

# **ILLICIT DISCHARGE ELIMINATION PROGRAM**

## **BAY AREA STORM WATER AUTHORITY**

**June 7, 2010 (revised 7/1/2011)**

The Illicit Discharge Elimination Program (IDEP) is being performed as a part of a watershed strategy within the Bay Area Storm Water Authority (BASWA) communities. Many of the activities and program efforts required by this permit have been and are currently being performed throughout the Urbanized Area by various public and private entities. The Saginaw Bay area was recognized almost 30 years ago as having water quality impairments, and in fact is listed by the International Joint Commission as an "Area of Concern". Directly as a result of this listing and directly in response to the local citizenry support and concern for this valuable local resource, hundreds of millions of dollars have been spent to characterize the problems and specific problem areas, identify contaminant sources, and implement many source reduction and pollution prevention activities by both public agencies and community interest organizations.

As a result of these efforts and expenditures, water quality improvements have been measured. The past 25 years have shown the success of these efforts as: 1) specific contaminants have been reduced, 2) source reduction has occurred and 3) data showing strong and measurable recovery. Clearly, pollution remediation and prevention activities to protect and improve the quality of water resources are not a new undertaking in this Bay County area. It is the intent of the Bay Area Storm Water Authority Committee communities to build on this successful existing effort, and increase activities and efforts where needed to comply with the Michigan Department of Environmental Quality's (MDEQ) General Permit.

The City of Bay City joined BASWA in October of 2005. At the time of their inclusion, the City had an approved IDEP. Bay City's program has been ongoing since the time of their inclusion. Although various components of the IDEPs for the City and BASWA are similar, specific conditions and timetables make blending the two IDEPs difficult and potentially confusing. The City of Bay City IDEP is therefore attached as Appendix 1 of the BASWA IDEP. Since the Bay City IDEP has been a component of previous BASWA IDEPs, we believe continued incorporation of the Bay City IDEP is both necessary and beneficial.

### **PERMIT REQUIREMENTS AND DEFINITIONS**

As required by the Michigan Department of Natural Resource Environment (MDNRE) National Pollutant Discharge Elimination System Wastewater Discharge General Permit No. MIG610000, the Authority will work to eliminate illicit storm water discharges from Separate Storm Water Drainage Systems within its watershed plan, the following definitions apply to the IDEP:

"Illicit connection" means a physical connection to the separate storm water drainage system that 1) primarily conveys illicit discharges into the system and/or 2) is not authorized or permitted by the local authority (where a local authority requires such authorization or permit).

“Illicit discharge” means any discharge (or seepage) to the separate storm water drainage system that is not composed entirely of storm water, except for discharges specified in Parts I.A.1.c. and d. of the permit. Examples of illicit discharges include dumping of motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, animal wastes, or unauthorized discharges of sewage, industrial wastes, restaurant wastes, or any other non-storm water waste into a separate storm water drainage system.

“Point source discharge” (PSD) means an outfall from a drainage system to waters of the state, or a point where a storm water drainage system discharges into a system operated by another public body.

“Significant illicit discharge” means a discharge that shows evidence of impairing water quality in the receiving water.

## **1) FINDING, PRIORITIZING AND ELIMINATING ILLICIT DISCHARGES AND CONNECTIONS**

This program will be done using an investigative methodology to effectively find and eliminate illicit discharges. Multiple steps may be ongoing simultaneously as the program is implemented. The investigative methodology includes first verifying the known PSD locations and locating unmapped PSDs; then field screening of each PSD will be conducted and a follow-up investigation will occur where needed to locate the source of an illicit discharge or connection; finally corrective action to remove illicit connections will occur and confirmation will be provided that the illicit connection has been removed. Jurisdictions will verify or develop necessary enforcement ordinances to allow the authority to take necessary legal action.

### **Field Verification, Identification and Screening of PSDs**

Maps and tables identifying the known PSDs and their ownership within the municipal limits have been developed and will be utilized as a starting point for the field verification and screening program.

#### **PROGRAM:**

Beginning in the fall of 2010, a qualified consultant will be selected to train new Drain Commission, Road Commission, and municipal department of Public Works staff in techniques for recognizing illicit discharges including methods of sampling and eliminating illicit discharges as necessary. Training will also include definitions of illicit discharges and connections, as well as elimination and enforcement protocol. In addition, cross-training with the Bay County Health Department, Bay County Mosquito Control and other identified municipal employees will be conducted to increase on-going monitoring of open drains. It will include recognition of natural occurring phenomena and their sources as well as utilization of GPS equipment and other necessary mapping and surveying skills to aid in the location of illicit discharges. Training will extend to both those directly involved in screening and as many additional personnel as possible. Refresher training is to be performed as deemed necessary by the SWPPI Watershed Permit for existing staff. The qualified consultant will verify the staff has been appropriately trained.

Beginning in the first quarter of 2010, the field re-screening and verification will begin for known PSDs. The field screening and verification will be done by trained Drain Commission,

Road Commission, city and township staff. Those locations and any unmapped PSDs found during field investigations will be recorded and screened. 100% of the urbanized area will be re-screened during the permit cycle. Past efforts have demonstrated that a higher proportion of illicit discharges exist in older urbanized areas. In addition, the Kawkawlin River has previously been under advisory and warnings have been issued for full body contact for high levels of *E. coli* with respect to defined TMDLs. Although the Kawkawlin River was not under advisory last year, PSDs contributing to the Kawkawlin River and older urbanized areas will continue to receive the initial screening as a primary concern. Field crews will record a coordinate of each PSD using a handheld Global Positioning System (GPS) device or other suitable surveying technique. PSDs found during the investigations will be added to the appropriate maps; this information, as well as any corrections or modifications to the map or table, will be reported to the MDEQ as a part of the annual permit report as required by the permit.

During the field verification stage, each PSD will be screened for signs of illicit discharges or connections. Where illicit discharges or connections are suspected, a systematic investigation upstream of the PSD will be conducted to trace the discharge to the source. The PSDs will be observed in the field during dry weather conditions, typically assumed to be 72 hours with less than 0.10 inches of rainfall. Favorable seasonal conditions such as winter freeze up or summer drought will be utilized as much as practicable. When field screening PSDs in open channels, a longer dry weather duration preceding the observation may be needed. Specific dry weather duration requirements are site specific and will be determined during the field investigation. The sites will also be further checked for intermittent flows, if suspected, due to field observations. Fieldwork may be limited to certain times of the year to promote identification; for example, when the water table in the waterways is relatively low (late summer, fall and winter), winter thaws and spring will be avoided.

Each field check will be recorded and fully documented with descriptions of date, time, and observation notes confirming any discharge or odors or recording that none exist. If dry-weather flow is present, it will be visually observed by checking water clarity and color, the presence of foam, oil sheen, trash or other materials. It will also be checked for odor, bacterial sheen, slime, excessive vegetation growth and staining of the banks, the outfall or vegetation. It will then be referred to the qualified consultant for follow-up investigation. A copy of the field inspection form may be referenced in Appendix 2.

Upon referral, the consultant will test for representative tracer parameters including:

- pH
- temperature
- *E. coli*
- detergents
- fluoride
- hardness
- ammonia
- total organic carbon

The presence of dry-weather flow does not automatically indicate an illicit discharge or a

connection, but it does require that laboratory testing be performed to determine what is contained in the water. The water may simply be groundwater seepage and seasonal flow or it may be an illicit connection. In either case, a professional contract laboratory will perform all of these tests, except for pH and temperature, which will be tested in the field. Test results and observations will be used to identify areas that require follow-up investigations.

Based on the chemical and biological testing results, land use, field observations and additional areas upstream, the PSD will be investigated by the qualified consultant, as needed. For example, if the laboratory results show *E. coli* levels that indicate sanitary sewage, additional field investigation may be needed to locate the point of origin. This will be accomplished by tracing the pollutant stream until the source is isolated. Water samples that exceed water quality parameters used by the Michigan Department of Natural Resources and Environment for surface water will be investigated. Dye testing of building fixtures will then be used to confirm the source. Refer to Attachment A and B for example forms to be used during the field investigations.

Dye testing will be scheduled at an individual building following notification of the building owner to explain the need for this investigation and how it will be performed. Dye testing will be coordinated with MDEQ for the proper use and type of dyes. In general, dye testing will be used as the final step to confirm positive identification of an illicit connection. Televising the sewer may be used to further isolate the pollutant source or may be used if dye testing does not reveal the source of the problem. This approach is intended to locate illicit discharges and connections in the most cost-effective and efficient manner possible. It will focus the use of dye testing in those situations necessary to confirm illicit connections.

#### **Removal Actions and Confirmation of Removal**

When illicit connections are located, a letter will be prepared by the local jurisdiction to notify the property owner of the violation and corrective action required. BASWA will coordinate enforcement activity in conjunction with the Authority Member and Drain Commissioner. If the property owner does not respond within the time frame required in local ordinances, follow-up enforcement action will be taken. In the event the PSD is in a County Drain and the discharge is considered serious as defined by the Drain Commissioner, action can be taken by the Drain Commissioner to remove the discharge with the cost being assessed to the responsible party. When the property owner has indicated that a connection has been eliminated, the site will be inspected by the qualified consultant to confirm that the corrections were completed.

Corrective actions will be taken as soon as a source is positively identified. The existing details of the process to require corrective action and follow-up enforcement as needed, as well as amendments to local ordinances for the process, will be reviewed in conjunction with a qualified consultant by the beginning of the second quarter of 2011. In addition, Authority member jurisdictions will coordinate with the Drain Commissioner and Department of Natural Resources and Environment to ensure coordinated and efficient enforcement.

If multiple illicit discharges are discovered, they will be prioritized based on the severity and potential harm they may cause. Factors that would influence the prioritization include analyzing

results from ambient water quality, dry weather observation, chemical and bacterial analysis, as well as video, smoke or dye testing results. That analysis coupled with a review of the receiving water for beneficial uses, impairment of the water body, existing water quality data and endangered flora and fauna will determine the priority of removal actions. Ultimately, all newly discovered illicit discharges not existing during the previous permit cycle should be removed by the end of 2014. In addition to the ordinances adopted by the Authority Communities, The Michigan Drain Code has punitive provisions contained in Chapters 18 & 23 that provide mechanisms to force compliance of property owners.

### **Review of the Legal Authority**

During the first quarter of 2011, existing legal authority and enforcement procedures will be reviewed to assure that requirements of the General Permit are fulfilled. The Bay County Drain Commissioner, acting as Administrative Consultant for the Authority, will coordinate the review. If the current ordinances do not adequately prohibit illicit connections and discharges or allow appropriate enforcement actions, appropriate changes will be made to ensure adequate legal authority to deal with potential violations within the watershed is obtained. If an illicit discharge is confirmed, these changes will include the development of a remedial action plan and if necessary, the adoption of ordinance changes to prohibit, contain and remove illicit connections. The legal authority and enforcement procedures will be reviewed by the municipality's legal council and, as needed, a consulting engineer with the appropriate expertise.

## **2) MINIMIZING SEEPAGE FROM SEPTIC SYSTEMS AND SANITARY SEWERS**

The Bay County Health Department is responsible for reviewing the site characterization, providing installation permit standards, inspecting the installation of on-site sewage disposal systems (OSSDS) purposefully and specifically to maximize the system performance and effective on-site disposal of wastewater and to minimize uncontrolled, unauthorized seepage /discharges from septic systems within the Bay County urbanized area. Sanitary Sewer systems for the area are the responsibility of the Bay County Department of Water & Sewer and the City of Essexville.

### **Program Description to Minimize Infiltration of Seepage from On Site Sewage Disposal Systems into Separate Storm Water Drainage Systems**

Bay County simply has no significant problem with seepage from on-site septic disposal systems. The amount of clay in the soils in Bay County prevents any noticeable seepage related to failing systems. The Bay County Health Department, the entity responsible for oversight of the OSSDS, does not factor seepage into the criteria for the systems. Failed systems are detected by odor and generally reported by neighbors.

Point source problems with OSSDS are a greater concern for the Bay Area Storm Water Authority area. Not unlike other illicit discharges, visual inspections of the drains are the best mechanism to determine if OSSDS are discharging into storm water drains. Odor and residues are prevalent where illegal connections are present. These illicit connections are often

characterized by the presence of a residue such as lint and the area around the discharge point has black staining. During IDEP field screening and verification, drains will be monitored for illegal connections.

The Bay County Health Department has received grant funds to computerize and map the OSSDS records. Software was purchased in 2010. Initial review, data updates and mapping of 3200 parcels were completed in the first half of 2011. BASWA would review and map systems and identify failure rates in specific areas. If there are problem areas, a strategy would be developed in conjunction with the Bay County Health Department to test water quality in those areas. Problem areas will be identified by various means including tracking complaints registered by BASWA and the Bay County Health Department, tracking failed or replaced systems, looking for higher failure rates in certain geographic areas, data collected from field screening and verification as part of the BASWA IDEP, and data collected from government units (state or local) that identify problematic OSSDS areas. If there are elevated bacterial or chemical levels, OSSDS in those areas would be tested. In addition, the Authority will advocate the passage of ordinances at the county level and in municipalities that OSSDS be tested at the time of sale of a property with a system through correspondence with the County Board. although that political action is unlikely.

Training of staff that will perform the field screening and verification will include recognition of illicit OSSDS connections. Cross-training will be done with the appropriate Bay County Health Department staff so they may assist with Authority IDEP efforts. If an OSSDS outfall is suspected, the Bay County Health Department will be contacted for enforcement action.

### **Program Description to Minimize Infiltration of Seepage from Sanitary Sewer into Separate Storm Water Drainage System**

The permit requires a program to minimize infiltration of seepage from sanitary sewers. Identification of existing seepage problems from sanitary sewers to the waterways is proposed to be determined during the PSD screening tasks. Current construction practices for sanitary sewers require the use of premium (gasket) sewer joints, to minimize both the infiltration of water into the pipe and sewage out of the pipe.

A utility map of the urbanized area will be developed in conjunction with the GIS coordinator for Bay County. The map will be completed by the second quarter of 2011. It will overlay the sanitary and storm water systems. Areas where existing systems do not meet current construction standards, with respect to the distance between separated sanitary and storm sewers, will be identified and targeted for review.

The City of Essexville has completed a television screening of their entire sanitary sewer system. This survey has provided a baseline for repairs and improvements to the sanitary system and continuous upgrades are being made to the system based on this information. The Bay County Department of Water & Sewer purchased televising equipment several years ago and has begun a similar survey making repairs and improvements as necessary. Both entities have ongoing programs for inspections and maintenance of their systems. Additionally, the Bay County DWS has begun work on a detention system to eliminate all CSOs, and expects the project to be

complete in 2011.

It should be noted that the Authority does not have any jurisdiction over the operation of the sanitary sewer systems. However, upon completion and review of the utility map, the Drain Commissioner will work cooperatively with the system administrators to prioritize review of areas of the sanitary systems that do not meet current separation standards. If evidence of seepage is identified, we will work with the Authority member to complete repairs in the system.

### **Discovery during Construction - Incident reporting**

Bay County had adopted the guidelines defined by part 91 of the Natural Resources and Environmental Protection Act (NREPA). As such, any construction to take place is required to adhere to the guidelines set forth by the Soil Erosion and Sedimentation Control (SESC) rules and their respective permits. The Authority, through the Administrative Consultant, will develop contracts that are required to be signed as a condition of any permit for construction that involves earth moving. The contracts, regardless of the nature of the construction work activity, will require any illicit discharge connections found during the normal course of work activity to be reported to the local jurisdictional unit where the construction activity occurred. This will work to effectively minimize infiltration of seepage from sanitary sewer systems into separate storm water drainage systems. These contracts will be developed and implemented in 2011.

### **Complaint Tracking System**

During 2011, in conjunction with the City of Bay City and working with the qualified consultant as necessary, a complaint tracking system will be developed. It will be coordinated through the Bay County Drain Commissioner and used as a basis for prioritizing improvements and investigating potential discharge points. The number and location of complaints will be included in the annual report.

## **3) DETERMINING THE EFFECTIVENESS OF THE IDEP ACTIVITIES**

At the end of each year, an annual report will be generated. It will include the following information which will become the baseline for annual measurable improvements:

- \* Number of PSDs verified, located and screened.
- \* Number of illicit discharges found and percentages of those remedied.
- \* The number of complaints in the tracking systems received and the percentage that leads to the discovery of illicit connections.
- \* Status of the implementation of various aspects of the IDEP
- \* Timeliness of elimination of located illicit connections.
- \* A listing of significant discharges by location, pollutants of concern involved, estimates of volume and load discharge.
- \* Improvements in ambient water quality.

#### 4) **MAPPING**

As part of the ongoing program, maps in the urbanized area are reviewed and a map of identified outfalls has been created. It is the basis of field screening and verification. When crews walk the drains during the screening process they will confirm the outfall locations as well as locate and map additional outfalls along the drains. In addition, the utility map will incorporate any results from televising storm sewers. Mapping of located, verified and screened PSDs will be continually updated utilizing GPS information. Updated maps will be submitted annually to the MDNRE with the annual report. The maps will include designation of located and remedied illicit discharges. Maps that have been submitted can be referenced in the NPDES Certificate of Coverage.

#### **PROGRAM SCHEDULE SUMMARY**

Activities to be performed during the certificate of coverage period:

1. Train new staff on how to recognize and find illicit connections and discharges, including OSSDS discharges. (Drain Commission, Road Commission, DPW Staff) Refresher training as necessary. County field staff trained third quarter 2011, new employees annually.
2. Evaluate existing legal authority to prohibit and remove illicit connections and discharges and identify changes or improvements needed for permit compliance. (Drain Commissioner in 2011).
3. Develop a work plan and schedule prioritizing field verification and re-screening activities within the urbanized area. (Authority w/ Drain Commissioner 2010)
4. Perform re-screening on all of the known PSDs. (Trained Staff – 2010-2012)
5. Begin investigation and rededication of potential illicit connections. (Drain Commissioner – as necessary)
6. Update utility map of the urbanized area. (Drain Commission w/Bay County GIS Staff 2012)
7. Develop and establish a public complaint and reporting system. (Authority/Drain Commissioner - completed)
8. Implement a construction contract program for reporting of illicit connections. (Drain Commissioner - 2011)
- 9... Prepare Annual Report. (Drain Commissioner - annually)

#### **Inserts**

Attachment A: Inventory Form



Attachment B: Screening Form  
Attachment C: City of Bay City IDEP  
Attachment D: Field inspection form

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