MCM #3: ILLICIT DISCHARGE DETECTION & ELIMINATION (IDDE)

MARYLAND MS4 PHASE II GENERAL PERMIT WORKSHOPS
AUGUST 8TH: COLUMBIA, MD
AUGUST 13TH: BEL AIR, MD
AUGUST 15TH: HAGERSTOWN, MD
WHO ARE YOU?

- WHO WORKS ON A STATE/FEDERAL PROPERTY?
- WHO WORKS FOR A LOCAL MUNICIPALITY?
- WHO IS A NEW PERMITTEE?
- WHO HAS AN EXISTING PERMIT?
- WHAT IS YOUR LEVEL OF UNDERSTANDING OF THE PERMIT, STORMWATER, IDDE?
  - NO CLUE
  - BASIC UNDERSTANDING
  - EXPERT – I JUST NEEDED AN EXCUSE TO GET OUT OF THE OFFICE
WHO AM I?

- ORIGINALLY FROM NEW ORLEANS, LA
- GRADUATE OF OREGON STATE UNIVERSITY
- MOVED TO MARYLAND IN 2002 TO SERVE IN AMERICORPS
- WORKED FOR FREDERICK COUNTY FROM 2004-2013
- STARTED WITH DEWBERRY IN 2013

Self proclaimed stormwater nerd!
OUTLINE

• WHAT IS IDDE?
• MCM #3 REQUIREMENTS - MARYLAND MS4 PHASE II GENERAL PERMIT
  • IDDE ORDINANCE DEVELOPMENT
  • STORM DRAIN MAPPING
  • STANDARD OPERATING PROCEDURES

Photo: Discharge from well drilling

- Does anyone have any burning questions?
- What information are you all hoping to walk away with after this presentation?
WHAT IS IDDE?

- 40 CFR 122.26(b)(2)
  
  “ANY DISCHARGE TO AN MS4 THAT IS NOT COMPOSED ENTIRELY OF STORMWATER, EXCEPT ALLOWABLE DISCHARGES PURSUANT TO AN NPDES PERMIT, INCLUDING THOSE RESULTING FROM FIRE FIGHTING ACTIVITIES.”
- NOT JUST ABOUT CONNECTIONS TO THE STORM DRAIN

In addition to fire fighting activity discharges, air conditioner condensate and groundwater are expected and acceptable

Any illegal process or wash water discharges or connections are considered IDDEs. IDDE also includes spills and/or leaks from damaged infrastructure
MCM #3 REQUIREMENTS

PART IV.C AND APPENDIX B.II OF THE MARYLAND MS4 PHASE II GENERAL PERMIT:

- PART IV.C.1: STORM SEWER SYSTEM MAPPING
- PART IV.C.2: ILLICIT DISCHARGE ORDINANCE
- PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY
- PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
- PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
- PART IV.C.6: DOCUMENT INSPECTION RESULTS
- PART IV.C.7: MAINTAIN RECORDS

IDDE PROGRAM MUST BE UNDER DEVELOPMENT BY OCTOBER 31, 2019 AND FULLY IMPLEMENTED BY OCTOBER 30, 2023

While all IDDE programs will have common elements, each needs to be tailored to the permittee’s storm drain size, land uses, mix of commercial/industrial land uses, traffic conditions, and infrastructure
“I can’t worry about that now. I’m worrying about something else.”
IDDE RESOURCE

HTTPS://WWW3.EPA.GOV/NPDES/PUBS/
IDDE_MANUALWITHAPPENDICES.PDF

Illicit Discharge Detection and Elimination
A Guidance Manual for Program Development and Technical Assessments

by the
Center for Watershed Protection

and
Robert Epe
University of Alabama

October 2004
MCM #3 REQUIREMENTS

• PART IV.C.1: STORM SEWER SYSTEM MAPPING
• PART IV.C.2: ILLICIT DISCHARGE ORDINANCE
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  • PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
  • PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
  • PART IV.C.6: DOCUMENT INSPECTION RESULTS
  • PART IV.C.7: MAINTAIN RECORDS

Part IV.C.3 is only applicable to municipalities; not state/federal properties
ILLICIT DISCHARGE ORDINANCE

- **PART IV.C.2** REQUIRES PERMITTEE TO ADOPT AN ORDINANCE OR OTHER REGULATORY MEANS THAT PROHIBITS ILLICIT DISCHARGES INTO THE MS4
- **PART IV.C.3** REQUIRES PERMITTEE TO ESTABLISH & DOCUMENT LEGAL MEANS FOR ACCESSING PRIVATE PROPERTY TO INVESTIGATE & ELIMINATE

State/Federal properties will be slightly different

Do not re-create the wheel – plenty of examples from other jurisdictions &/or model ordinance from EPA

Review what code already exists - your jurisdiction may already have an ordinance in place which meets some (or most) of the requirement and may need minor revisions for compliance:

1) Stormwater ordinance that prohibits illicit discharges to the drainage network
2) Plumbing code that prohibits illicit connections to the drainage network
3) Health code that regulates the discharge of harmful substances to the drainage network.
MCM #3 REQUIREMENTS

• PART IV.C.1: STORM SEWER SYSTEM MAPPING

✓ PART IV.C.2: ILLICIT DISCHARGE ORDINANCE
✓ PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY

• PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
• PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
• PART IV.C.6: DOCUMENT INSPECTION RESULTS
• PART IV.C.7: MAINTAIN RECORDS
STORM SEWER SYSTEM MAPPING

- **PART IV.C.1** REQUIRES PERMITTEE TO DEVELOP & MAINTAIN STORM SEWER SYSTEM MAPPING
- **AT A MINIMUM, THE INFRASTRUCTURE WITHIN THE MS4 WHICH MUST BE MAPPED INCLUDES:**
  - **STORMWATER CONVEYANCES (PIPES, SWALES, ETC)**
  - **OUTFALLS**
    - "A POINT SOURCE AT THE POINT WHERE THE MS4 DISCHARGES TO WATERS OF THE U.S."
  - **BMPS**
  - **WATERS OF THE U.S.**

Keep in mind - Outfalls may or may not coincide with a stormwater BMP

This is the minimum that is required – in addition, inlets and drainage areas can be helpful but are NOT required!

With respect to tracking potential illicit discharges, it is also helpful to have the drainage area to the outfall mapped as well – but NOT required!

As discovered, private outfalls must also be added

NOTE – the intent is to aid in completion of the illicit discharge investigations but should not be included in the number of outfalls used as the basis for the minimum screening requirement. This is only applicable to municipalities and not state/federal properties.
STORM SEWER SYSTEM MAPPING

- CAN BE CAPTURED IN A VARIETY OF WAYS:
  - COLLECTED FROM DEVELOPMENT PLANS VIA GIS
  - COLLECTED VIA FIELD TRUTHING WITH GPS AND GIS-ENABLED DEVICES

CULVERTS ARE NOT OUTFALLS!

Can be captured in a variety of ways:
- Collected via GIS from georeferenced development plans
- Collected via field truthing with GPS and GIS-enabled devices

State/Federal properties may have drainage from neighboring jurisdictions – will require coordination
Same with municipalities located within a permitted County or with SHA roads
• IN THIS PERMIT TERM, PERMITTEES MAY
PRIORITIZE INITIAL MAPPING EFFORTS
TO AREAS WITH HIGHER POTENTIAL TO
POLLUTE:
  • URBANIZED
  • COMMERCIAL/INDUSTRIAL
  • RAPIDLY DEVELOPING
• OTHER MAPPING CONSIDERATIONS:
  • ADJACENT MS4 DRAINAGE (I.E. SHA, COUNTY)

Use Maryland Department of Planning – Land Use/Land Cover data to identify priority areas
PRIORITIZING MAPPING & INSPECTIONS

SECTORS OF PARTICULAR CONCERN INCLUDE:

- AUTOMOTIVE REPAIR SHOPS & MAINTENANCE YARDS
- GOLF COURSES
- CAR WASH FACILITIES
- COMMERCIAL LAUNDRIES
- STRIP MALL/SHOPPING MALL PARKING LOTS
- SPILLS FROM TRAFFIC ACCIDENTS
- POOR DUMPSTER MANAGEMENT
- RESIDENTIAL DUMPING
- POOL DISCHARGES
- WATER BREAKS
- LIGHT/HEAVY INDUSTRY
- FAILING SEPTIC/SEWER SYSTEM
MCM #3 REQUIREMENTS

- PART IV.C.1: STORM SEWER SYSTEM MAPPING
- PART IV.C.2: ILLECIT DISCHARGE ORDINANCE
- PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY

• PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
  • PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
  • PART IV.C.6: DOCUMENT INSPECTION RESULTS
  • PART IV.C.7: MAINTAIN RECORDS
PART IV.C.4 REQUIRES PERMITTEE TO DEVELOP & IMPLEMENT SOPs THAT SPECIFY:

- DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST
- OUTFALL SCREENING FREQUENCY
- IDENTIFICATION AND ELIMINATION PROCEDURES
- IDENTIFICATION OF PRIORITY SCREENING AREAS
- ENFORCEMENT AND PENALTY PROCEDURES
- IDDE OUTREACH PROCEDURES
- COORDINATION WITH ADJACENT/INTERCONNECTED MS4

Photo: trash compactor discharge into a stormwater pond
STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

• CHECKLIST SHOULD CONTAIN:
  • BACKGROUND DATA

Again, don’t re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Background data: date, time, inspectors, watershed/subwatershed, outfall ID, date of last rainfall, flow present?
Again, don’t re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Emphasis on customize – think about what information is going to be helpful to you for tracking and maintaining your system and addressing illicit discharges

Outfall description: pipe shape, pipe type/material, pipe size, flow present?
Again, don’t re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Qualitative & physical indicators of flow – flow depth, flow velocity/amount, temperature, odor, color, turbidity, floatables (not trash), damage, sediment, abnormal vegetation

NOTE – these could of examples show chemical tests, these are not required – at a minimum visual and olfactory indicators are to be used. Chemical tests can be helpful in identifying the potential type of discharge and thus tracking its source but they are not required.
STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

• CHECKLIST SHOULD CONTAIN:
  • BACKGROUND DATA
  • OUTFALL DESCRIPTION
  • QUALITATIVE & PHYSICAL INDICATORS (IF FLOW PRESENT)
  • OVERALL OUTFALL CHARACTERIZATION
  • DATA COLLECTION
  • NON-ILLICIT CONCERNS

Odor: None(N) Sewage(SE) Sulfur(S) Oil(IL) Gas(G) Rainy/Sour(RS) Other(O)
Color: Clear(C) Yellow(Y) Brown(B) Green(GR) Red(R) Gray(G) Other(O)
Clarity: Clear(C) Opalec(O) Cloudy(CD) Other(O)
Floatables: None(N) Oil Sheen(O) Sewage(SE) Trash(T) Other(O)
Deposits: None(N) Sediment(S) Oil(IL) Other(O)
Vegetative Condition: Normal(N) Excessive Growth(EG) Inhibited Growth(IG) Other(O)
Erosion: None(N) Moderate(M) Severe(S)
Predominant Land use: Residential Commercial Industrial
What is Discharge Source:
Comments:
Photographs:

Again, don’t re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Section 7 not required – only if chemical tests performed
STANDARD OPERATING PROCEDURES
OUTFALL SCREENING FREQUENCY

• MUST SCREEN 20% OF TOTAL OUTFALLS PER YEAR, UP TO 100 OUTFALLS
• FREQUENCY IS TIERED FOR STATE/FEDERAL PROPERTIES:
  • SMALL PROPERTY (<100 ACRES) – ALL OUTFALLS SCREENED EACH YEAR
  • MEDIUM PROPERTY (100 – 2,000 ACRES) – MUST SCREEN 50% OF TOTAL OUTFALLS EACH YEAR
  • LARGE PROPERTY (>2,000 ACRES) – MUST SCREEN 20% OF TOTAL OUTFALLS EACH YEAR

Permittees have the flexibility to screen some outfalls or priority locations more often based on pollution potential
STANDARD OPERATING PROCEDURES
IDENTIFICATION OF ANNUAL PRIORITY SCREENING AREAS

• PRIORITIZE INSPECTION EFFORTS TO AREAS WITH HIGHER POTENTIAL TO POLLUTE:
  • URBANIZED
  • COMMERCIAL/INDUSTRIAL
  • RAPIDLY DEVELOPING

Use Maryland Department of Planning – Land Use/Land Cover data to identify priority areas
STANDARD OPERATING PROCEDURES
IDENTIFICATION OF ANNUAL PRIORITY SCREENING AREAS

• IDDE INSPECTIONS DON’T NECESSARILY HAVE TO OCCUR AT THE OUTFALL
• CONSIDER HOTSPOT/SOURCE CONTROL INSPECTIONS
• CITIZEN REPORTS/COMPLAINTS

Citizen reports/complaints are a good way to identify hotspot areas but responding to complaints does not “count” toward the numeric screening requirement. Responding to complaints should be part of your program but the screening requirement is intended to discover/detect illicit discharges

Photos: open grease bins & spill
STANDARD OPERATING PROCEDURES

IDENTIFICATION OF PRIORITY SCREENING AREAS

- DETERMINE THE ILLICIT DISCHARGE POTENTIAL (IDP)
- CATEGORIZE OUTFALLS INTO HIGH, MEDIUM, LOW IDP
  - ARE THERE AREAS WITH:
    - PREVIOUS DISCHARGE COMPLAINTS?
    - POOR IN-STREAM WATER QUALITY?
    - AGING SEWER INFRASTRUCTURE OR SEPTICS?
    - HIGH CONCENTRATION OF COMMERCIAL OR INDUSTRIAL PROPERTIES?
- SCREEN “HIGH” RISK OUTFALLS FIRST

It is important to note that if you continuously report that you are meeting the outfall screening requirement and are finding no illicit discharges, MDE will likely advise you to revisit your SOPs and consider prioritizing screening commercial/industrial areas.
STANDARD OPERATING PROCEDURES
IDENTIFICATION OF PRIORITY SCREENING AREAS

SECTORS OF PARTICULAR CONCERN INCLUDE:

• AUTOMOTIVE REPAIR SHOPS & MAINTENANCE YARDS
• GOLF COURSES
• CAR WASH FACILITIES
• COMMERCIAL LAUNDRIES
• STRIP MALL/SHOPPING MALL PARKING LOTS
• SPILLS FROM TRAFFIC ACCIDENTS
• POOR DUMPSTER MANAGEMENT
• RESIDENTIAL DUMPING
• POOL DISCHARGES
• WATER BREAKS
• LIGHT/HEAVY INDUSTRY
• FAILING SEPTIC/SEWER SYSTEM

This is just a reminder of the sectors of particular concern
STANDARD OPERATING PROCEDURES
IDENTIFICATION AND ELIMINATION PROCEDURES

• DRY WEATHER SCREENINGS OF OUTFALLS SHOULD OCCUR FOLLOWING A 48-HOUR DRY TIME
• IF POSSIBLE, CONSIDER COMPLETING DURING FALL (OCTOBER/NOVEMBER)
• EVEN THOUGH IT’S A DRY WEATHER SCREENING, YOU’RE GOING TO HAVE TO GET YOUR FEET WET – MOST OUTFALLS DISCHARGE TO A STREAM
• SOMETIMES THE OUTFALL ISN’T THE MOST APPROPRIATE PLACE TO PERFORM THE INSPECTION
  • IF OUTFALL IS SUBMERGED, GROUNDWATER FLOW PRESENT, OR A LARGE DRAINAGE AREA
  • USE YOUR MAPPING TO IDENTIFY THE NEXT LOGICAL PLACE UPSTREAM FOR INSPECTION

• IF FLOW IS PRESENT:
  • DETERMINE FLOW CONTENT (VISUAL OR Olfactory INDICATORS)
  • DETERMINE FLOW SOURCE

IDDE is all about finding discharges when it’s not raining! If flows are observed, it can be an indication of an illicit discharge or connection.

Chemical sampling of the discharge is optional – not required

Key point is the SOP must indicate how the permittee intends to determine the flow content
Photos:
1 – Mining sediment discharged into stream
2 – Evidence of salt leaching
3 – Exposed oil drum with insufficient secondary containment exposed to elements – not a problem yet but it can be!
4 – Evidence of vehicle washwater discharge (requires MDE 16-VW permit)
5 – Exterior oil tank with secondary containment – evidence of potential contamination when secondary containment is drained
6 – Fueling operation, under cover but evidence of spills and possibly improper clean up
FLOW TESTING EQUIPMENT
(IF CHEMICAL TESTING IS PERFORMED)

- CAMERA
- COLOR COMPARATOR KITS
- PH/WATER PROBE
- CLEARLY MARKED GLASS AND PLASTIC JUGS FOR SAMPLE & WASTE COLLECTION
- TAPE MEASURE
- MANHOLE PICK
- PPEs

PPEs – gloves, safety vests, safety glasses

HACH Stormwater Test kit – pH, total chlorine, copper, detergents, phenols (~$400-500)
HACH Ammonia Nitrogen kit - ~$100-150

Make sure you’re disposing of processed sample waste. Typically waste produced from copper, chlorine, and phenols can be washed down sanitary sewer with excess water. Ammonia and detergent waste requires additional remediation. Make sure to check!

Multiparameter sonde able to obtain several water quality parameters simultaneously (~$2000+) – typically YSI or equivalent
TESTING PARAMETERS
(IF CHEMICAL TESTING IS PERFORMED)

- pH
- CHLORINE
- COPPER
- DETERGENTS
- PHENOLS
- NITROGEN
- AMMONIA
- WATER TEMPERATURE

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Effluent Type Indicated</th>
<th>Action Criteria</th>
<th>Minimum Detection Limit</th>
<th>Instrument Range</th>
<th>Kit or Probe</th>
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<tr>
<td>Residual chlorine (CI)</td>
<td>industrial, drinking water, sewage, wastewater</td>
<td>&gt; 0.05 mg/L57</td>
<td>0.05 mg/L</td>
<td>0 to 5 mg/L</td>
<td>color comparator</td>
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<tr>
<td>Color</td>
<td>industrial, sewage, wastewater</td>
<td>&gt; 20 color units</td>
<td>NA</td>
<td>NA</td>
<td>color kit</td>
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<tr>
<td>Copper (Cu)</td>
<td>industrial</td>
<td>&lt; 0.05 mg/L57</td>
<td>0.05 mg/L</td>
<td>0 to 10 mg/L</td>
<td>color comparator</td>
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<tr>
<td>Phenols</td>
<td>dry cleaning</td>
<td>&gt; 0.05 mg/L57</td>
<td>0.05 mg/L</td>
<td>0 to 12 mg/L</td>
<td>color comparator</td>
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<tr>
<td>Turbidity</td>
<td>industrial, sewage, wastewater</td>
<td>≥ 1000 NTU58</td>
<td>0 NTU</td>
<td>NA</td>
<td>sonde</td>
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<tr>
<td>Surface tension (detergents)</td>
<td>sewage, wastewater</td>
<td>&gt; 0.25 mg/L (residential)59</td>
<td>0.15 mg/L</td>
<td>0.15 to 1 mg/L</td>
<td>single analytic method</td>
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<td>Dissolved oxygen (DO)</td>
<td>sewage</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>sonde</td>
</tr>
<tr>
<td>Water temperature</td>
<td>sewage</td>
<td>&gt; 23.9 °C60</td>
<td>NA</td>
<td>NA</td>
<td>sonde</td>
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<tr>
<td>pH</td>
<td>industrial, sewage, wastewater</td>
<td>≤ 5 (industrial)61</td>
<td>NA</td>
<td>0 to 14</td>
<td>sonde</td>
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<tr>
<td>Conductivity</td>
<td>industrial</td>
<td>&gt; 2 mS/cm (industrial)62</td>
<td>NA</td>
<td>NA</td>
<td>sonde</td>
</tr>
</tbody>
</table>

57 Exceedance criteria based on the test range of the field kit
58 Brown et al. 2004
59 Source: Baltimore County (2007)
60 NA: Not Applicable
Assuming the dry weather flow is identified at the outfall
The outfall is for a BMP. Check the inflow to see if the same flow is present. If so, continue upstream. If not, then look for potential dumping/spill within BMP footprint.
If flow is present at inflow, start working your way up the pipe configuration. Pop manholes along the way. When you come to a junction, try to determine which direction the flow is coming from.
Let’s assume for this example we determine flow is coming from the north so we proceed upstream to the inlets...
SOURCE TRACKING

• CONSIDER DRAINAGE AREA SIZE
  • IF THE DA IS TOO LARGE &/OR THE DISCHARGE TOO SMALL, IT MAY NOT GET ALL THE WAY TO THE OUTFALL

• THIS IS WHERE YOUR OUTREACH AND CITIZEN REPORTING WILL COME IN HANDY!
STANDARD OPERATING PROCEDURES
ENFORCEMENT AND PENALTY PROCEDURES

• ONCE ILLICIT DISCHARGE SOURCE IS IDENTIFIED - NOTICES OF VIOLATION MUST BE ISSUED AS WARRANTED AND APPROPRIATE TO HALT THE DISCHARGE
• MUST INCLUDE A TIMELINE FOR THE REQUIRED CORRECTION
• MAY NEED TO BE FORWARDED TO ANOTHER AGENCY FOR RESPONSE (MDE OR SHA)
As part of your SOPs, you’ll need to consider how to respond, follow-up, etc.

Evaluate the roles/responsibilities/capabilities of other departments. Determine what services/assistance they can provide.
STANDARD OPERATING PROCEDURES
IDDE OUTREACH PROCEDURES

• LOOK FOR OPTIONS THAT HAVE LITTLE OR NO COST:
  • ADD INFORMATION TO YOUR WEBSITE
  • DEVELOP AN ONLINE REPORTING FORM
  • SET UP A HOTLINE OR ESTABLISH A DEDICATED CALL NUMBER
    • RESPOND AS QUICKLY AS POSSIBLE, WITHIN 24 HOURS AT A MINIMUM
  • DISCHARGES ARE OFTEN EPHEMERAL
  • USE FREE ONLINE RESOURCES FROM EPA

You will need to consider after hour responses to emergency spills
MCM #3 REQUIREMENTS

✓ PART IV.C.1: STORM SEWER SYSTEM MAPPING
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✓ PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)

• PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
  • PART IV.C.6: DOCUMENT INSPECTION RESULTS
  • PART IV.C.7: MAINTAIN RECORDS
Although permittees have the entire 5-year permit term to fully implement a program, you should not wait until the end of the permit term to submit SOPs. New permittees must begin program development in Year 1 and initiate implementation thereafter.
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• PART IV.C.6: DOCUMENT INSPECTION RESULTS
• PART IV.C.7: MAINTAIN RECORDS
INSPECTION DOCUMENTATION & RECORD MAINTENANCE

• DOCUMENT INSPECTIONS AND FOLLOW-UP

• MUST MAINTAIN RECORDS FOR AT LEAST 3 YEARS FOLLOWING TERMINATION OF THE PERMIT

• OCTOBER 30, 2026
QUESTIONS?

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Photo: heating oil spill into a spring house