Illicit Discharge Detection & Elimination Manual

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ACRONYMS

CSH	Central State Hospital
DCR	Virginia Department of Conservation and Recreation
DEQ	Virginia Department of Environmental Quality
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
VAC	Virginia Administrative Code
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Stormwater Management Program

1.0 INTRODUCTION AND PURPOSE

This manual presents the standard protocol which Central State Hospital (CSH) will utilize to implement its Illicit Discharge Detection and Elimination (IDDE) Program. The manual provides written procedures to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping, to CSH's small municipal separate storm sewer system (MS4). The written procedures are required to be developed, implemented, and updated by CSH as a condition of the MS4 General Permit (General Permit). The General Permit authorizes stormwater discharges from MS4s to surface waters in urbanized areas of the Commonwealth of Virginia. The General Permitting mechanism is designed to prevent pollutants from entering water bodies through stormwater runoff.

The MS4 Program is part of the Federal National Pollutant Discharge Elimination System (NPDES), which is authorized through the Clean Water Act. With delegation from the Environmental Protection Agency (EPA), MS4 General Permits in Virginia are issued through the Virginia Pollution Discharge Elimination System (VPDES) and administered by the Virginia Department of Environmental Quality (DEQ). This manual was developed in general accordance with the EPA's, *"Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments."* To ensure compliance with IDDE requirements of the General Permit, CSH is required to perform the procedures outlined in this manual.

CSH's IDDE Program Manual includes five distinct components:

- **Training** – Procedures to train applicable operations and maintenance staff are discussed in Section 2.0 of this manual.
- **Administration/Documentation** – For CSH to demonstrate compliance to the conditions of the General Permit, documentation of IDDE activities performed is paramount. This is discussed in Section 2.0 of this Manual from field through administrative responsibilities.
- **Identification of an Illicit Discharge** – Procedures to screen, identify, and report questionable illicit discharges are outlined in Sections 3.0 and 4.0 of this manual.
- **Investigating the source of an Illicit Discharge** – Procedures to investigate potential illicit discharges that have been identified or reported are outlined in Section 5.0 of this manual.
- **Elimination of an Illicit Discharge** – Procedures to eliminate illicit discharges that have been confirmed through the investigation effort are outlined in Section 6.0 of this manual.

2.0 PROGRAM ADMINISTRATION/DOCUMENTATION

The General Permit requires CSH to provide training once every 24 months to applicable operations and maintenance staff in recognition and reporting of illicit discharges. This manual serves as the training material to meet the General Permit requirement.

The written procedures herein serve as the foundation of a successful IDDE Program and help to achieve General Permit compliance. However, implementation of the procedures is critical for achieving the IDDE Program goal to eliminate non-stormwater discharges to CSH's storm sewer system and ultimately receiving waters. As referenced throughout this manual, the IDDE Program relies on supplemental materials to assist with implementation and documentation. Documentation that procedures have been implemented is critical to demonstrate permit compliance in the case of a regulatory audit. Operations and maintenance staff who are identified for IDDE training should be familiar with each section of this Manual, CSH's IDDE Field Guide, and the supplemental materials provided in the Appendices of this Manual, which include:

- **Outfall Inspection Form** – This form is used for outfall screening to assist in determining the potential of an illicit discharge. The form is located in Appendix A.
- **IDDE Tracking Form** – A form to assist with ensuring documentation required by the General Permit for each investigation regarding any suspected illicit discharge. To be completed by the CSH Director of Physical Plant Services; but required information may be needed from operations and maintenance staff to assist with the completion of the form. The form is located in Appendix B.
- **Reportable Discharge Form** – This form is used for reporting an illicit discharge to DEQ. The form is located in Appendix C.
- **IDDE Response Procedures** – This reference is used in the event of an illicit discharge. The procedures are located in Appendix D.

In addition to the documentation above, CSH incorporates by reference the following:

- **SWPPP, IDDE, and Post-Construction Stormwater Facility Map** – Identifies the locations of all outfalls that are required to be screened. The map is intended to be used when conducting the annual inspection and tracking illicit discharges.
- **Outfall Inventory** – Provides a list of outfalls and attributes required by the General Permit.

As highlighted throughout this Manual, documentation of illicit discharge reports, investigations, and elimination actions is critical for demonstrating compliance to the General Permit. In the case of an illicit discharge, CSH's General Permit requires, at a minimum, the following information:

- ✓ The date or dates that the illicit discharge was observed and reported;
- ✓ The results of the investigation, including the source, if identified;
- ✓ Any follow-up of the investigation;
- ✓ Resolution of the investigation; and
- ✓ The date that the investigation was closed.

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A discharge may require reporting to DEQ and any interconnected MS4s; therefore, the discharge must be properly documented by CSH on the IDDE Tracking Form. This will enable CSH to access this information if future requests are received concerning the discharge in question. The information will also be included in annual reporting described in the following section.

2.1 Annual Reporting to DEQ

CSH must annually report to DEQ information pertaining to its IDDE efforts. The information is included in CSH's MS4 Annual Report due October 1st of each year. Information required for reporting includes:

1) A confirmation statement that the Outfall Map and Outfall Inventory have been updated to reflect any changes to the MS4 occurring on or before June 30th of the reporting year;
2) The total number of outfalls screened during the reporting period as part of the dry-weather screening program; and
3) A list of illicit discharges to the MS4 including spills reaching the MS4 with information as follows:
   (a) The source of illicit discharge;
   (b) The dates that the discharge was observed, reported, or both;
   (c) Whether the discharge was discovered by the permittee during dry-weather screening, reported by the public, or other method (describe); and
   (d) How the investigation was resolved.

2.2 IDDE Manual Updates and Modifications

Modifications to the IDDE Manual may occur as part of an iterative process to protect water quality. Updates and modifications to this Manual shall be consistent with the conditions of the General Permit and documented in the annual report.

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3.0 IDENTIFICATION OF AN ILLICIT DISCHARGE

Municipal separate stormwater sewer system (MS4) means a conveyance, or system of conveyances, that ultimately discharge into surface waters or wetlands. That is, any system of drainage from roads, parking lots, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that convey stormwater is part of the MS4. These conveyance systems are vulnerable to contamination. Substances other than stormwater that enter receiving waters may be considered an illicit discharge and elimination of those discharges is the focus of this Manual. An illicit discharge can:

1. Be a measurable flow from a storm drain during dry weather that contains pollutants or pathogens;
2. Have a unique frequency, composition, and mode of entry in the storm drain system;
3. Be caused when the sewage disposal system interacts with the storm drain system; or
4. Be discharges from pollutants from specific source areas and operations known as "generating sites." Generating sites are identified in the CSH Good Housekeeping & Pollution Prevention Program Manual.

3.1 Defining an Illicit Discharge

For the purpose of CSH's IDDE Program, an illicit discharge is defined as:

> *<u>Illicit Discharge</u> - Any discharge to an MS4 that is not composed entirely of stormwater, except discharges specifically identified in the Virginia Administrative Code (VAC) and determined not to be a significant contributor of pollutants to the MS4.*

Most sources of an illicit discharge on the CSH property are likely to originate from a generating site or activity, such as a washing area or vehicle maintenance area. These could result from daily practices or from a specific spill incident. Table 1 provides source pollutants that could be generated from CSH property.

Table 1. Examples of source pollutants of an illicit discharge.

• Automotive fluids (oil, fuel, antifreeze)	• Landscape waste (grass clippings, etc.)
• Cooking oil and grease	• Improperly applied fertilizer
• Solvents	• Sediment
• Paints	• Vehicle wash water
• Chemical cleansers (detergents, soaps)	• Sanitary sewer wastewaters
• Improperly applied pesticides/herbicides	• Dumpster leachate
• Improperly managed salts	• Trash

The regulations do have exemptions for some non-stormwater discharges that would not be considered an illicit discharge if not a significant contributor of pollutants to the MS4. Table 2 includes some of the discharges relevant to CSH that are not a significant contributor of pollutants; and therefore, <u>are not considered illicit discharges</u>. If there is uncertainty of the source or constituents within an observed discharge, the CSH Director of Physical Plant Services should be contacted immediately so a determination can be made.

Table 2. Examples of sources that are not considered illicit discharges.

• Fire-fighting activities*	• Air conditioning condensate
• Water line flushing	• Footing or foundation drains
• Landscape/lawn irrigation	• Springs
• Diverted stream flows	• Water from crawl space pumps
• Rising groundwater	• Dechlorinated swimming pool wastewater
• Uncontaminated groundwater infiltration	• Discharges from potable water sources
• Uncontaminated pumped groundwater	• Flows from riparian habitats and wetlands
• Individual residential car washing	• Street wash water
• Noncommercial fundraising car washes if the washing uses only biodegradable, phosphate-free, water-based cleaners	• Other activities generating discharges identified by the department as not requiring VPDES authorization

* Discharges or flows from fire-fighting activities need only be addressed where they are identified as significant sources of pollutants to surface waters.

3.2 Outfall Map and Inventory

An outfall is a point where CSH's MS4 discharges concentrated flow to surface waters or wetlands, such as at the end of a pipe or open drainage channel. Generally, these are the locations that drain stormwater from the CSH property and can be evaluated routinely to identify potential pollutants. Action can then be taken to prevent these pollutants from traveling downstream. The General Permit requires CSH to maintain a storm sewer map and outfall information table as part of the IDDE Manual. CSH may elect to map the known point of discharge location closest to the actual outfall when the outfall is located outside of CSH's legal responsibility.

CSH's outfall map illustrates the locations of the outfalls from the storm sewer system and the receiving waterway. The outfall map is a critical component of the outfall inspection and serves as a tool to identify potential pollutant generating sites, the storm sewer layout adjacent to the sites, and the locations where the storm sewer discharges to a waterway or the point of discharge off the MS4.

An illicit discharge identified onsite may originate from an upstream interconnected MS4. Contacts to interconnected MS4s are included on the map for reporting a potential off-site pollutant source. The upstream MS4 should be notified immediately so to identify and eliminate the pollutant source.

The General Permit also requires CSH to maintain an Outfall Information Table that includes permit-required attributes for each outfall. The Director of Physical Plant Services should maintain a copy of both the IDDE Map and Outfall Information Table for review upon request by the public or DEQ. The documents should be updated when changes to existing outfalls are found or new outfalls are added with new construction.

3.3 Awareness During Daily Activities and Operations

Potential illicit discharges can be identified and removed prior to entering the storm sewer system with effective inspections and appropriate follow-up when pollutants have the potential to be exposed to precipitation, and subsequently, stormwater runoff. CSH's staff are in the best position to identify these pollutants such as those identified in Table 1. Figure 1 provides several examples of the observations and actions that could prevent an illicit discharge. If the observer is not qualified or appropriately trained to take the appropriate action, or if illegal dumping is observed, notify the CSH Director of Physical Plant Services or designee. The CSH Good Housekeeping & Pollution Prevention Manual can also be referenced for instruction on appropriate actions.

Observation		Action
Uncovered dumpster	→	Cover dumpster
Uncovered container	→	Store container indoors
Oil/hydraulic fuel on ground	→	Clean & dispose of properly

Figure 1. Example daily observations and subsequent actions that can prevent an illicit discharge.

3.4 Special Local Water Quality Concerns

CSH's MS4 ultimately discharges to receiving waters that have been identified by DEQ to not meet water quality standards. Subsequent studies, called Total Maximum Daily Load (TMDL) studies, have been performed by DEQ. The TMDL studies identify specific pollutants causing the impairments to the receiving waters and designate the amount of the pollutant the receiving water can assimilate to achieve water quality standards. A required reduction of the pollutant is typically assigned to the MS4s that drain to the impaired segment of the waterway. It is important that CSH's maintenance and operations employees be aware of these special pollutants shown in Table 3.

Table 3. Special pollutants of concern.

TMDL	Pollutants of Concern	Approval Date
Chesapeake Bay	Nitrogen, Phosphorous, and Sediment (Total Suspended Solids)	12/29/2010

3.5 Reporting Procedures

CSH Physical Plant staff are the first line of defense for preventing generating sites from contributing to an illicit discharge. If Physical Plant staff detects an Illicit discharge as defined in Section 3.0, report the illicit discharge immediately to the Director of Physical Plant Services who shall report the discharge to DEQ within 24 hours.

VDOT is an interconnected MS4 with CSH, meaning there is stormwater being conveyed to and from CSH property via a point source discharge. Any report from an interconnected MS4 of an illicit discharge originating from the CSH property should be immediately reported to the Director of Physical Plant Services for investigation and documentation.

Actions that are taken to prevent an illicit discharge are designated as good housekeeping practices and do not need to be reported to DEQ. Physical Plant staff shall report a good housekeeping issue within 24 hours to the Director of Physical Plant Services. A Findings & Follow-up Form shall be used to document good housekeeping issues. See the Good Housekeeping and Pollution Prevention Manual for reporting procedures concerning good housekeeping issues.

An illicit discharge or a good housekeeping issue may also be reported by other individuals that are not trained or authorized to perform necessary actions, such as reports from residents or contractors. These individuals may recognize an illicit discharge after learning about pollution in stormwater runoff through CSH's public education and outreach efforts. The CSH stormwater webpage directs these individuals to contact the Director of Physical Plant Services, who will subsequently perform the appropriate follow-up action and complete the documentation. If Physical Plant staff are notified of an illicit discharge, the appropriate action should be taken, and the Director of Physical Plant Services or designee shall be notified. Figure 2 summarizes this procedure.

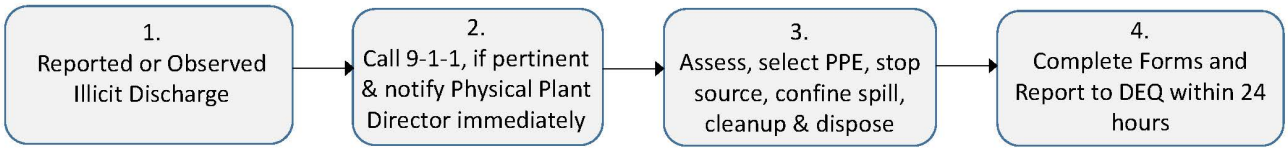

Figure 2. Illicit Discharge Reporting procedures for CSH Physical Plant staff.

If an illicit discharge has occurred, the Director of Physical Plant Services will then document the report with the IDDE Tracking Form provided in Appendix B. The Director of Physical Plant Services shall also complete the Reportable Discharge Form in Appendix C for documentation purposes. Physical Plant staff should be familiar with these forms to assist with providing the necessary information required to complete the forms. Refer to the guidance in Appendix D for more in depth procedures to follow if an illicit discharge is detected.

4.0 OUTFALL SCREENING

In an effort to detect, identify, and eliminate illicit discharges to CSH, an annual outfall inspection is required by the Program Plan under the General Permit for all of the outfalls on CSH property. In the case that illicit discharges are observed at specific outfalls and the source is not identified or eliminated, subsequent screening at a higher frequency may be necessary.

4.1 Dry-Weather Outfall Screening

Outfall screening shall be performed during dry weather using the Outfall Inspection Form provided in Appendix A. Completion of the form serves as the appropriate documentation that the required outfall screening has been performed and should be retained on file for a minimum of 3 years. Outfalls that are flowing during dry weather may indicate an active pollution issue, depending if rain has occurred during the last 24 to 48 hours. Special attention should be paid to outfalls that are flowing especially when no rain has occurred within the last 48 hours. When the screening of an outfall indicates an illicit discharge, the CSH Director of Physical Plant Services shall be notified within 24 hours so an investigation, as described in Section 5.0, can be performed and an IDDE Tracking Form completed.

The Outfall Inspection Form includes the following sections, which are to be completed for each outfall during outfall screening:

- ***Section 1: Background Data*** – Requires general information regarding when and where the screening was performed, weather conditions at the time of the screening, and references to any photos taken. Tips for completing Section 1 include:
    - ✓ The Outfall ID can be found on the IDDE Map. Update map to reflect new outfalls;
    - ✓ Take at least 1 photo of the outfall for documentation purposes, especially if there is question regarding an illicit discharge; and
    - ✓ Rainfall data can be gathered from the link below by searching for the location of CSH and clicking on the history tab to view past precipitation amounts.

- ***Section 2: Outfall Description*** – Requires a description of the outfall and determination if flow is present during dry-weather. Tips for completing Section 2 include:
    - ✓ If the cross-section of a pipe or channel is abnormal, provide a sketch in the available area of the dimension column and label measured dimensions.
    - ✓ If submerged with sediment, measure the depth of sediment.
    - ✓ The identification of flow is important since flow during dry weather would indicate a non-stormwater discharge. If a pipe is partially submerged, 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. The travel of the object on the surface can help indicate if flow is discharging from the outfall.
    - ✓ Upon completion of this section, if no flow is present, skip to Section 5 of the form.

- ***Section 3: Quantitative Characterization for Flowing Outfalls*** – Requires quantitative information of the flow present at the outfall, including information to determine an estimate of the flow rate. The pH and ammonia levels require the use of test strips. The purpose of this information is to help identify the source of the discharge. Tips for completing Section 3 include:
  - ✓ Measuring pH can determine whether a flow is industrial or commercial in nature. Normal stormwater has a pH around 4.5 to 7.
  - ✓ High levels of ammonia (> 0.3 ppm) can indicate excess fertilizer or contamination by sanitary wastewater.
  - ✓ Flow rate can be estimated with the following equations. Measured data from the form is shown in bold below.

<u>Flow #1 (for pipes):</u>

$$\frac{\boldsymbol{'X' liters}}{\boldsymbol{'X' seconds}} \times \frac{1\ gallon}{3.78\ liters} \times \frac{60\ seconds}{minute} = Flow\ in\ gpm$$

  - ✓ For the Flow #1 calculation, time in seconds is the time to fill the bottle to 'X' liters.

<u>Flow #2 (for open channels):</u>

$$\left[\left(\frac{\boldsymbol{bot.width\ (ft) +\ top\ width\ (ft)}}{2}\right) \times \boldsymbol{depth\ (ft)}\right] \times \frac{\boldsymbol{Length\ (ft)}}{\boldsymbol{travel\ time\ (seconds)}} \rightarrow$$

$$\times \frac{7.48\ gallons}{1\ cubic\ ft} \times \frac{60\ seconds}{minute} = Flow\ in\ gpm$$

  - ✓ For the Flow #2 calculation, travel time is estimated by the time it takes a floating object to travel the defined length.

- ***Section 4: Physical Indicators for <u>Flowing</u> Outfalls Only*** – Requires the observance of physical indicators in the flow, such as odor and color, to assist with identifying the source of the discharge. A tip for completing Section 4 includes:
  - ✓ Take photos of visible indicators.

- ***Section 5: General Physical Indicators for <u>All</u> Outfalls*** – Requires physical indicators be noted that are not related to flow, such as abnormal vegetation and staining, which can indicate that an intermittent discharge has occurred in the past, even if not currently flowing. Tips for completing Section 5 include:
  - ✓ Take photos of visible indicators.

- ✓ Note benthic growth, such as algae or slime on channel surfaces, which can be an indicator of nutrients in the stormwater runoff (See Figure 3).

Figure 3. Example Photo showing algae growth.

- ***Section 6: Outfall Severity Index*** – Requires the assignment of a severity score for prioritizing outfall follow-up investigation, if necessary. A tip for completing Section 6 includes:
  - ✓ The severity of concern at an outfall is best judged by the outfall inspector. The rating system provided on the form is intended to provide consistency and guidance; but the intuition of the inspector overrides the scoring rules.

- ***Section 7: Any Non-illicit Discharge Concerns*** – The inspector performing the outfall screening should identify any other concerns such as trash, overgrowth prohibiting flow, or structural concerns of the outfall (e.g., collapsed pipe).

4.2 Wet-Weather Screening

While dry-weather screening events can identify illicit discharges that are continuous, wet-weather screening events may identify pollutant discharges that are temporary. Wet-weather screening may be appropriate if dry-weather screening identifies physical indicators from Sections 4 and 5 of the Outfall Inspection Form.

5.0 INVESTIGATING ILLICIT DISCHARGES

In the case of the identification of an illicit discharge, it is necessary to conduct an investigation to identify and eliminate the source of the discharge. An investigation may result from:

- A staff observation;
- A report to CSH staff from the general public;
- A report from an interconnected MS4; or
- The results of outfall screening.

The determination if an illicit discharge has occurred will be made by the CSH Director of Physical Plant Services. In all cases of an illicit discharge, the IDDE Tracking Form must be completed as documentation for General Permit annual reporting. The following sections outline the methodologies that shall be followed in the investigation of an illicit discharge.

5.1 Investigation Triggers and Prioritization

Upon the identification of an illicit discharge, the reporting date, location, and description must be reported in the IDDE Tracking Form. Note that Section 6 of the Inspection Form should be referenced to estimate a severity Index classification. The following shall trigger an investigation:

- The determination of the occurrence of an illicit discharge by the Director of Physical Plant Services based on an observed illicit discharge by CSH staff, such as during daily activities, or a follow-up from a reported observation.
- A severity index classification of either potential, suspect, or obvious. If more than one outfall screening produces one of these classifications, investigation efforts shall be prioritized as:
    - Obvious – Illicit discharge(s) suspected of being sanitary sewer discharges or significantly contaminated would have this classification.
    - Suspect – Numerous physical indicators result in this classification.
    - Potential – Discharges should not be expected to be hazardous to human health and safety.

The start and close date of the investigation is also required to be provided on the IDDE Tracking Form.

5.2 Investigation Protocol

An investigation of an illicit discharge may result in the source being easily identified or may be complex and may require referencing this manual, the IDDE Field Guide, IDDE map, and coordination with interconnected MS4s.

Based on the familiarity of the property and its drainage areas, an initial field evaluation may easily identify the source of an illicit discharge. Once found, the source should be eliminated, and efforts documented on the IDDE Tracking Form. It is critical that documentation on the IDDE tracking Form is complete to demonstrate illicit discharges have been addressed in accordance with the General Permit.

If the source of an illicit discharge is not easily identified, further investigation is necessary and should be guided by the following procedures:

1) Track the illicit discharge to its point of entry into the storm sewer. Tracking can be supplemented with review of the CSH Stormwater Pollution Prevention Plan (SWPPP), IDDE, and Post-Construction Stormwater Management Facility map to identify flow directions, the drainage area, and areas most likely to be the source of pollutants.
2) Conduct a field inspection of the drainage area near the point of entry to identify the potential pollutant source. Document potential sources with photos, ensuring the photos give the appropriate context to the location of the source.

CSH staff will primarily rely upon visual inspections of the areas in the storm sewer system upstream of the outfall at which an illicit discharge is detected. However, sampling and analysis can be performed as necessary to determine the characteristics of the illicit discharge and to help identify the most likely source. Improper connections and unpermitted cross-connections to the storm sewer system can be detected by utilizing a combination of methods to investigate non-stormwater discharges, such as visual/video inspections, and dye or smoke tracer testing. Additional dry-weather testing at a discharge point assists in identification of abnormal conditions such as sporadic or continuous discharge, which can facilitate tracing of the source. Tracking techniques also include visual inspections of drainage structures and lines, damming lines to isolate areas, indicator monitoring, and optical brightener monitoring traps.

Other more elaborate approaches include using remote sensing tools to identify soil moisture, water temperature, and vegetation anomalies associated with illegal dumping activities. Due to the size of the CSH property and the activities that typically occur, it is not anticipated these types of tracking strategies will be necessary and further discussion is outside of the scope of this Manual.

If an illicit discharge is determined to originate outside of the CSH property, then the appropriate locality and/or MS4 Program authority should be contacted immediately by CSH staff and the request made to eliminate the discharge. The interconnected MS4 should initiate corrective action per their prescribed process. CSH staff will follow up with the responsible entity to verify the corrective action has been successfully implemented, and the final action will be documented and tracked on the IDDE Tracking Form.

Additional detail for conducting an investigation is provided in the *CSH IDDE Field Guide*.

5.3 Timeframes for Performing Investigations

In general, the timeframe for initiation of an investigation should be prioritized with first priority given to illicit discharges suspected of being sanitary sewage or otherwise significantly contaminated. More specifically, timeframes for initiating an investigation are established as follows:

- Obvious – First priority, begin investigation within two business days of identification of an illicit discharge.
- Suspect – Second priority, begin investigation within one week of the report of a suspected illicit discharge.
- Potential - Third priority, begin investigation within two weeks of the report of a potential illicit discharge.

If, after performing an investigation of an observed or reported illicit discharge, the source of the discharge has not been identified and the non-stormwater discharge has not been detected again after 6 months, efforts will be documented and the discharged identified as "non-recurring" with "source not found" on the IDDE Tracking Form. At that time, no further action is necessary. However, investigatory due diligence should include (with documentation):

- The tracking and field inspection methods described in the previous Section were performed;
- At least one additional dry-weather screening during the 6-month time period; and
- At least one wet-weather screening.

If an observed discharge is intermittent, CSH staff will perform three separate investigations attempting to observe the discharge when it is flowing. If these attempts are unsuccessful, CSH staff will also document the occurrence and process and no further action is necessary.

6.0 ELIMINATING VERIFIED ILLICIT DISCHARGES

The ultimate goal of the IDDE Program is to eliminate illicit discharges from the MS4. Once an illicit discharge has been identified and an investigation has determined the source of the discharge, the appropriate actions need to be taken and documented to eliminate the discharge.

6.1 Source Elimination

CSH prohibits illicit discharge into its MS4 through language provided within the Standards of Conduct for staff. Prohibition is also addressed through contract language with contractors performing work onsite. Further, CSH's daily operations aim to prevent illicit discharges into its MS4 through the practices described in the CSH Good Housekeeping & Pollution Prevention Manual. Through these mechanisms, CSH can eliminate illicit discharges when the source occurs on CSH property.

When an illicit discharge originates within CSH's property, CSH staff will take the necessary corrective action to eliminate the discharge. Follow-up inspections may be necessary to ensure the discharge into the CSH storm drain system has ceased. Periodic inspections should be conducted during both wet and dry weather after the initial illicit discharge to confirm the identified discharge has been eliminated. Actions and resolutions must be documented and maintained on file for 3 years.

When the source of an illicit discharge originates offsite, and therefore, CSH does not have authority to eliminate the source, DEQ or the interconnected MS4 should be contacted by the Director of Physical Plant Services, as applicable. Figure 5 provides examples of the enforcement authorities to contact based on the type of illicit discharge. This list is not all-inclusive but is based on typical sources of illicit discharges. IDDE Tracking Forms should be maintained on file along with information related to the case, including dates, locations, photos, results of screenings and investigations, and identified sources.

<u>Interconnected MS4</u>
(City, County or VDOT, as applicable)

- Cooking oil & Grease
- Paints
- Chemical Cleansers (e. g. detergents, soaps)
- Landscape Wastes (e.g. leaves, grass clippings)
- Fertilizers
- Sediment from off-campus sources
- Septic/sewer wastewater
- Gray water (e.g. clothes washing, dishwasher)

<u>DEQ</u>
(Pollution Response & Preparedness Program)

- Automotive fluids
- Solvents
- Pesticides and herbicides
- Chlorinated swimming pool discharges
- Unknown/other

Figure 4. Illicit discharge enforcement contacts for offsite illicit discharges entering CSH property.

6.2 Follow-up on Source Elimination

Prior to closure of an illicit discharge investigation, CSH is required to conduct or request a follow-up investigation to ensure the illicit discharge has been eliminated. When the source originated onsite, the follow-up investigation may simply include a field inspection with documentation including photographs where the source had previously been identified. In the case of an offsite illicit discharge, follow-up should include a request for information from the appropriate upstream enforcement entity. Documentation of offsite efforts is also required on the IDDE Tracking Form.

6.3 Administrative Action, Enforcement, and Penalties

CSH prohibits illicit discharge into its MS4 through language provided within the Standards of Conduct for staff, which provides methods and procedures for reporting, as well as corrective and disciplinary action. Prohibition is also addressed through contract language with contractors performing work on CSH property. If an individual or entity is identified during an illicit discharge investigation to be responsible for intentionally contributing to the discharge, the following binding documents will be utilized to conduct any necessary administrative action, enforcement, or penalties:

- Standards of Conduct (staff) - Intentionally causing an illicit discharge could be in conflict with the standard of conduct requiring compliance to laws and regulations of the Commonwealth. Corrective and disciplinary actions will be as prescribed in the administration of the Commonwealth's disciplinary system.
- Contract Language – CSH can pursue administrative actions within its authority, such as revocation with a Stop Work Order for construction sites or suspension or revocation of a contract.

Administrative action is the least desirable outcome of the CSH IDDE Program; however, it may be necessary in the following situations:

- Recurring or egregious illicit discharge incidents;
- Failure of a person knowingly responsible for an illicit discharge to notify CSH or DEQ; or
- Refusal by the responsible party to voluntarily take corrective action on an illicit discharge, once it is brought to their attention.

Because CSH has limited legal authority, any legal action would likely be initiated by a state or federal environmental agency in conjunction with the appropriate law enforcement agency. In some cases, as determined necessary by the Director of Physical Plant Services, CSH may pursue common law trespass as a legal means to stop an illicit discharge.

One or more of the following enforcement actions will be performed for confirmed illicit discharges:

- Upon CSH verification that the reported incident is a valid illicit discharge, the responsible party will be notified immediately (by letter) of the requirement to correct the illicit discharge and, when appropriate, remediate the area affected by that discharge.

- The appropriate State Authority and/or DEQ will be notified in writing of the illicit discharge in certain cases where the discharge is occurring within a live watercourse.
- CSH may revoke or suspend a contract issued to an outside party should an illicit discharge be detected and not corrected by the responsible party.

6.4 Reportable Spills

If any unusual or extraordinary discharge should occur from a facility and the discharge enters or could be expected to enter surface waters, CSH shall promptly notify, in no case later than within 24 hours, DEQ by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any known adverse effects on aquatic life. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

- Unusual spillage of materials resulting directly or indirectly from processing operations;
- Breakdown of processing or accessory equipment;
- Spills of large quantities of chemicals or fuels; and
- Flooding or other acts of nature.

NOTE: The immediate (within 24 hours) reports required to be provided to DEQ may be made to the appropriate Regional Office Pollution Response Program found at the link below. http://deq.virginia.gov/Programs/PollutionResponsePreparedness.aspx. Reports may be made by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24/7 telephone service at 1-800-468-8892.

APPENDIX A: Outfall Inspection Form

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OUTFALL INSPECTION FORM

Section 1: Background Data

Campus:		Outfall ID:
Today's date:		Time:
Investigators:		Form completed by:
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:
Camera:		Photo #s:
Notes (e.g., origin of outfall, if known):		

Section 2: Outfall Description

LOCATION	MATERIAL	CROSS-SECTION (SHAPE)		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ Concrete ☐ Corrugated Metal ☐ Plastic ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open channel**	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
Flow Present?	☐ Yes ☐ No ***If No, Skip to Section 5***				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization for Flowing Outfalls

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	Stopwatch
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' (Top) _____" (Bottom)	Ft	Tape measure
	Measured length	_____' _____"	Ft	Tape measure
	Time of travel		S	Stopwatch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL INSPECTION FORM

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: General Physical Indicators for both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	.
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Severity Index

An IDDE score will be calculated by summing the Severity Indexes in section 4 and adding the number of indicators checked as present in section 5

☐ **Unlikely** (No indicator checked as present in Section 4 OR only **one (1)** indicator checked as present in Section 5)

☐ **Potential –** (**one (1)** indicator with a severity of **one (1)** in Section 4 OR **two (2)** indicators checked as present in Section 5)

☐ **Suspect - IDDE score of three (3)** (**one (1) or more** indicators checked in Section 4 with a total of severities **equal to three (3)** OR **more than two (2)** indicators checked as present in Section 5 OR a total of severities in Section 4 plus indicators checked as present in Section 5 is **equal to three (3)**)

☐ **Obvious – IDDE score of greater than three (3)** (one or more indicators checked in Section 4 with and the total of the severities **is greater than three (3)** OR a total of severities in Section 4 plus indicators checked as present in Section 5 **is greater than three (3)**).

IDDE Notes:

Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

APPENDIX B: IDDE Tracking Form

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IDDE TRACKING Form

Date Illicit Discharge Observed/Reported:_____ **Outfall # (if applicable):**_____

Description of IDDE: _____

_____

Date of Investigation: _____

Was the Source found? ☐ **Yes** ☐ **No**

If "Yes", please describe: _____

_____

Was IDDE Resolved? ☐ **Yes** ☐ **No**

If "Yes", please explain how it was resolved (Please include any personnel or outside parties contacted or involved):

_____

_____

_____

If "No", please explain why it was not resolved: _____

_____

_____

Is any follow-up action required? ☐ **Yes** ☐ **No**

If "Yes", please explain: _____

_____

Date investigation closed: _____

Attach photos to this form and retain for records.

APPENDIX C: Reportable Discharge Form

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Reportable Discharge Form

Form use: This form is used to determine if a discharge, spill or release is reportable to the Department of Environmental Quality under the MS4 General Permit reporting requirements Section II(B)6(b)(4)(h) and Section III G, H, & I.

Section 1 - Discharge Classification

Note: If any item checked below, proceed to Section 2. If not, the discharge does not require a report to DEQ.

- ☐ Is the discharge "*unusual*" or "*extraordinary*", including a "*bypass*" or "*upset*"?
  - **"***Unusual***"** or **"***extraordinary***"** discharges include but are not limited to any discharge resulting from: Unusual spillage of materials resulting directly or indirectly from processing operations, breakdown of processing or accessory equipment, failure or taking out of service some or all of the facilities or flooding or other acts of nature.
  - "*Bypass*" means the intentional diversion of waste streams from any portion of a treatment facility.
  - "*Upset*" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based state permit effluent limitations because of factors beyond the reasonable control of the operator. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- ☐ Is it possible the discharge may adversely affect surface waters or may endanger public health?
- ☐ Is the discharge sewage, industrial waste, other wastes or any noxious or deleterious substance or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302?

Section 2 – Potential to Enter Surface Waters

Note: If any item checked below, proceed to Section 3. If not, the discharge does not require a report to DEQ.

- ☐ Did the discharge enter or is reasonably expected to enter surface waters?

Section 3 – DEQ Notification

Note: Only complete this section if yes was answered for item(s) in Section 1 and Section 2 above.

Notify DEQ Pollution Response Program (PREP) Piedmont Regional Office at (804) 527-5020 within 24 hours after the discharge discovery and provide the information listed below, as applicable. Space has been provided for documentation of information verbally reported to DEQ or reported online at https://portal.deq.virginia.gov/prep/Report/Create. .

1. Any adverse effects on aquatic life: _____

   _____
2. The known number of fish killed: _____
3. Any unanticipated bypass: _____

   _____
4. Any upset which causes a discharge to surface waters: _____

   _____

For reports outside of normal working hours, leave a detailed message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

Section 4 – Follow-up Written Report

Note: Only complete this section if items were checked for both Sections 1 and 2 above, and Section 3 has been completed.
Note: The board or its designee may waive the written report on a case-by-case basis for reports of noncompliance under Section III I if the verbal report has been received within 24 hours and no adverse impact on surface waters has been reported.

A written report shall be submitted to the DEQ PREP Piedmont Regional Office within five days after the discharge discovery and shall contain the information listed below, as applicable. This completed form may serve as the written report submitted to DEQ.

1. A description of the nature and location of the discharge: _____
   _____
   _____
2. The cause of the discharge: _____
   _____
3. The date on which the discharge occurred: _____
4. The length of time that the discharge continued: _____
5. The volume of the discharge: _____
6. If the discharge is continuing, how long it is expected to continue: _____
   _____
7. If the discharge is continuing, what the expected total volume of the discharge will be: _____
   _____
8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this state permit: _____
   _____
   _____

Please mail completed forms to:

Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
(804) 527-5020

Maintain a copy with your records.

APPENDIX D: IDDE Response Procedures

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In the Event of an Illicit Discharge

1. Contact the Director of Physical Plant Services. If the discharge is large and hazardous call The Fire Department at 9-1-1. Report an illicit discharge immediately to the Director of Physical Plant Services, Andrew Conti at (804) 524-4723. The Director of Physical Plant Services shall report the illicit discharge to DEQ within 24 hours.

2. Assess the risk. When a discharge occurs, determine the risks that may affect human health, the environment and the property. This may be done easily in cases where the type of contaminant discharged is known. In situations where the contaminant is unknown, determining risks may involve some investigation. In cases where the chemical is unknown, the spilled material may be identifiable from the container label or the Safety Data Sheet.

3. Select personal protective equipment (PPE). It is crucial that the appropriate PPE is chosen to stop, confine, and cleanup the contaminant. Appropriate PPE may be a pair of gloves, eye and foot protection, or face masks. If the chemical is unknown and the risk level uncertain, use the highest level of caution and protection. Refer unknown chemical cleanup to the Fire Department and do not attempt to cleanup without appropriate guidance.

4. Stop the source. Stopping the source of a discharge may be apparent or may require investigation. In any case, the source should be controlled as quickly as possible.

5. Confine the spill. It is crucial to confine the discharge. In some cases, this step may need to occur before stopping the source. The proper containment measures necessary should be assessed based on the size and type of the discharge. If a large spill of fuel, sewage, or other hazardous materials occurs, contact the Fire Department to assist in response and cleanup.

6. Evaluate the incident and implement cleanup. Once the discharge is stopped and confined, the person responsible for cleanup should develop a plan of action to cleanup the discharge. Once the discharge is cleaned up, the waste material should be disposed of properly. See the Waste Management and Disposal Procedures section of Good Housekeeping & Pollution Prevention Manual for disposal guidance.