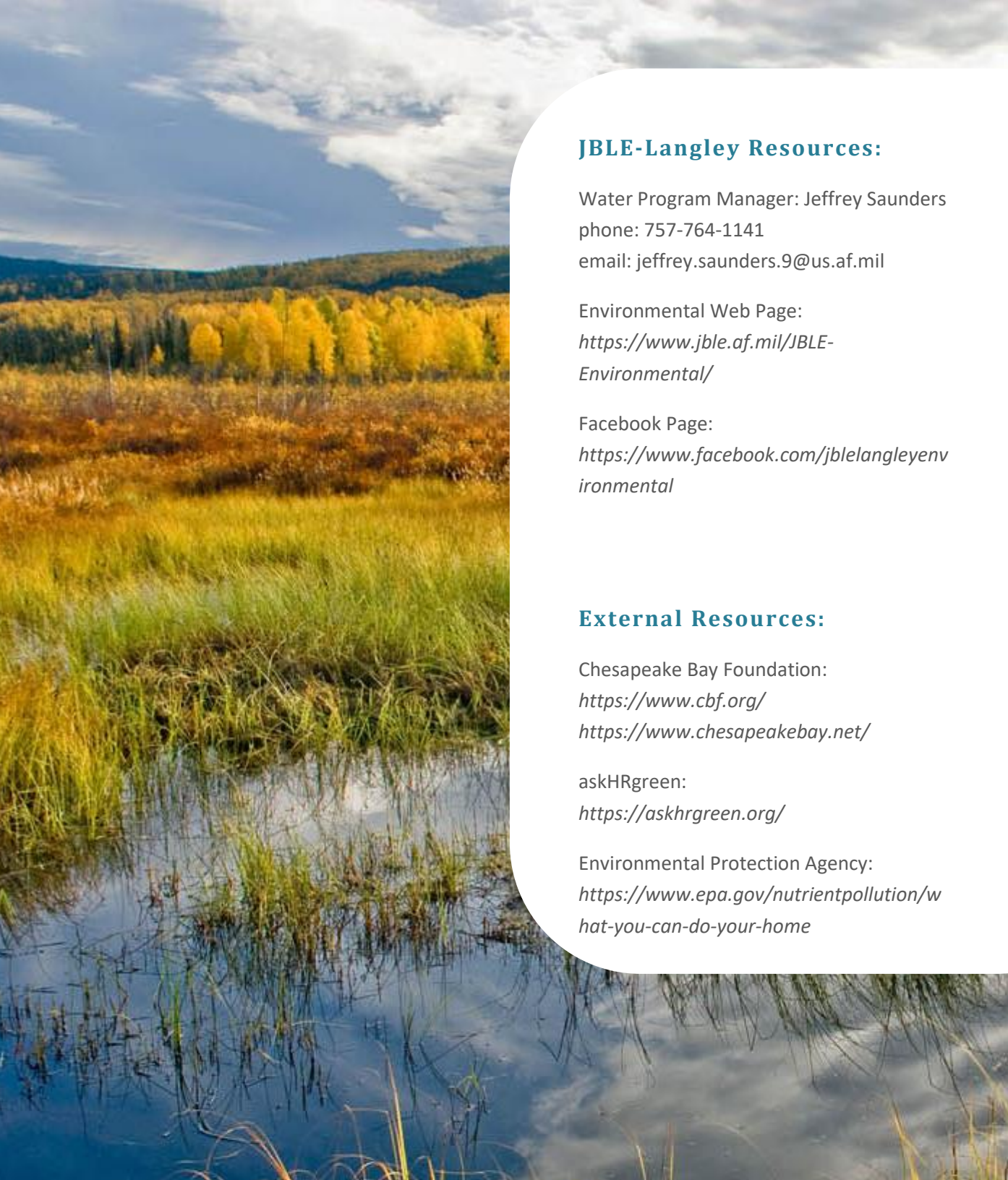
Appendix A
Education Materials

Appendix A-1 Household Stormwater Pollution Brochure

Appendix A-2 Portable Toilets BMP Fact Sheet

Appendix A-3 Stormwater Pollution Prevention & Illicit Discharge Training Slides

Appendix A-1
Household Stormwater Pollution Brochure



JBLE-Langley Resources:

Water Program Manager: Jeffrey Saunders
phone: 757-764-1141
email: jeffrey.saunders.9@us.af.mil

Environmental Web Page:
<https://www.jble.af.mil/JBLE-Environmental/>

Facebook Page:
<https://www.facebook.com/jblelangleyenvironmental>

External Resources:

Chesapeake Bay Foundation:
<https://www.cbf.org/>
<https://www.chesapeakebay.net/>

askHRgreen:
<https://askhrgreen.org/>

Environmental Protection Agency:
<https://www.epa.gov/nutrientpollution/what-you-can-do-your-home>

JBLE-Langley 633d CES CEIE



HOUSEHOLD STORMWATER POLLUTION

JBLE-Langley Environmental
November 2021

VEHICLES AND BOATS can leak gas, oil,



and coolant into the environment. Washing

cars at home send metals and detergents down storm drains. Gas-powered engines emit nitrogen pollution into the atmosphere that falls into the watershed.

- A well maintained vehicle runs more efficiently and releases fewer pollutants.
- Wash vehicles at commercial washes where wastewater is cleaned.
- Take your used oil, coolant, and tires to the Auto Skills Center on base for proper recycling or disposal.

PET POOP contains high levels of nitrogen and harmful bacteria.



Because there are



so many pets in the watershed, this fecal bacteria pollutes local waterways, and the nitrogen and bacteria wash into the bay!

Your Household and the Bay

JBLE-Langley and Hampton Roads are in the **Chesapeake Bay Watershed**. Because so many people live and work on land that drains to the bay, we must be conscious of ways to reduce our impact on runoff pollution!



JBLE-Langley (arrow) in the Chesapeake Bay Watershed

Outdoor drains for storm water (rain) lead directly to your local stream or river and drains to the Chesapeake Bay.



FOOD production from agriculture is the #1 source of pollution in the Chesapeake Bay as a result of animal feed lots and fertilizer runoff.

- Discover the different environmental impacts of your food, and decide if changing the type or amount of animals you eat is right for your house.

LAWNS and landscape choices can either help or hurt the bay.



Lawn fertilizer contains large amounts of nitrogen and phosphorus.

- Plant a variety of native plants and trees to absorb extra nutrients and water.
- Mow or compost your fall leaves to use as natural fertilizer.
- Artificial fertilizer should be used sparingly after soil testing.
- Look into alternatives to chemical pesticides for weeds and insects.

Appendix A-2
Portable Toilets BMP Fact Sheet

PORTABLE TOILETS

BMP FACTSHEET Rev. 03/2024



Targeted Pollutants

Sediment	X
Nutrients	
Trash	
Metals	
Bacteria	X
Oil & Grease	
Chemicals	
Salt	

Objectives

Cover	
Contain	
Educate	X
Reduce/Minimize	X
Product Substitution	

DESCRIPTION

Portable toilet facilities are regularly placed on construction sites. The prevention of storm water pollution from construction projects is regulated by the Municipal Separate Storm Sewer System (MS4) permit. Proper management and attention to toilet facilities will minimize the potential for storm water pollution from portable toilets and therefore ensure regulatory compliance.

GUIDELINES

Consider the following recommendations when locating portable toilets at a construction site:

- Place toilets on flat stable ground.
- Toilets should be located at least 25' away from the nearest storm drain. Secondary containment will be necessary in the event of a leak or spill.
- Avoid impervious surfaces, such as concrete, that will quickly direct spills to storm sewers. Grass, sand and gravel surfaces will absorb liquid for easy clean up of leaks or spills.
- Place toilets inside security fences to prevent vandalism.
- Locate toilets so exposure to traffic and moving equipment is minimized. Install safety bollards if necessary.
- Consider securing toilets to the ground with cables and stakes if they are located in open areas subject to high winds.
- Ensure easy access for pump truck and toilet service staff.

The following records will help ensure regulatory compliance:

- Record the location of portable toilets on the stormwater pollution prevention plan.
- Make note of portable toilet condition on weekly stormwater inspection records.
- Report leaks and spills to (757) 764-4222.

PORTABLE TOILETS BMP FACTSHEET



MAINTENANCE

- Follow vendor recommendations for a suitable number of portable toilets for the anticipated site workforce.
- Provide for a suitable cleaning and maintenance schedule.
- Check regularly for damage, leaks and spills. This would be part of the weekly stormwater site inspection.
- Clearly label toilets needing maintenance or repair. Promptly notify vendor to schedule maintenance or pump out.
- Maintain spill response material and equipment on site. Often, the earth moving equipment associated with the construction project is sufficient.

SPILL RESPONSE PROCEDURES

In the event of a spill or leak, follow the appropriate Spill Response Procedures posted at your facility or refer to the BMP Factsheet Overview.

- **Survey the incident** from a safe distance. Identify the source of release and the material being released.
- Call the Langley AFB Fire and Emergency Services if spills are greater than 5 gallons OR greater than 5 square feet. If **ANY** amount of leaked material has entered a storm drain or waterway call the JBLE-Langley AFB Fire and Emergency Services at 757-764-4222 and the 633 CES/CEIE Water Program Manager at 757-764-1141.
- Provide the Safety Data Sheet of the spilled material to the spill response personnel.
- Fill out Spill Incident Report in your SWPPP.
- **REPORT ALL SPILLS REGARDLESS OF SIZE TO 633 CES/CEIE.**

REPORT SPILLS TO 633 CES/CEIE BY:

- The Fire and Emergency Services Department 757 764-4222

Appendix A-3
Stormwater Pollution Prevention & Illicit Discharge Training Slides

Stormwater Pollution Prevention & Illicit Discharge Training

For MS4 and Industrial Facilities

Stormwater Program Manager
633 Civil Engineer Squadron
(757) 764-1141



Overview

- Introduction
- Regulatory Background
- Stormwater Pollution Prevention Plan (SWPPP)
- Illicit Discharges into Stormwater
- Best Management Practices (BMP)
- Inspections
- Summary
- Knowledge Check



JBLE-Langley | Oct 2022

Introduction	Regulatory Background	Stormwater Pollution Prevention Plan (SWPPP)	Illicit Discharge	BMPs	Inspections	Summary
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Introduction

What is stormwater?



Stormwater is...

- Precipitation (ex: rain, snow) that collects and flows overland to streams and other bodies of water.
- Stormwater collects pollutants like garbage, oil, and fertilizer as the water flows over the ground surface.
- Stormwater runoff drains to our surface waters.



Introduction	Regulatory Background	Stormwater Pollution Prevention Plan (SWPPP)	Illicit Discharge	BMPs	Inspections	Summary
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Introduction

What is stormwater?



Storm water runoff increases when hard, impervious or compacted surfaces (ex. parking lots) cover up natural surfaces (ex. forests and wetlands)



Introduction	Regulatory Background	Stormwater Pollution Prevention Plan (SWPPP)	Illicit Discharge	BMPs	Inspections	Summary
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Introduction

Why care about stormwater pollution?



Once pollutants enter the storm drain, they are carried to our streams and rivers without further treatment.

- Stormwater runoff picks up pollutants (e.g., trash, chemicals, oils and dirt/sediment)
- These pollutants harm our rivers, streams, lakes and coastal waters

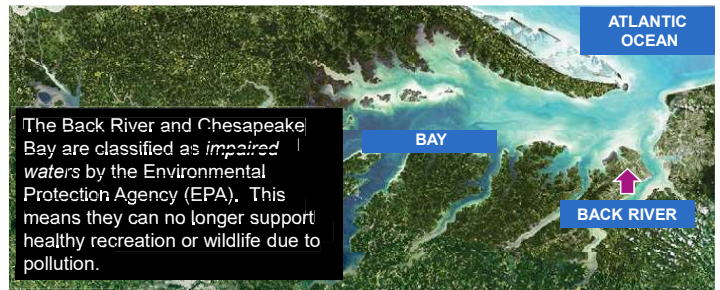


Introduction	Regulatory Background	Stormwater Pollution Prevention Plan (SWPPP)	Illicit Discharge	BMPs	Inspections	Summary
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Introduction

JBLE-Langley's Stormwater drains to...

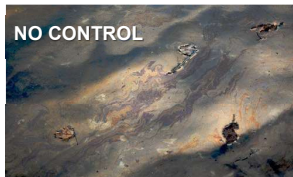
1. Back River
2. Chesapeake Bay
3. Atlantic Ocean



Introduction

Why care about stormwater pollution?

What happens waters when there are no measures to capture pollutants?



Surface waters have many important uses:

- Source of drinking water
- Swimming
- Fishing
- Bird, fish, and other wildlife habitats



Introduction

Controlling Stormwater Pollution

- Water resources are protected by using methods that stop or reduce pollution or illicit (prohibited) discharges (releases)
- These stormwater controls methods are called **Best Management Practices (BMPs)**



Introduction

Controlling Stormwater Pollution



- BMPs can be structural or non-structural:
- **Structural stormwater control measures (SCM)** are BMPs that treat, slow and reduce stormwater runoff
- Non-Structural BMPs are practices and behaviors like awareness training and street sweeping, good housekeeping.



Regulatory Background

MS4 and Industrial Stormwater Permits



- JBLE—Langley is issued a General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 Permit) and an Industrial General Permit from Virginia DEQ
- Our permits satisfy the federal EPA's **Clean Water Act** and are implemented by the state DEQ
- Our MS4 Permit (No. VAR040140) and Industrial Permit (VAR052285) are maintained by the 633 CES/CEIE Stormwater Program Manager

Each Permit requires a Stormwater Pollution Prevention Plan (SWPPP) that must be followed.



Stormwater Pollution Prevention Plan

SWPPP

- The purpose of the SWPPP is to:
 - Satisfy regulatory requirements for stormwater permits
 - Help manage activities at facilities with the potential to pollute (*Hence the name Stormwater Pollution Prevention Plan*)
 - Act as a reference tool for facilities and DEQ by cataloging:
 - Descriptions of current high pollution risk activities
 - The impacts of base activities on stormwater
 - Existing and planned stormwater management practices (BMPs)



Stormwater Pollution Prevention Plan

SWPPP Objectives



1. Identify potential sources of stormwater pollution
2. Describe BMPs that are used to reduce or eliminate pollutants in stormwater discharges
3. Identify procedures to be implemented to comply with the terms and conditions of the permit



Illicit Discharges

What is an Illicit Discharge?



Any discharge to a storm sewer that is not composed **entirely of stormwater** is an illicit discharge!

• Illicit discharges are typically the result of:

- Aging infrastructure
- Poor Industrial, commercial and/or residential practices
- A specific spill event
- A malicious (intentional) disposal



Illicit Discharges



Illicit discharges can be a major contributor to stormwater pollution...

...but they are avoidable, mostly through the implementation of BMPs.



Illicit Discharges

Illicit Connections



Illicit connections to the stormwater drainage system will also generate illicit discharges.

• Examples of illicit connections:

- Any cross-connection between the sanitary sewer and the stormwater drainage system
 - Ex: **Sanitary sewer** piping connected directly from a building to the **stormwater drainage** system
- A shop floor drain that is connected to the stormwater drainage system



Example of a floor drain illicitly connected to a storm drain

Examples of Illicit Discharge



Runoff from improperly stored materials		Foam solutions from firefighting testing
Improper disposal of fluids or chemicals into a storm drain		Leaking dumpsters flowing into a storm drain
Allowing soapy wash water discharge to a storm drain		Sanitary sewer lines leaking fluids into a storm drain
Spills resulting from vehicle accidents		Washing sediment, into a storm drain

Examples of Illicit Discharge



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Examples of Illicit Discharge



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Illicit Discharges

Authorized Non-Stormwater Discharges



- Authorized non-stormwater discharges are those that, while not stormwater discharges, are covered under the terms and conditions of the stormwater permit.
- These are often discharges that if not covered under a stormwater permit would require coverage under some other NPDES permit.



Illicit Discharges

Authorized Non-Stormwater Discharges



Examples of typical authorized non-stormwater discharges:

- Water line flushing
- Landscape and lawn irrigation
- Air conditioning condensate
- Street wash water
- Groundwater from footing drains and crawl spaces
- Flows from firefighting activities
- Discharges from potable sources
- Flows from stream habitats and wetlands
- Dechlorinated swimming pool discharges



Bottom Line

We only want rain to go down the drain!



Best Management Practices (BMPs)



They are called “best practices” but are mandatory, not optional.

A list of the structural and non-structural BMPs are included in the Stormwater Pollution Prevention Plans (SWPPPs) for each facility.

Do you know your facilities BMPs?



Good Housekeeping – Equipment Stored Under Cover



Good Housekeeping – Chemicals Stored Inside

Best Management Practices (BMPs)

What do they do?



- BMPs **minimize exposure** of potential pollutants to stormwater runoff.
- BMPs include **procedures and programs** implemented at the base level as well as site-specific practices utilized at each facility.



Good Housekeeping – Equipment Stored Under Cover



Good Housekeeping – Chemicals Stored Inside

Best Management Practices (BMPs)

Non-Structural BMPs: Basewide



- Non-structural BMPs implemented base-wide at each site include:
 - Spill prevention and response
 - Spill response training
 - Stormwater pollution prevention training
 - Record keeping and internal reporting procedures
 - Materials inventory and tracking
 - Base security



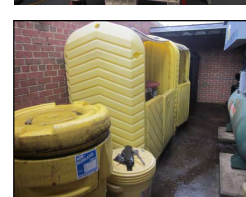
Drain Labeling

Best Management Practices (BMPs)

Non-Structural BMPs: SPRP



- **Spill Prevention and Response Plan** (aka Spill Plan) is used in the event of a spill.
- Every facility should have a copy of the **RED** spill plan.
 - Do you know your spill plan?



Best Management Practices (BMPs)

Record Keeping



- Records are maintained for at least three (3) years from the permit expiration.
- Records maintained include:
 - Reportable and non-reportable spills
 - Inspections of significant materials storage areas
 - Stormwater outfall visual inspections

Example of a Facility Inspection Form

Example of a Facility Inspection Form

Best Management Practices (BMPs)

Hazardous Materials Inventory and tracking



- The HAZMART orders and issues HAZMAT to the requestor.
- Electronically track hazardous materials (HAZMAT) using EESOH-MIS.
- EESOH-MIS is able to track which shops or organizations have been issued materials and how much of each material they have been issued.
- Allows for 633 CES/CEIE to assess if hazardous materials can be replaced with more environmentally friendly products.



Best Management Practices (BMPs)

Security



- JBLE–Langley is a secure facility.
- The perimeter is fenced and guards are posted at entrances and exits.
- Access to materials located in selected areas of concern is further restricted to authorize personnel through the use of:
 - Signage
 - Lockable doors
 - Locked gates



Best Management Practices (BMPs)

Site Specific



- Site-specific BMPs are those practices that can be employed at an individual shop, building/industrial process or as part of a specific work activity.
- Site-specific BMPs address:
 - Good housekeeping
 - Spill prevention and response
 - Shop-specific record keeping
- Site Specific BMPs are listed in your site's SWPPP

Best Management Practices (BMPs)

Site Specific: Good Housekeeping



- Good Housekeeping
- USAF policies and procedures dictate good housekeeping practices and are enforced at all levels of management.
- Good housekeeping includes:
 - Minimizing the use of chemicals susceptible to exposure and runoff
 - Keeping exposure areas clean
 - Minimizing runoff contamination
 - Procedures for specific operations and activities in specific exposure areas.

Best Management Practices (BMPs)

Site Specific: Minimizing Hazardous Chemicals



Minimize the Use of Hazardous Chemicals with **pollution prevention opportunity assessments**

- Alternatives may include process modifications that:
 - Substitute toxic chemicals; or
 - Eliminate or reduce the amount of materials used that could affect stormwater flows
- JBLE–Langley currently implements the following minimization procedures:
 - Regulated materials inventories
 - Labeling
 - Detergent selection
 - Pesticide selection and application



Best Management Practices (BMPs)

Site Specific: Clean Exposure Areas



Cleanup procedures are in place throughout JBLE–Langley

Procedures include:

- Cleanup for shops, work areas and storage areas
- Materials storage practices
- Materials handling practices (e.g., loading/unloading)

Procedures to Minimize Runoff Contamination

- Containment diking
- Pavement cleaning
- Wash water runoff collection
- Material storage practices



"Rules of the Shop"



Sand Pile in Containment Berm

Best Management Practices (BMPs)

Site Specific: Other Exposures



- Specific Procedures for Exposure Areas and Activities
- Several BMPs are designed to prevent, reduce or contain stormwater pollution from specific processes, activities or exposure areas.

Existing BMPs at JBLE–Langley

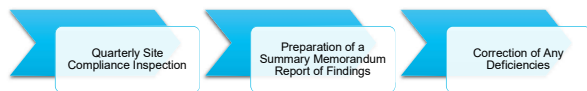
Drip pan use	Transport of small quantities of pollutants
Drum corrosion protection	Clean loading/unloading procedures
Drum sheltering	Refueling overflow prevention
Old Drum replacement	Refueling, no tank topping-off
Clear Labeling	Vehicle/equipment no degreasing outside
Safe Transport of drums	Vehicle/equipment no oil changing outside
Security, facility restriction	Others (e.g., vehicle/equipment washing, under cover)

Inspections

Routine Quarterly Inspections



Inspections consists of three main tasks:



• The quarterly site compliance inspection includes:

- Waterways (Streams and Rivers)
- Pipe outfalls (Where the storm sewer connects to waterways)
- Drainage system (How the storm sewer travels across base)
- Facilities (Buildings that may contribute pollutants to the storm sewers)

Inspections

Routine Quarterly Inspections



The SWPPP is maintained through quarterly routine site inspections of MS4 and Industrial facilities.

- Inspections help ensure that BMPs are properly implemented and that the correct material handling procedures are being maintained.



Talk to the Water Program Manager during inspections!

We are here to help facilities do the right thing, not punish for accidents.



Inspections

Inspection Goals



• The goals for conducting the inspections are to:

- Check potential pollution sources described in the SWPPP
- Determine the effectiveness of the SWPPP
- Check compliance with the Permits and Laws

Inspections help the base comply with the permits and keep the SWPPP updated to reflect current conditions and operations of the base.

Ultimately, they help us maintain clean waters within our environment for the health of ourselves and those around us.

Summary



- **Stormwater flows directly to surface waters** and impacts recreation, drinking water, and overall health of our environment.
- An **illicit discharge** is any discharge to a municipal separate storm sewer that is **not composed entirely of stormwater** and are typically identified through:
 - Community reporting
 - Observations during facility inspections
- **BMPs are the main defense** against stormwater pollution and illicit discharges. They may be structural or non-structural
 - The success of stormwater pollution mitigation hinges on the implementation of BMPs at all facilities that have the potential to pollute
- **Quarterly inspections** are performed to **help keep facilities in compliance** with the SWPPP and reflect current conditions and operations of the base.

Point of Contact



- If there are additional questions contact the 633d CES/CEIE Stormwater Program Manager at:
 - Phone: (757) 764-1141
 - Email: jeffrey.saunders.9@us.af.mil