



JBLE-Eustis Illicit Discharge Detection and Elimination Procedures

Purpose and Objective

Stormwater runoff from developed land can harm surface water resources by changing natural hydrologic patterns and elevating pollutant concentrations and loadings. Stormwater runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients, heavy metals, and pathogens. To address this problem, the U.S. Environmental Protection Agency (EPA) established stormwater regulations as part of the National Pollutant Discharge Elimination System (NPDES) permits program under the Clean Water Act (CWA), which are implemented through NPDES permits.

Joint Base Langley-Eustis – Fort Eustis (JBLE–Eustis), Virginia, holds a General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), General Permit No. VAR040035, issued by the Commonwealth of Virginia Department of Environmental Quality (DEQ) on 1 November 2023. In accordance with provisions outlined in this permit, JBLE–Eustis has developed and implements a comprehensive stormwater management program designed to prevent or reduce the discharge of sediment and other pollutants into the installation’s stormwater conveyance system.

In addition to the (MS4) Permit number VAR040035, the facility also holds a Virginia Pollutant Discharge Elimination System (VPDES) Industrial Stormwater Permit, number VA0025216, issued September 2022, and expires in 2027. Activities conducted at JBLE–Eustis can be categorized as either Industrial or Non- Industrial. Industrial activities include those activities that are conducted in support of water, land, and air transportation operations, or those activities that are designated by industrial SIC codes (e.g., recycling, hazardous waste storage). Non-industrial activities are regulated by the MS4 permit, and include those activities that support base operations but are not associated with industrial operations (e.g., the Auto Hobby Shop, golf course maintenance, construction activities, etc.)

These procedures have been prepared to support compliance with Section II.B.3.c of the MS4 permit, which requires JBLE–Eustis to “develop, implement, and update, when appropriate, written procedures to detect, identify and address unauthorized non-stormwater discharges, including illegal dumping, to the small MS4”. To ensure compliance with the Illicit Discharge Detection and Elimination (IDDE) requirements of the MS4 Permit, JBLE–Eustis follows the procedures outlined in this document.

The JBLE–Eustis MS4 program is managed by the 733d Civil Engineer Squadron/Environmental Element (733d CES/CEIE). For any questions regarding the MS4 program or illicit discharges please contact:



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Site Description

JBLE–Eustis is located adjacent to the City of Newport News, Virginia which is part of the Norfolk, Hampton, and Newport News metropolitan area. The installation is located on Mulberry Island, a small peninsula bordered by the James River to the west, Warwick River to the east, and Skiffes Creek toward the north. Smaller waterbodies on or bordering the installation include Jail Creek, Morrison’s Creek, Island Creek, Bailey Creek, and Eustis Lake. The installation occupies approximately 8,000 acres and houses a variety of military organizations and support activities. Most of the development is located at the northern end of the installation, while the southern portion of the peninsula remains largely undeveloped and functions as training land. A golf course and an airfield are located near the center of the installation.

The installation is the home of the Headquarters United States Army Training and Doctrine Command (TRADOC), the Army Training Support Center (ATSC), and the 7th Transportation Brigade (Expeditionary). TRADOC is responsible for developing, educating, and training soldiers and civilians; supporting unit training; and designing, building, and integrating capabilities, formations, and equipment. The ATSC is responsible for managing the Army Training Support Enterprise (TSE), which provides oversight for programs that enable development, delivery, and sustainment of training and education support capabilities. The 7th Transportation Brigade (Expeditionary) provides logistics support around the world for port, terminal, and watercraft units conducting expeditionary operations in support of land operations.

Other units on the installation include the Army Aviation Logistics School, Non-commissioned Officer’s (NCO) Academy, Aviation Applied Technology Directorate, and the James River Reserve Fleet (JRRF). The JRRF, a tenant managed by the Maritime Administration (MARAD), leases land on installation and maintains a number of vessels moored in the James River. The total population of the installation is approximately 12,900, comprised of approximately 6,200 military personnel and 2,800 dependents living on installation, as well as approximately 3,900 civilian non-residents who commute to the installation daily.

Stormwater Drainage System

A critical component of the JBLE–Eustis IDDE program is the stormwater drainage system map. Maintaining an accurate map of the stormwater system allows the base to trace and locate the source of suspected illicit discharges. The JBLE–Eustis storm sewer system maps are maintained by 733rd Civil Engineer Squadron/GeoBase (733d CES/GIO) in Geographical Information System (GIS) format. Updated stormwater drainage system data from contract projects on base are routed



to 733d CES/GIO for inclusion in the installation's geodatabase. Hardcopy maps are available upon request and electronic versions of the stormwater drainage system map can be viewed by authorized personnel on the JBLE–Eustis server. As of June 2022, JBLE–Eustis has identified 40 non-industrial (also known as MS4 stormwater outfalls or discharge locations), and 42 industrial outfalls.

All Ms4 outfalls on the installation drain to an impaired waterbody. Both Skiffes Creek and the Warwick River first appeared on the VDEQ 1998 303(d) *Total Maximum Daily Load Priority List and Report*, for not supporting the Virginia Department of Health (VDH) fecal coliform standards for shellfish harvesting. These two waterbodies were combined in the *Fecal Bacteria Total Maximum Daily Load Development for Warwick River*, which was finalized by VDEQ December 13, 2007. These two tributaries drain to the James River, which is also a part of the larger Chesapeake Bay watershed. The James River has been provided pollutant reduction goals in the *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment*, finalized by the EPA on 29 December 2010.

Illicit Discharge Definition

JBLE–Eustis is dedicated to detecting and eliminating illicit discharges to the stormwater drainage system and maintains a policy which prohibits illicit discharges. Title 9 of the Virginia Administrative Code (VAC) defines an illicit discharge as, "...any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a separate VPDES or state permit (other than the state permit for discharges from the municipal separate storm sewer), discharges resulting from firefighting activities, and discharges identified by and in compliance with 9VAC25-870-400 D 2 c (3)". Essentially, an illicit discharge is any non-stormwater discharge to the storm sewer that is not specifically authorized under a separate permit or the VAC.

Illicit discharges to the JBLE–Eustis MS4 are typically the result of aging infrastructure; industrial, commercial and/or residential practices; or a specific spill event. Examples of illicit discharges include (but are not limited to) the following:

- Runoff from improperly stored materials
- Improper disposal of vehicle maintenance fluids or household chemicals into a storm drain inlet
- Leaking dumpsters flowing into a storm drain inlet
- Old or damaged sanitary sewer line leaking fluids into a damaged storm sewer line
- Allowing wash water with soaps or detergents to discharge to a storm drain inlet
- Washing silt, sediment, concrete, cement or gravel into a storm drain inlet
- Spills resulting from vehicle accidents
- Foam solutions from firefighting testing and training exercises

Examples of authorized non-stormwater discharges that are not significant contributors of pollutants and are not considered illicit discharges at JBLE–Eustis include the following:

- Water line flushing
- Uncontaminated groundwater infiltration
- 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 riparian habitats and wetlands
- Dechlorinated swimming pool discharges

Figure 1. Examples of Illicit Discharges



Source: *Illicit Discharge Detection and Elimination - A Guidance Manual for Program Development and Technical Assessments (CWP, 2004)*



Illicit connections to the stormwater drainage system can also generate illicit discharges. Illicit connections are any manmade conveyance that are connected to the MS4 without a permit, excluding roof drains and other similar connections. Examples of illicit connections include, but are not limited to, the following:

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

The frequency of illicit discharges typically occurs within the following three classifications as defined by the EPA (CWP, 2004):

- *Continuous discharges* occur most or all of the time, are usually easier to detect, and typically produce the greatest pollutant load.
- *Intermittent discharges* occur over a shorter period of time (e.g., a few hours per day or a few days per year). Because they are infrequent, intermittent discharges are hard to detect, but can still represent a serious water quality problem, depending on their flow type.
- *Transitory discharges* occur rarely, usually in response to a singular event such as an industrial spill, ruptured tank, sewer break, transport accident or illegal dumping episode.

These discharges are extremely hard to detect with routine monitoring, but under the right conditions, can exert severe water quality problems on downstream receiving waters.

Understanding the frequency classifications can help in detecting and eliminating illicit discharges by allowing inspectors to determine if dry weather flows may need additional examination to determine if they should be classified as illicit discharges.

JBLE–Eustis Illicit Discharge Prohibition Policy

JBLE–Eustis Environmental Management Procedures

The consolidated JBLE-Eustis Environmental Management Procedures (EMPs) serve as the local environmental policies for JBLE-Eustis. These EMPs apply to all JBLE-Eustis activities (including tenants, associated units, and contractors) that impact any environmental resource area on the installation, to include but not limited to Recycling, Air Quality, Water Quality, Hazardous Waste, Hazardous Materials, Natural Resources. The Office of Primary Responsibility for this document is 733d Civil Engineer Squadron Environmental Element (733 CES/CEIE), and will review all EMPs annually, and updated as appropriate. Major revisions may require concurrence from the JBLE-Eustis Environmental Management System (EMS) Cross-Functional Team (CFT) and approval by the Environmental Safety and Occupational Health Council (ESOHC).

The EMPs enforce compliance with Federal, State, Department of Defense, and Air Force regulations, directives, instructions, and manuals, and are specific to JBLE-Eustis. They assign



responsibility and provide instruction for appropriate management of environmental programs to ensure our regulatory compliance.

Environmental Management Procedure (EMP) 4.4.6.2: Wastewater/Stormwater Management

This EMP establishes the procedures to implement policy for the control and abatement of wastewater and stormwater pollution, and presents the scope, base personnel roles and responsibilities, and procedures, and references the IDDE Procedures. EMP 4.4.6.2 requires the installation to comply with applicable federal, state and local stormwater regulations through execution of required stormwater permits, and requires all operations and actions be planned and executed in a manner to protect surface water, which would include prohibiting illicit discharges to the stormwater system. The EMP acts as an enforcement tool for the Illicit Discharge Prohibition Policy Statement and these IDDE Procedures. A copy of the Memorandum from the Office of the Commander is provided in Appendix A.

JBLE–Eustis MS4 Program Plan:

JBLE–Eustis maintains an MS4 Program Plan per the requirements of Permit No. VAR040035. The Program Plan outlines the requirements of the permit, including the six Minimum Control Measures (MCMs) and two special conditions. The subsection on MCM 3 presents the base’s IDDE program, including reference to these IDDE procedures for details of the program, as well as plans to remain in compliance with the permit.

IDDE Reporting Procedures

Community Reporting

All JBLE–Eustis personnel and residents are required to report illicit discharge and/or illegal dumping activities. Information on reporting can be found via the JBLE–Eustis Environmental public website: <https://www.jble.af.mil/About-Us/JBLE-Environmental-Information>

The JBLE–Eustis Fire and Emergency Services personnel are the installation’s First Responders and their telephone number (757-878-1008 or 4281 or 911) is used as the primary hotline for reporting illicit discharges. The hotline is manned 24 hours per day, 7 days per week. JBLE–Eustis personnel can also call Environmental staff (757-878-4123) or Housing Management staff (757-369-8344) with concerns regarding potential illicit discharges. When a potential illicit discharge incident is reported, the incident information will be referred to 733d CES/CEIE, staff for documentation using the Illicit Discharge Tracking Record (see Appendix B) and follow-up. The responding staff will either follow the investigation procedures in this document to identify the source of the problem or, if the source is known, or apply the discharge elimination procedures.

Community Outreach



Effective promotion and publication of the base IDDE prohibition policy and methods for illicit discharge detection are an integral part of the IDDE Program for JBLE–Eustis. Outreach initiatives that JBLE–Eustis conducts include:

- Operation and publication of an illicit discharge hotline.
- Storm drain marking activities which include volunteers from the base residents and personnel.
- Educational signs are posted at various facilities (e.g., industrial facilities) regarding illegal dumping.
- Facebook posts related to educating the general public regarding illicit discharges and how to report them.

Dry-Weather Field Screening

Dry-weather field screening of stormwater outfalls is an effective method of detecting illicit discharges to the stormwater system. JBLE–Eustis has 40 MS4 outfalls that discharge to various receiving water bodies including Bailey Creek, Eustis Lake, Milstead Island Creek, Warwick River, Morrison’s Creek, James River and Skiffes Creek. The MS4 Permit requires a minimum of 50 outfalls to be screened each year during dry weather to detect potential illicit discharges to the stormwater system. Outfall screenings are the responsibility of 733d CES/CEIE staff. Inspections may be performed by other base personnel or by outside consultants hired by the base; however, all field reports will be reviewed and maintained by 733d CES/CEIE staff.

Outfall Prioritization and Schedule

As required by Section II.B.3c (1) (a) of the MS4 Permit, the stormwater outfalls have been prioritized for screening. Each of the 40 MS4 outfalls will be screened at least once per year. Table 1 presents a list of each known MS4 outfall, its receiving water body, and the year scheduled for screening. The inspection schedule will be updated as necessary to accommodate additional outfalls that may be created as part of future development or identified as part of system mapping updates.

Timing is important when conducting dry-weather outfall screenings to detect dry-weather flows during time periods when potential pollutants are not diluted by stormwater. The following guidelines should be considered when scheduling screenings:

- Conduct screenings at least 48 hours after a runoff producing rain event
- Tidally influenced outfalls should be screened during low tide
- Remote outfalls may be more accessible during times of low vegetation (late fall to early spring)
- Conduct screening during times of low groundwater levels (e.g., avoid time periods when the ground is saturated by extended rainfall or snowmelt)



Table 1. MS4 Outfall Information Table, JBLE–Eustis

Outfall Identifier	Latitude	Longitude	Acres Drained	Receiving Water	Watershed	VAHU6	HUC12
018	37.16614	-76.5918	22.336278	Bailey Creek	Skiffes Creek	JL35	20802060802
023	37.16664	-76.6011	22.336278	Eustis Lake	Skiffes Creek	JL35	20802060802
029	37.16259	-76.5895	37.752614	Eustis Lake	Skiffes Creek	JL35	20802060802
030	37.16198	-76.5893	5.437812	Eustis Lake	Skiffes Creek	JL35	20802060802
031	37.15746	-76.589	67.747098	Eustis Lake	Skiffes Creek	JL35	20802060802
032	37.16664	-76.591	2.533053	Eustis Lake	Skiffes Creek	JL35	20802060802
038	37.15279	-76.5946	5.627172	Milstead Island Creek	Warwick River	JL38	20802060901
039	37.15376	-76.596	3.718666	Milstead Island Creek	Warwick River	JL38	20802060901
041	37.15551	-76.5976	4.760926	Milstead Island Creek	Warwick River	JL38	20802060901
043	37.14499	-76.5779	11.272308	Warwick River	Warwick River	JL38	20802060901
044	37.14504	-76.5767	3.1141	Warwick River	Warwick River	JL38	20802060901
045	37.14289	-76.578	4.657032	Warwick River	Warwick River	JL38	20802060901
048	37.14695	-76.5908	5.380924	Milstead Island Creek	Warwick River	JL38	20802060901
050	37.14475	-76.5898	5.608151	Milstead Island Creek	Warwick River	JL38	20802060901
052	37.14501	-76.5746	6.981281	Warwick River	Warwick River	JL38	20802060901
053	37.14465	-76.5728	0.981515	Warwick River	Warwick River	JL38	20802060901
054	37.14359	-76.5717	1.635647	Warwick River	Warwick River	JL38	20802060901
055	37.14339	-76.5711	13.081789	Warwick River	Warwick River	JL38	20802060901
056	37.14305	-76.5691	1.761083	Warwick River	Warwick River	JL38	20802060901
057	37.14579	-76.5698	3.157889	Warwick River	Warwick River	JL38	20802060901
058	37.14637	-76.5692	12.050244	Warwick River	Warwick River	JL38	20802060901
060	37.14975	-76.5693	2.146714	Warwick River	Warwick River	JL38	20802060901
062	37.15444	-76.5706	16.497644	Warwick River	Warwick River	JL38	20802060901
063	37.15597	-76.5708	40.100733	Warwick River	Warwick River	JL38	20802060901
068	37.16006	-76.5685	71.028336	Warwick River	Warwick River	JL38	20802060901
077	37.16069	-76.5881	54.764851	Eustis Lake	Skiffes Creek	JL35	20802060802
078	37.17109	-76.5719	6.330382	Warwick River	Warwick River	JL38	20802060901
084	37.16375	-76.5816	57.42365	Bailey Creek	Skiffes Creek	JL35	20802060802
085	37.16594	-76.5775	34.476213	Bailey Creek	Skiffes Creek	JL35	20802060802
087	37.16492	-76.5863	7.971585	Bailey Creek	Skiffes Creek	JL35	20802060802
091	37.16099	-76.5687	6.94044	Warwick River	Warwick River	JL38	20802060901
094	37.16878	-76.6008	1.062687	Bailey Creek	Skiffes Creek	JL35	20802060802
095	37.16866	-76.6007	0.462632	Bailey Creek	Skiffes Creek	JL35	20802060802
097	37.16625	-76.5916	0.183567	Bailey Creek	Skiffes Creek	JL35	20802060802
120	37.15125	-76.5705	9.649284	Warwick River	Warwick River	JL38	20802060901
121	37.15068	-76.5705	0.600622	Warwick River	Warwick River	JL38	20802060901
124	37.15834	-76.57	2.276762	Warwick River	Warwick River	JL38	20802060901
127	37.15939	-76.5687	0.209869	Warwick River	Warwick River	JL38	20802060901
128	37.15927	-76.5684	0.540243	Warwick River	Warwick River	JL38	20802060901
145	37.14579	-76.5698	3.15	Warwick River	Warwick River	JL38	20802060901



During outfall screening, field crews will visually inspect each outfall and the immediate surrounding area, photograph the current conditions, and complete a Dry-Weather Outfall Screening Form provided in Appendix C. Special attention will be paid to outfalls that are flowing when no rain has occurred within the last 48 hours and/or outfalls where foul odors or discolored water is noted. When the screening of an outfall indicates a potential illicit discharge, the JBLE–Eustis Stormwater Program Manager will be notified within one business day so an investigation, can be performed. Any identified spills or conditions that represent a serious threat to personnel safety or equipment damage will be immediately reported to JBLE–Eustis Fire and Emergency Services.

The Dry-Weather Outfall Screening Form includes the following seven sections to be completed with each outfall screening:

Section 1: Background Data – This section requires general information regarding when and where the screening was performed, historical rainfall data, reference to photographs taken, and a description of drainage basin land uses. Tips for completing Section 1 include:

- The Outfall ID can be found in Table 4-1 and the stormwater drainage system maps in Appendix D of these procedures.
- Historical daily rainfall totals can be found online
- Take at least one photograph of the outfall for documentation purposes.
- Drainage basin categorization (i.e., industrial/non-industrial) can be identified via the outfall information table maintained by 733d CES/CEIE.

Section 2: Outfall Description – This section provides a description and dimensions of the outfall and a determination if flow is present during the inspection. Tips for completing Section 2 include:

- The cross-sectional shape of the outfall structure will determine the dimensions required. If the shape is abnormal, provide a sketch in the available area of the dimension column and label the measured dimensions.
- If the outfall is submerged with sediment, photograph the submergence and attempt to measure the depth of sediment.
- The identification of flow is important as flow during dry weather would indicate a nonstormwater discharge. If a pipe is partially submerged in water, and it is difficult to identify dry-weather flow, a nearby leaf or blade of grass can be dropped onto the water surface near the outfall. Travel of the object on the surface can help indicate if flow is discharging from the outfall.
- Dimensions that cannot be safely measured should be estimated.
- Upon completion of this section, if flow is present, continue to Section 3 of the form. However, if no flow is present, skip to Section 5 of the form.



Section 3: Estimated Discharge Rate – This section requires the inspector to estimate the quantity of discharge from the outfall at the time of inspection using one of two techniques. The first technique simply records the time it takes to fill a container of a known volume. In the second technique, the inspector measures the velocity of flow, and multiplies it by the estimated cross-sectional area of the flow. Tips for completing Section 3 include:

Flow Method #1: This technique is preferred for relatively low flows that can effectively be captured in a container. It may be helpful to use a “homemade” container, such as a cut out plastic milk container that is marked to show a one quart volume. The shape and flexibility of plastic containers allows the capture of relatively flat and shallow flow. The discharge rate in gallons per minute (gpm) is then estimated using the following equation with measured data from the form shown in bold.

$$\text{Discharge Rate (gpm)} = \frac{\# \text{ quarts}}{\# \text{ seconds}} \times \frac{1 \text{ gallon}}{4 \text{ quarts}} \times \frac{60 \text{ seconds}}{1 \text{ minute}}$$

Flow Method #2: The second technique is preferred for open channels and larger discharges where containers are too small to effectively capture the flow. The inspector measures and marks off a fixed flow length (usually about five feet); crumbles leaves or other light material; drops them into the discharge; and measures the time it takes the material to travel across the pre-measured length. The velocity of flow in feet per second (fps) is estimated using the following equation with measured data from the form shown in bold.

$$\text{Velocity (fps)} = \frac{\text{measured length (ft)}}{\text{time of travel (sec)}}$$

Next, the cross-sectional flow area is estimated by measuring the water depth and the width of the water surface and bottom of the channel. The cross-sectional flow area in cubic feet (ft³) and discharge rate in gpm are then estimated using the following equations with measured data from the form shown in bold.

$$\text{Area (ft}^2\text{)} = \left[\left(\frac{\text{surface width (in)} + \text{bottom width (in)}}{2} \right) \times \text{depth (in)} \right] \times \frac{1 \text{ ft}^2}{144 \text{ in}^2}$$

$$\text{Discharge Rate (gpm)} = \text{Area (ft}^2\text{)} \times \text{Velocity (fps)} \times \frac{7.48 \text{ gallons}}{1 \text{ ft}^3} \times \frac{60 \text{ seconds}}{1 \text{ minute}}$$

Section 4: Physical Indicators for Flowing Outfalls – This section provides documentation of four indicators for flowing outfalls – odor, color, clarity, and floatables. These indicators are important

in detecting the most severe or obvious discharges. The severity of each indicator is rated on a scale from zero to three. Tips for completing Section 4 include:

Odor: A severity score of 0 means that no odor is present; a score of 1 means the odor is faint or it is unclear if the odor is coming from the stream or other object in the area; a score of 2 indicates a moderate odor within the pipe; and a score of 3 is assigned if the odor is so strong that it is detected at a considerable distance from the outfall.

Color and Clarity: Color and clarity are best evaluated by collecting the discharge in a clear bottle and holding it up to the light. Color is rated by the tint or intensity of the color observed and clarity is rated based on how easily light can penetrate through the collected sample. The severity scale is further defined on the inspection form.



Figure 2. Examples of Levels of Clarity at Outfalls

Floatables: Sewage, oil sheens, and suds are all examples of floatable indicators. Floatables that appear to be *sewage* are assigned a severity score of 3. Surface *oil sheens* are ranked based on their thickness and coverage. Note that natural sheens created by in-stream biological processes often form a sheet-like film that cracks if disturbed and are not indicators of illicit discharges. *Suds* are rated based on their foaminess and staying power. A severity score of 3 is designated for thick foam that travels many feet before breaking up. Suds that break up quickly may simply reflect water turbulence, and do not necessarily have an illicit origin. Suds that are accompanied by a strong organic or sewage-like odor may indicate a sanitary sewer leak or connection, whereas suds with a fragrant odor may indicate the presence of wash waters. Note that trash and debris are generally not considered illicit discharge concerns and should not be documented as floatables. Trash should be noted on the form.



Figure 3. Floating Solids

**Photographs should be taken of all visible indicators.

Section 5: Observations for Flowing and Non-Flowing Outfalls – This section requires documentation of five indicators that may reveal past intermittent or transitory discharges. Indicators documented in this section include outfall damage, outfall deposits or stains, abnormal vegetation growth, poor pool quality, and benthic growth on pipe surfaces. Indicator descriptions are provided on the inspection form. Tips for completing Section 5 include:

- Surface damage at the outfall may be an indicator of high strength / corrosive discharges or associated gases
- Inhibited vegetation growth immediately downstream of the outfall may be an indicator of industrial discharges, whereas excessive vegetation may be an indicator of a nutrient rich discharge (e.g., sewage, fertilizers, etc.).
- Benthic growth on the pipe includes algae, bacteria, and slime on outfall surfaces may be an indicator of a nutrient rich discharge (e.g., sewage, fertilizers, etc.).

**Photographs should be taken of all visible indicators.

Section 6: Overall Preliminary Illicit Discharge Rating – This section requires an overall illicit discharge rating of unlikely, potential, suspect, or obvious for the outfall based on the discharge indicators identified in the preceding sections. This is only an initial assessment of the *likelihood* of an illicit discharge and will be used to determine if additional investigation is warranted. The outfall characterization rating is best judged by the inspector. Rating guidance is provided on the form to provide consistency; however, the intuition of the inspector should take precedence. Tips for completing Section 6 include:

- **Unlikely:** A rating of *Unlikely* is generally assigned to non-flowing outfalls with no physical indicators of an illicit discharge in Section 5.
- **Potential:** A rating of *Potential* is generally assigned to flowing or non-flowing outfalls with presence of one or more physical indicators in Sections 4 or 5.



- **Suspect:** A rating of *Suspect* is generally assigned to flowing outfalls with high severity, typically a 3 on the 0 to 3 scale, on one or more physical indicators in Section 4.
- **Obvious:** A rating of *Obvious* is generally assigned where there is an illicit discharge that can be confirmed without sampling or upstream investigation.

Section 7: Other Non-Illicit Discharge Concerns – This section is used to document other concerns observed at the outfall that are not associated with illicit discharges and may include: accumulated trash, erosion, sink holes, pipe failure, overgrowing vegetation, and required infrastructure repairs.

Documentation

Outfall screenings can generate a significant amount of data which requires proper management and record keeping. 733d CES/CEIE staff will complete the following tasks within five working days of completing a dry-weather outfall screening:

- Download digital inspection photographs to an appropriately titled folder on the JBLE–Eustis SharePoint site as necessary. The photographs will be grouped by inspection year and renamed based on the Outfall ID. If multiple photographs are taken at the same outfall, “-#” will be appended to the end of the Outfall ID (e.g., 001-1, 001-2, 001-3)
- Enter inspection data into the Dry-Weather Outfall Screening Record spreadsheet. The spreadsheet should be tabbed by inspection year with outfalls listed by Outfall ID from lowest to highest and saved to the JBLE–Eustis shared server. The Dry Weather Outfall Screening Form is provided in Appendix C.
- Complete Section 1 of the Illicit Discharge Tracking Record for each discharge identified as Potential, Suspected, or Obvious. Completion of the tracking sheet will document the discharge for future investigation and annual reporting as required by the MS4 permit. An Illicit Discharge Tracking Record is provided in Appendix B.
- A service order request will be submitted via email to the 733d Civil Engineer Squadron / Operations (CES/CEO) Service Order Desk to address any maintenance issues identified during the outfall screenings. 733d CES/CEO will determine whether the issue can be addressed with a service order or whether an AF Form 332, *Base Civil Engineer Work Request*, will be required. A blank AF Form 332 is provided in Appendix E.

Note that any identified spills or conditions that represent a serious threat to personnel or equipment safety should be immediately reported to JBLE–Eustis Fire and Emergency Services. Additional reporting to DEQ will be completed as necessary per Section III.G-I of the MS4 permit.

Illicit Discharge Investigation

Potential illicit discharges can be detected through community reporting or outfall inspections. Once a potential illicit discharge has been detected, it becomes necessary to conduct an



investigation to identify and eliminate the source of the discharge. The investigation may result in the source being easily identified or it may require a more in-depth inspection. Illicit discharge investigations are the responsibility of 733d CES/CEIE staff. Investigations may be performed by other base personnel staff or by outside consultants hired by the base; however, all investigation results will be reviewed and maintained by 733d CES/CEIE staff.

Time Frame for Investigation

After a potential, suspected, or obvious illicit discharge has been detected, follow-up investigations should be prioritized and initiated according to the following guidance:

- Priority Level 1 – Initiate investigations within three working days for discharges suspected of being sanitary sewage, significantly contaminated (e.g., degreasers, solvents, pesticides, petroleum), or unknown based on the initial observation
- Priority Level 2 – Initiate investigations within seven working days for discharges suspected of being less hazardous to human health and safety (e.g., non-contact cooling water, wash water, yard waste) Note that any discharges that represent a serious threat to human health or the environment should immediately be reported to JBLE–Eustis Fire and Emergency Services.

Investigation Methodology

When the source of a suspected illicit discharge cannot be readily identified, additional action is required. The source of some illicit connections or discharges can be located by systematically isolating the area from which the polluted discharge originates. This process involves progressive investigation at manholes and catch basins in the storm drain network to narrow down the location where the illegal discharge is entering the drainage system. This method is best used to identify constant or frequent discharge sources such as an illicit connection with the sanitary sewer system. Field crews should work progressively upstream from the outfall and inspect stormwater structures (e.g., manholes, catch basins, junctions) looking for the presence of flow during dry weather, foul odors, colors or stained deposits, oily sheen, floatable materials, and/or other indicators of an illicit discharge. The observations are continued at each upstream structure until a structure is found with no evidence of discharge. This indicates the discharge source is likely located between the structure with no evidence of discharge and the next downstream structure.

Once the discharge source has been isolated to a specific segment of stormwater drainage system, the field crew should inspect the drainage area near the point of entry to identify the source. The drainage area inspection should include interviewing personnel at nearby facilities or residents within the vicinity of the drainage area to understand activities and materials used that may be generating discharges. Special attention should be paid to facilities that use materials similar to those noted in the discharge or residential locations that show evidence of illegal dumping (e.g.,

residences with moves scheduled or a history of MFH policy violations). For example, if a discharge is detected with an oil sheen and a gasoline odor, vehicle maintenance facilities would be of more interest than a food service facility. The stormwater drainage system map should also be cross referenced against the sanitary sewer map and/or historical as-built drawings of nearby facilities to identify illicit connections with the sanitary sewer, discharges from industrial processes, or drain inlets located within wash areas.

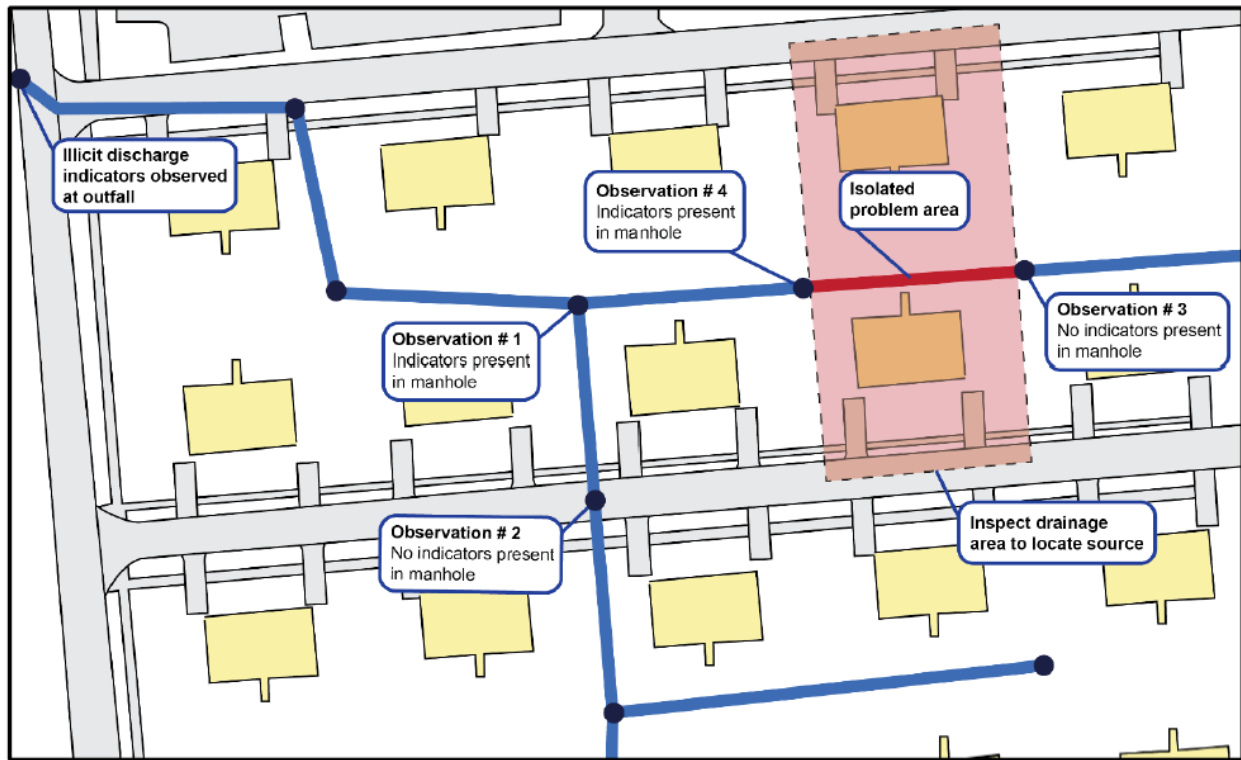


Figure 4. Illicit Discharge Isolation Observation Steps, JBLE–Eustis

Physical indicators, facility personnel interviews, and historical records can identify the source of potential illicit discharges; however, there are several additional field tests that can be performed as necessary. Additional field tests include:

- Dye testing
- Smoke testing
- Video inspection
- Discharge sample and analysis

Use of the additional field tests will likely require contract of an outside party to complete the investigation. Permitting needs (i.e., dye testing) and sample methods to be used (i.e., 40 CFR 136 compliant methods) must be verified prior to conducting field tests. The Center for Watershed Protection’s *Illicit Discharge Detection and Elimination: A Guidance Manual* (CWP 2004)



provides instructions for employing these techniques and can be downloaded from the EPA website.

Note that the MS4 permit requires at least three separate attempts be made to identify the source of an intermittent, non-stormwater discharge. If three attempts have been made and the non-stormwater discharge has not been detected again within six months of the first investigation, then the discharge should be documented as “Source not found – discharge has not reoccurred” in the Illicit Discharge Tracking Form and no further action is required. Non-stormwater flows that are found to be the result of discharges allowable under the VPDES or other state permits require no further action and should be documented as “Allowable discharge”.

Documentation

Recording keeping is an important component of the illicit discharge investigation process. 733d CES/CEIE staff will complete the following tasks after initiating an investigation:

1. Enter investigation data into Section 2 of the Illicit Discharge Tracking Form for each investigative task completed. If multiple attempts and methods are conducted to investigate a discharge, ensure each attempt is documented with the date. Completion of the tracking form will document the discharge for elimination and annual reporting as required by the MS4 permit. An Illicit Discharge Tracking Form is provided in Appendix B. The tracking form will be maintained by 733d CES/CEIE staff and kept electronically on the JBLE–Eustis network drive.
2. Download digital investigation photographs to an appropriately titled folder on the JBLE–Eustis shared server. The photographs will be grouped by permit year and renamed based on the corresponding Discharge ID in the Illicit Discharge Tracking Form. If multiple photographs are taken as part of the investigation(s), “-#” will be appended to the end of the Discharge ID (e.g., 100-1, 100-2, 100-3).

Illicit Discharge Elimination

JBLE–Eustis is committed to eliminating illicit discharges to the stormwater drainage system, and has developed mechanisms for eliminating confirmed illicit discharges, procedures for conducting follow-up investigations to verify the discharges have been eliminated, and enforcement actions that may be enacted to achieve compliance.

Initiating and verifying the elimination of an illicit discharge is the responsibility of 733d CES/CEIE. 733d CES/CEIE staff will provide educational materials and advocate for funding when needed to eliminate illicit discharges. Depending on the location and type of discharges, specific elimination actions may be conducted by other organizations including Activity/Unit



Environmental Coordinators (AEC/UEC), Housing Management staff (Balfour Beatty), the Base Operations Services (BOS) contractor (Global Management Services [GMS]), the base wastewater privatization contractor (Old Dominion Utility Services [ODUS]), or other outside contractors hired by the base. Regardless of the entities involved in eliminating an illicit discharge, 733d CES/CEIE is responsible for following-up on the corrective actions to verify the illicit discharge has been resolved.

Illicit discharges are generally the result of either structural issues or operational deficiencies. The mechanism for eliminating a discharge will depend on the discharge type.

Structural Issues

Examples of structural issues that may result in illicit discharges include:

- Illicit connections with the sanitary sewer
- Oil/water separators (OWS) pretreating industrial wastewater discharging to the stormwater drainage system
- Leaking concrete containment berms and/or valves
- High level bypass pipes at sanitary sewer lift stations

Structural issues will generally require a construction action to eliminate the illicit discharge. Repair projects for structural issues should be initiated through completion of a service order request to the 733d CES/CEO Service Order Desk. 733d CES/CEO will determine whether the issue can be addressed with a service order or whether an AF Form 332, Base Civil Engineer Work Request, will be required. A blank AF Form 332 is provided in Appendix C. Funding for the repair will be determined once the work request has been submitted and reviewed by JBLE–Eustis 733d CED/CEO.

Operational Deficiencies

Examples of operational deficiencies that may result in illicit discharges include:

- Washing activities in areas that discharge to a storm drain inlet
- Runoff from improperly stored material
- Illegal dumping
- Dumpster leachate
- Improperly managed secondary containment valves

Operational deficiencies can typically be addressed through BMPs such as education, modification of processes, and/or relocation of the discharge generating activities. 733d CES/CEIE staff will work with facility occupants as needed to promote compliance.

Follow-up Investigations

After a confirmed illicit discharge has been eliminated, 733d CES/CEIE staff must conduct a follow-up investigation to verify that the discharge has been eliminated. If the discharge was due



to a structural issue, the field crew should inspect and photograph the location of the repair to confirm the source has been eliminated. If the discharge was due to an operational deficiency, the field crew should revisit the entry point of the previous illicit discharge and verify that there are no indicators of further discharges. JBLE–Eustis staff will also interview personnel at the facility associated with the previous discharges to ensure they have proper procedures in place to prevent future discharges.

Enforcement Actions

As discussed, illicit discharges to the stormwater system are prohibited by various JBLE–Eustis policies and instructions. Prohibition is also addressed through contract language with contractors performing work on base. Corrective actions focus first on education to promote voluntary compliance and escalate to increasingly severe enforcement actions if voluntary compliance is not obtained. The JBLE–Eustis community is comprised of military and civilian personnel and residents and enforcement actions associated with illicit discharges will depend on the organization of the responsible party or parties.

JBLE–Eustis will generally follow a three step enforcement action policy for confirmed illicit discharges; however, more serious violations or continued, egregious non-compliance may warrant a more aggressive approach. Actions conducted under each enforcement step include the following:

Step 1: Initial Actions – 733d CES/CEIE will provide a “summary letter” describing the location and nature of the illicit discharge, the date it was confirmed, the required elimination action, and a reasonable timeframe for compliance. If the source of the illicit discharge is due to a structural issue, the letter will also include a reference to the Service Order Number or a copy of the AF Form 332 initiated to correct the issue. For military organizations and tenants, the letter will be sent to the AEC or equivalent. For contractor organizations, the letter will be sent to the Contracting Officer’s Representative (COR) overseeing the responsible party. Letters for illicit discharges occurring in housing areas will be sent to the Residential Community Initiatives (RCI). ***Step 1 is not meant to be punitive. It is an opportunity to inform and educate the responsible parties and to encourage voluntary compliance.***

Step 2: Intermediate Actions – If the confirmed illicit discharge has not been eliminated by the required compliance date or if the illicit discharge is detected a second time at the facility under the responsibility of the same organization at a later date, 733 CES/CEIE will send a “notice of violation” letter regarding the unresolved issues with a second compliance date. For military organizations and tenants, the letter will be sent to the AEC or equivalent. For contractor organizations, the letter will be sent to the COR overseeing the responsible party. Letters for illicit discharges occurring in housing areas will be sent to the RCI. ***To the extent possible, Step 2 is meant to bring about an immediate stop to activities generating the illicit discharge until such time that procedures are put in place to prevent future discharges. For contractor activities, Step 2 may result in a stop work order from the COR.***

Step 3: Final Actions – If the confirmed illicit discharge has not been eliminated by the second compliance date or if the illicit discharge reoccurs at the facility a third time under the responsibility of the same organization at a later date, 733 CES/CEIE will send a second “notice of violation” letter regarding the unresolved issues. For military organizations and tenants, the



letter will be sent to the Unit Commander or equivalent. For contractor organizations, the letter will be sent to the COR overseeing the responsible party. Letters for illicit discharges occurring in housing areas will be sent to the Army Support Activity (ASA). ***Step 3 may result in disciplinary action for military organizations and tenants; loss of contract and/or removal from base for contractors; and loss of housing lease for residents in base housing.***

Documentation

Record keeping is an important component of the illicit discharge elimination process. JBLE–Eustis 733d CES/CEIE will complete the following tasks as part of the elimination and verification process:

1. Enter information into Section 3 and 4 of the Illicit Discharge Tracking Record for each elimination and follow-up task completed. Completion of the tracking form will document the closure of the investigation for annual reporting as required by Section 2.B.3.f of the MS4 permit. An example Illicit Discharge Tracking Record is provided in Appendix C.
2. Download digital photographs of the follow-up investigation to an appropriately titled folder on the JBLE–Eustis shared server. The photographs will be grouped by permit year and renamed based on the corresponding Discharge ID in the Illicit Discharge Tracking Record. If multiple photographs are taken for the same record, “-#” will be appended to the end of the Discharge ID (e.g. 100-1, 100-2, 100-3).
3. Save digital copies of all enforcement letters provided on the JBLE–Eustis shared server. Document the submittal date of enforcement letters in the “Corrective Action to be Taken” field in Section 2 of the Illicit Discharge Tracking Record. Save correspondence between all parties regarding the resolution of the illicit discharge to the JBLE–Eustis shared server.

Procedural Review

Regular review of the MS4 IDDE Procedures is important in order JBLE–Eustis to have an up-to-date standard to use for assessing the overall effectiveness of the IDDE Program for compliance with General Permit No. VAR040035. The JBLE–Eustis MS4 Program Plan outlines the procedures for the IDDE program evaluation and assessment.