

ILLICIT DISCHARGE ELIMINATION PROGRAM

BAY AREA STORM WATER AUTHORITY

November 3, 2005

The Illicit Discharge Elimination Program (IDEP) is being performed as a part of a regional strategy within the Bay Area Storm Water Authority Committee (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 a number of various public and private entities. Historically, 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" in the Great Lakes water resource issues. 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, success at water quality improvement has been measured. The past 15 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 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. In addition, their program has been ongoing for more than a year. 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 approved, we believe it can be incorporated in its entirety into the BASWA submission.

PERMIT REQUIREMENTS AND DEFINITIONS

As required by the Michigan Department of Environmental Quality's (MDEQ) National Pollutant Discharge Elimination System Wastewater Discharge General Permit No. MIG619000, 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:

In the fall of 2005, a qualified consultant will be selected to train Drain Commission, Road Commission, and municipal department of Public Works staff techniques for recognizing illicit discharges including methods of sampling and eliminating illicit discharges. 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. Training will extend to both those directly involved in screening and as many additional personnel as possible. The qualified consultant will verify the staff has been appropriately trained.

Beginning in the first quarter of 2006, field screening and verification will begin by utilizing the locations of known PSDs. The field screening and verification will be done by trained Drain Commission, Road Commission, city and township staff and monitored by the qualified consultant. Those locations and any unmapped PSDs found during field investigations will be recorded and screened. Thirty-three percent of the screening will be done in year one, with 33%

being done in years two and three. Past efforts have demonstrated that a higher proportion of illicit discharges exist in older urbanized areas. In addition, the Kawkawlin River has been under advisory throughout the last year. Due to that, PSDs contributing to the Kawkawlin River and older urbanized areas will receive the initial screening. 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.

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 Environmental Quality 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 require corrective action. The qualified consultant 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 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 developed and adopted in conjunction with the qualified consultant by the beginning of the second quarter of 2006. In addition, Authority member jurisdictions will coordinate with the Drain Commissioner and Department of Environmental Quality 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 illicit

discharges should be removed by the end of 2009. 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 2006, 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 a proposal to computerize the OSSDS records. 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 municipality 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; 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.

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 GPS coordinator for Bay County. The map will be completed by the second quarter of 2007. 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 two 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.

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. This task will be complete within three years.

Discovery during Construction - Incident reporting

The Authority, through the Administrative Consultant, will develop contracts that will be 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 2006.

Complaint Tracking System

During 2006, in conjunction with the City of Bay City and working with the qualified consultant, 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

During the first three years waterways will be investigated to locate PSDs; all known PSDs will be screened during dry weather for illicit connections and discharges, any problems will be traced and remedied. If serious discharges are located and identified as determined by the Drain Commissioner, a specific report will be generated noting location, pollutants and volumes. Subsequent to that activity, waterways will be inspected every five years in an effort to maintain an ongoing screening program. Specific tasks and time frames are outlined below.

At the end of the first year and each year thereafter, 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 certificate of coverage activity, maps in the urbanized area were reviewed and a map of identified outfalls has been created. It will be 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 that will be created during the first 15 months of IDEP activity 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 DEQ with the annual report. The maps will include designation of located and remedied illicit discharges

PROGRAM SCHEDULE SUMMARY

Activities to be performed within **12 months** include:

1. Train staff on how to recognize and find illicit connections and discharges, including OSSDS discharges. (Drain Commission, Road Commission, DPW Staff)
2. Evaluate existing legal authority to prohibit and remove illicit connections and discharges and identify changes or improvements needed for permit compliance. (Drain Commissioner)
3. Develop a work plan and schedule prioritizing field verification and screening activities within the urbanized area. (Authority w/ Drain Commissioner)
4. Perform initial verification and screening on at least 33 % of the known PSDs. (Trained Staff)
5. Begin investigation and rededication of potential illicit connections. (Consultant)
6. Complete a utility map of the urbanized area. (Drain Commission w/Bay County GIS Staff)
7. Develop and establish a public complaint and reporting system. (Authority/Drain Commissioner)
8. Implement a construction contract program for reporting of illicit connections. (Drain Commissioner)
- 9.. Prepare Annual Report. (Drain Commissioner)

Activities to be performed within **24 months** include:

1. Perform verification and screening on at least 33% of the known PSDs. (Trained Staff)
2. Complete a utility map of the urbanized area. (Drain Commissioner w/GIS Staff)
3. Implement a strategy to identify and repair potential sanitary sewer seepage issues based on utility map. (Drain Commissioner w/Sanitary Sewer Departments)
4. Continue follow-up investigation and remediation on identified illicit connections. (Consultant)
5. Prepare Annual Report. (Drain Commissioner)

Activities to be performed within **36 months** include:

1. Perform verification and screening on at least 33 percent of the known PSDs. (Train~~Staff~~)
2. Continue follow-up investigation and rededication on identified illicit connections. (Consultant)
3. Prepare Annual Report. (Drain Commissioner)

Inserts

Attachment A: Inventory Form

Attachment B: Screening Form

Appendix 1: City of Bay City IDEP

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