ILLICIT DISCHARGE ELIMINATION PROGRAM & THE SOP FOR THE IDEP PROGRAM

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Illicit Discharge Elimination Program

The MDEQ Municipal Separate Storm Water Discharge Permit requires that all MS4s develop an Illicit Discharge Elimination Plan (IDEP). The major components of the IDEP plan are highlighted below. These components include eliminating illicit discharges, reviewing the legal authority, minimizing seepage from septic systems and sanitary sewers, and the coordination of activities. To satisfy these various components, the City of Mason will respond in a manner consistent with the scope of its current legal authority and is not assuming any authority or responsibility necessary to satisfy one of the components is vested in whole or in part in another municipal authority (city, county, and community organizations) or municipal department, the City of Mason will coordinate with that municipal authority or department in an effort to satisfy the component. Municipal authorities include but are not limited to, the Drain Commissioner, Road Commission, and County Board of Commissioners. Municipal departments include, but are not limited to Public Service, Engineering, Parks and Recreation, and Community Development.

Field Verification of PSD Locations

The PSD maps have been field verified in the last permit cycle and will continue monitoring in the next permit cycle. Some clarification is needed to sort out the best way to mark them and to find them every time with accurate location and mapping.

Eliminating Illicit Discharges and Connections

One of the primary actions under the IDEP is to identify and remove all illicit discharges and connections from the municipal storm sewer system. PSD maps identifying the PSDs, currently known, within the municipal limits have been prepared as part of the Greater Lansing Regional Committee on Phase II Nonpoint Source Pollution Prevention. PSD locations were identified based on the best data available from the Tri-County Regional Planning Commission, the County Drain Commissioner, and the local municipality. The information was collected and summarized in GIS. The initial focus of this program will be to inventory and screen each of the PSDs during dry weather. This process is illustrated in Attachment A, Work Plan Flow Chart. A PSD inventory will record the PSD ID, the physical location, and the physical characteristics of the PSD. The data will be recorded on a drainage system inventory sheet (see Attachment B). Each PSD will also be screened, which will document general information including, flow measurements, visual and odor observations, and data from chemical and biological water analysis. This data will be recorded on a drainage system screening form (see Attachment B). Water quality samples will be taken from the PSD if dry weather flow is present. The basic analytical tests performed will include surfactants, ammonia, fluoride, hardness, total organic carbon (TOC), and E. coli. Additional analytical tests may be added if specific sources need to be targeted. Collected data will be entered into a database for future tracking of potential sources. City staff will follow the SOP for these evaluations.

The results of the water quality tests and observations noted on the drainage system screening form will be used to determine if potential problems exist at each PSD. PSDs with potential illicit connections and/or discharges will be prioritized based on visual observations and chemical test results for follow up investigation.

Follow up investigation will involve additional screening and sampling of the PSD. In addition, strategic manholes within the system connected to that PSD will be inventoried, screened, and sampled using the same procedures. This process will allow the pollutant stream to be traced throughout the system until the source is isolated within a relatively short reach of the sewer. Televising the sewer may be used to further isolate the pollutant source. Dye testing of building fixtures will be used to positively identify illicit connections. Once the connection is confirmed, the City of Mason will work with the owner to remove the connection.

Reviewing the Legal Authority

Existing legal authority and enforcement procedures will be reviewed to assure that all requirements of the General Permit are fulfilled. If the local ordinances do not adequately prohibit illicit connections and discharges an action plan will be developed and ordinance changes adopted, if necessary, to prohibit and remove elicit connections.

Minimizing Seepage from Septic Systems and Sanitary Sewers

The county health department manages the on-site sewerage disposal system (OSSDS) within the municipality. A cooperative review of the OSSDS program and the status of identifying leaky systems will be conducted with the Ingham County Health Department. If a process for identifying failing septic systems is not currently in place the municipality will develop a map of failing OSSDS and correction program.

Leaky sewer systems should not be a problem, since the municipality follows design standards outlined in the document "Recommended Standards for Wastewater Facilities." If significant leaks from sanitary sewer lines exist, they will be picked up during the PSD screening process. As the contamination is followed upstream, potential sources will be identified. These sources will then be tested for connectivity using dye. If all potential sources prove to be negative, then the line will be televised to identify the condition of the sewer and the potential for seepage of sewage from sanitary lines. If necessary, pressure tests will be conducted on sanitary lines to confirm the loss of sanitary wastewater from that system. Corrections will be made based on the findings.

Coordination of Activities

As a member of the Greater Lansing Regional Committee on Phase II Nonpoint Source Pollution Prevention, the City of Mason will be coordinating with the other Phase II municipalities. Specifically, coordination will occur with other municipalities within the Red Cedar River Sub watersheds to address illicit connections/discharges, local ordinances, and seepage from septic systems and sanitary sewers. At this point it is known whether the City of Mason will conduct the illicit connection investigation.

Program Schedule

Activities to be performed within 12 months include: (2014)

1. Define responsibilities and staffing plan (completed)
2. Review PSD Inventory map and update locations
3. Set up testing procedure and train employees
4. Prepare Annual Report

Activities to be performed within 24 months include: (2015)

1. Locate potential sites of septic tank systems (Needs to be complete before 2015)
2. Train selected staff on how to find illicit connections and discharges (ongoing)
3. Begin next round of inventory and screening on known PSDs (Completed in 2015)
4. Begin investigating drains, thought to have PSDs, but did not have PSDs identified (2014, 2015)
5. Continue follow-up investigation on PSDs with potential problems (will continue in 2015)
6. Begin the adoption of ordinance changes, as needed, to meet the required language in the permit.

Activities to be performed within 36 months include: (2016)

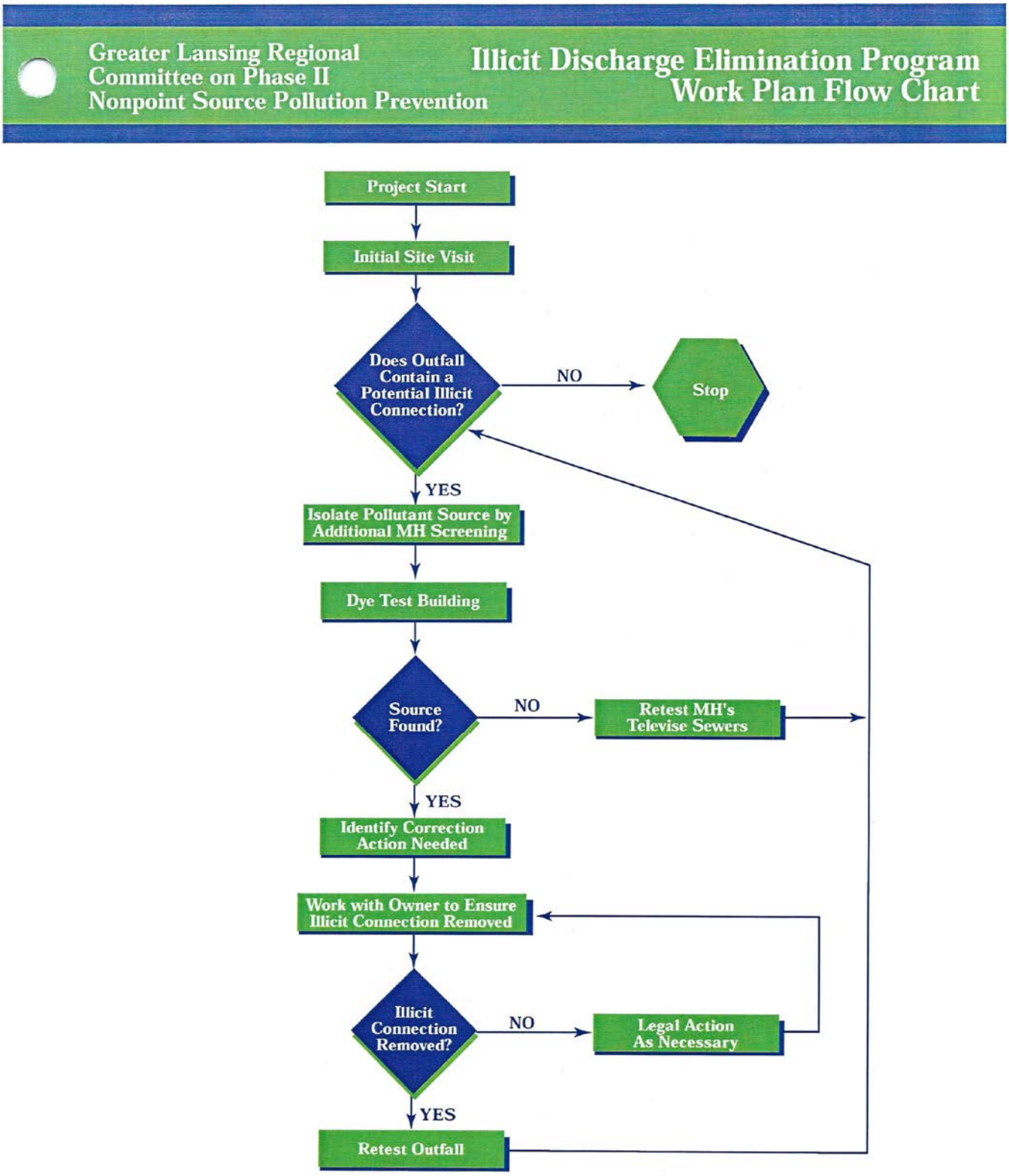
1. Continue to perform initial inventory and screening on known PSDs. (On going)
2. Continue investigating drains, thought to have PSDs, but did not have PSDs identified in the Permit application. (Staff walked the sycamore creek in 2012 and located and marked all out falls)
3. Continue to train staff. (Training is ongoing)
4. Continue initial inventory and screening on known PSDs. (Will follow up on more screening in 2016)
5. Continue follow-up investigation on PSDs with potential problems. (This will continue through this permit cycle)
6. Complete adoption ordinance changes, if needed, to restrict and remove illicit connections.
7. Establish a public complaint and reporting system. (We have a link on our web site for reporting pollution)
8. Prepare Report. (2016)

Activities to be performed within 48 months include: (2017)

1. Investigate drains, thought to have PSDs, but did not have PSDs identified in the permit Application. (Walk the Sycamore creek again and look for any new PSDs.)
2. Complete staff training. (Training is ongoing)

3. Continue initial inventory and screening of PSDs.
4. Continue follow-up investigation on PSDs with potential problems.

Attachment A



Attachment B

DRAINAGE SYSTEM INVENTORY

GENERAL ID _____

Date _____ Time _____

Initial (1) _____ Initial (2) _____

Picture #'s _____

STRUCTURE TYPE

- ☐ Discharging Pipe
- ☐ Manhole
- ☐ Catch Basin
- ☐ Culvert Outlet
- ☐ Point in Open Channel
- ☐ Not Found
- ☐ Blind Tie or Tap
- ☐ Non-point Source (circle below)
  - *Seepage
  - *Overland flow

OWNERSHIP

- ☐ Enter your name here
- ☐ Drain Commissioner
- ☐ Private
- ☐ Road Commission
- ☐ Other
- ☐ Unknown

LOCATION (see back side for location sketch)

Latitude _____

Longitude _____

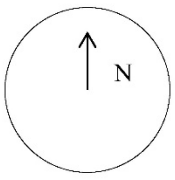
Cross-street _____

Offset Description _____

Receiving Waterbody: _____

Inventory Comments: _____

CONDUIT INFORMATION						
Pipe ID						
Direction from MH						
Shape						
Diameter (in)						
Width (in) (Open Channel)						
Depth (in)						
Measure Down (ft) (Manhole)						
Invert Elevation (ft) (Pipes)						
Conduit Material						
Inlet/Outlet						



Canine hit: ☐ Yes ☐ No

LOCATION SKETCH

LOCATION SKETCH CHECKLIST

- ☐ Label street names
- ☐ Indicate north
- ☐ Locate manholes by dimensions from property lines, back of curb, or edge of pavement
- ☐ Sketch catch basins and connections (no measurements necessary)
- ☐ Indicate (if possible) distance to upstream and downstream manholes
- ☐ Flow direction
- ☐ Sample point
- ☐ Special access/traffic control notes
- ☐ Between mile markers ____ & ____ or ____ tenths past mile marker ____
- ☐ Velocity/depth measure location

DRAINAGE SYSTEM SCREENING

GENERAL

ID _____

Date _____ Time _____ Air Temp _____ Last rain date/time_____ (48-72 hours of dry weather required)

Initials _____ Chk By _____ Rain ☐ Yes ☐ No

☐ Clear/Sunny
☐ Partly Cloudy
☐ Overcast

DRY WEATHER FLOW PRESENT

☐ Yes, dry weather flow present
☐ Trace, insufficient flow to sample
☐ No dry weather flow present
☐ Standing water
☐ Submerged
☐ Inundated
☐ N/A

FLOW MEASUREMENTS

Pipe Sampled: Size (in) _____ Direction _____

Method: ☐ Area * Velocity

General Data		Travel Time Trials	
Depth (in)	_____	#1 (sec)	_____
Dist Traveled (ft)	_____	#2 (sec)	_____
Bucket Vol (l)	_____	#3 (sec)	_____
Channel slope (%)	_____	Avg (sec)	_____
Channel material	_____	Vel (fps)	_____
Channel, n	_____		

Flow: _____

Intermittent Flow Check
☐ Not checked
☐ Left sand bag in channel
☐ Removed sand bag, intermittent DWF present ☐ Yes ☐ No

If possible, describe frequency, duration, time of day of flow slugs—put in comments section.

DISCHARGE OBSERVATIONS *(if "other" checked, fill in description at bottom of page)*

Odor	Floatables	Deposits/Stains	Vegetation	Structural
☐ None	☐ None	☐ None	☐ None	☐ Normal
☐ Musty	☐ Trash	☐ Mineral	☐ Normal	☐ Cracking
☐ Sewage	☐ Sewage	☐ Sediment	☐ Excessive	☐ Spalling
☐ Rotten Egg	☐ Bacterial Sheen	☐ Oily	☐ Algae	☐ Corrosion
☐ Gas	☐ Oil Sheen	☐ Grease	☐ Slime	☐ Settlement
☐ Oil	☐ Suds	☐ Suds		☐ Staining
☐ Other	☐ Other	☐ Other	☐ Other	☐ Other

Description:

CHEMICAL ANALYSIS

FIELD ANALYSIS			LAB SAMPLE COLLECTED ID	
Surfactants	_____	mg/L (.5)	Temperature	_____
Ammonia (as N)	_____	mg/L (1)	pH (6-9)	_____
Hardness	_____	mg/L	Specific cond.	_____
Fluoride	_____	mg/L		
E. coli	_____	Per 100ml (1000)		

RESULTS

- ☐ Illicit discharge ruled out. Date_____
- ☐ Illicit discharge (e.g. undocumented connection) Date_____
- ☐ Pending Date_____
- ☐ Notify MDEQ Date_____

ACTION

- ☐ None required, not an illicit discharge
- ☐ Illicit discharge eliminated on _____
- ☐ Dye test – Date completed _____
- ☐ Televise – Date completed _____
- ☐ Investigate further – Date completed _____
- ☐ Illicit discharge/connection – Notified responsible party on _____

Comments:

Standard Operation Procedure for IDEP

SOP 700. Illicit Discharge Elimination Program

Purpose of SOP Series 700

To obtain and record inventory information for new outfalls including construction material, size, Global Positioning System (GPS) location, and reporting the location of new outfalls to the MDEQ. To conduct field screening of Outfalls to schedule, report, track and enforce the illumination of illicit discharges including response to spills and emergency situations. To perform a round of dry-weather screening of all city outfalls every 5 years and to track the effectiveness of the IDEP program. To track the cleaning, lining and rehabilitation of sanitary sewers and the disconnection of illicit discharges.

Related Guidance

- Center for Watershed Protection Illicit Discharge Detection and Elimination Manual.
- City of Lansing IDEP Field Protocol Manual.
- City of Lansing Quality Assurance Project Plan (QAPP)
- MDEQ NPDES Wastewater Discharge General Permit (2003)

Other Related SOPs

- EPA-430/9-74-004, Maintenance Management Systems for Municipal Wastewater Facilities

Evaluating the Effectiveness of the IDEP Program

- The City will show this program is working and effective if tests show no significant increase in contaminates are found during PSD screening. If a increase is found then the process will move forward with the elimination of the contaminates.

SOP 710. Field Screening and Inventory of Existing Outfalls

Procedures/Practices

Each Visit

- Perform a dry-weather screening of each outfall noting dry weather flow, pipe size and material, direction of pipe from manhole, depth of pipe invert relative to manhole rim (if applicable), date and time of inspection and GPS location within 1 meter. Note any visual indications of an illicit discharge. Use the IDEP forms that are included in the appendix.
- Take a digital photograph of the outfall pipe or manhole showing the structure and its immediate surroundings.

Dry weather flow

Outfall sampling

Immediately

- Conduct a follow-up, upstream investigation on any outfall that exhibits visual or physical signs of sewage contamination (Smell, sewage bacteria, sanitary debris).

As Soon as Practical

- Conduct a follow-up, upstream investigation on outfalls that fall outside of chemical testing parameters: Ammonia >1mg/L; Surfactant >0.2mg/L; E. coli >2000 colonies/100ml; Temperature > ambient air temperature; pH >9 or <6.3.

During Field Screening Process

- Watch for discharges from Sanitary Sewer Overflows (SSO) and non-point source discharges and record them on the IDEP and that is included in the appendix.

If Dry Weather Flow Present

- Collect a sample of any dry weather flow. Test for Ammonia, Surfactant, E. coli, pH, and Temperature (see SOP 720. Sampling Procedures;)

Immediately

- Enter data from screening and inventory in the City of Mason IDEP database.

Every 5 Years

- Conduct a field screening and inventory of all existing city outfalls. Outfalls should only be screened in dry weather (At least 72 hours after the last rainfall event that produced more than 0.1 inches of rainfall).

Employee Training

Annually

- Train field staff to identify and report suspected illicit discharges.
- Train staff on conducting field screening and the use of the IDEP forms and procedures for performing dry weather screening, taking dry weather flow samples, conducting upstream investigations, and entering data into the IDEP database.

Inspections and Record Keeping

Continuous

- The IDEP Forms will be used for field screenings and upstream investigations. The information from the completed forms should be entered into the IDEP database for future reference and to aid in the process for removing illicit discharges from private properties.

SOP 720. Upstream Tracking and Discharge Verification

Procedures/Practices

Immediately

- Trace the suspected illicit discharge upstream through the storm sewer system, sampling any flowing input pipes along the way. Try to isolate any suspected illicit discharge to a single stretch of sewer or city block.
- Notify the owners of suspect properties by mail of the intention to dye test their property to confirm the presence or absence of an illicit discharge. Work with the property owner to set up a convenient time to conduct the dye testing.

As Soon as Practical

- Dye test suspected illicit discharge sources (toilets, sinks, sump drains, floor drains, etc.) to isolate the source.

Positive dye test

Employee Training

Annually

- Staff conducting upstream tracking need to be trained on the use of the IDEP forms and procedures for tracking discharges upstream through the storm sewer system, taking dry weather flow samples, dye testing, working with the property owner of the suspected illicit discharge, and entering data into the IDEP database.
- Inspections and Record Keeping

Continuous

- The IDEP forms will be used for field screenings and upstream investigations. The information from the completed forms should be entered into the IDEP database for future reference and to aid in the process for removing illicit discharges from private properties. Correspondence with property owners should also be documented including phone calls, e-mails, letters, and verbal communication.

SOP 730. Reporting Illicit Discharges to MDEQ and the Ingham County Health Dept.

Procedures/Practices

Within 24 Hours

- If a discharge endangers health or the environment, report verbally to MDEQ within 24 hours from the time an illicit discharge is confirmed.

Within 5 Days

- If a discharge endangers health or the environment, report in writing to MDEQ within 5 days from the time the illicit discharge is confirmed. Include a description of the discharge and cause of noncompliance, the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the discharge.

Outfall documentation

Sewage stain

Employee Training

At least once per year

- Employee training should include the procedure for notifying the MDEQ of illicit discharges to the City of Mason's Municipal Separate Storm Sewer System.

Inspections and Record Keeping

Continuous

- Maintain up to date records of correspondence with the MDEQ regarding an illicit discharge including phone logs, e-mails, and written correspondence. Document all relevant screening and sampling activities and correspondence with the property owner with illicit discharge.

SOP 740. Field Screening and Inventory of New Outfalls

Procedures/Practices

As Soon as Practical

- Conduct a dry-weather screening and inventory of new outfalls created by construction projects using the IDEP forms.
- Perform a dry-weather screening for each new outfall noting dry weather flow, pipe size and material, direction of pipe from manhole, depth of pipe invert relative to manhole rim (if applicable), date and time of inspection and GPS location within 1 meter. Note any visual indications of an illicit discharge. Use the IDEP forms that are included in the appendix.

During Screening

- Take a digital photograph of the outfall pipe or manhole showing the structure and its immediate surroundings.

Immediately

- Enter data from screening and inventory in the City of Mason IDEP database.

Annually

- Report new outfalls to MDEQ.

Employee Training

Annually

- • Staff conducting field screening need to be trained on the use of the IDEP forms and procedures for performing dry weather screening, taking dry weather flow samples, conducting upstream investigations, entering data into the IDEP database, and reporting new outfalls to MDEQ.

Inspections and Record Keeping

Continuous

- The IDEP forms will be used for field screenings and upstream investigations. The information from the completed forms should be entered into the IDEP database for future reference and to aid in the process for removing illicit discharges from private properties.

SOP 750. Internal Tracking and Reporting

Procedures/Practices

Directly After Screening

- • Document the date, time, and screening results of existing outfalls as they are visited. Enter these results in the IDEP database.

As Work is Completed

- Track the location and resolution of all illicit discharges in the IDEP database. Document upstream follow- up investigations including results for any dye testing or sewer televising work.

Employee Training

Annually

- Train staff on the use of the IDEP database and the IDEP forms.

Inspections and Record Keeping

Continuous

- The IDEP forms will be used for field screenings and upstream investigations. The information from the completed forms should be entered into the IDEP database for future reference and to aid in the process for removing illicit discharges from private properties.

SOP 760. Emergency Spill Response

Procedures/Practices

Immediately

- In the event the spill or release poses a threat to public safety, call 9-1-1 immediately.
- Report spills or accidental releases immediately to the MDEQ Pollution Emergency Alerting System (PEAS) 24-hour hotline at 1-800-292-4706.
- If not a threat to public safety, determine the best approach and schedule to clean up and address the spill in coordination with the MDEQ. This may mean coordinating with entities downstream to try to capture the spill if it has reached a water body. If this is a hazardous release, only trained professionals will be involved in the actual clean-up.
- If spill substance is unknown, do not try to clean it up without hazardous material professionals.
- Consider the measures to be taken to prevent future releases of a similar nature and implement any changes to procedures or equipment.

Emergency response to large illicit discharge

Within 10 Days

- Within 10 days of the spill or release, submit to the MDEQ a full written explanation as to the cause, discovery, response (clean-up and/or recovery) measures taken, and preventative measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

Employee Training

Annually

- Train staff on the emergency spill response procedure.

Inspections and Record Keeping

Continuous

- Document all correspondence related to the spill including phone calls, e-mails, letters, and verbal communication.
- Follow through with frequent inspections of the spill site, if safe, until the spill is cleaned up.

SOP 770. Sewer System Improvements and Maintenance Tracking

Procedures/Practices

Daily

- For sewer maintenance work, Work Order Forms are completed and given to the person assigned to do the maintenance work.
- Tracking of cleaning is done on a base map showing sewer lines and catch basins that remain to be cleaned. As each element is cleaned, that line or element is yellowed out with a marker.

Upon Completion

- When work is completed, the carbon copies of the completed Work Order and Work Record form are filed; the Work Order part is filed in chronological order. The Work Record is filed in the folder for the particular sewer element /segment where the work was done.

Continuous

- Establish and follow a routine maintenance and inspection schedule keeping data and records for each element. Place special emphasis on documenting unusual incidents or faulty operating conditions.

Employee Training

Annually

- Train applicable staff on proper sewer system improvement and maintenance tracking procedures. Inspections and Record Keeping

Continuous

- Maintaining records of system maintenance, structure location, and construction changes is the responsibility of each City employee working on the system. A maintenance record will contain, integrate, and maintain information on the City's sewer system.