Oregon City

Illicit Discharge Detection and Elimination (IDDE) Standard Operating Procedure

December 1, 2023

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Section 1

Introduction and Background

The City of Oregon City's reissued municipal separate storm sewer (MS4) National Pollutant Discharge Elimination System (NPDES) permit (effective date: May 5, 2023) includes specific requirements and provisions related to implementation of their Illicit Discharge Detection, Enforcement, and Response (IDDE) program. Illicit discharges are, by definition in Schedule D.4.u of the City's MS4 NPDES permit: "*any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater except discharges authorized under Section A.4.a.xii, discharges permitted by an NPDES permit or other state or federal permit, or otherwise authorized by DEQ.*"

The City has been implementing their IDDE program since receipt of their initial Phase I MS4 NPDES permit in 1995. Program activities have historically included code and ordinance development and implementation (to prohibit and enforce against illicit discharges) and dry weather field screening activities to identify occurrences and sources of potential illicit discharges.

This Standard Operating Procedure (SOP) is intended to summarize implementation of the IDDE program, focusing on the dry weather field screening monitoring activities required to be conducted as part of the program. This SOP includes the rationale and strategy for selection of high priority dry weather screening locations, dry weather field screening inspection activities, pollutant parameter action levels, and code and enforcement authority. Additionally, this SOP includes a field inspection form (Attachment A) to aid in the documentation and collection of information.

1.1 Permit Language and Requirements

As described in Schedule A.3.c. of the City's MS4 NPDES permit, the IDDE program must include:

i. Current maps of the MS4 including outfalls, conveyance system, structural stormwater control locations, locations of chronic illicit discharges as applicable, the location of ongoing dry weather flows, and the location of annual dry-weather priority screening sites. MS4 storm sewer drainage basins must also be delineated.

ii. An ordinance or other regulatory mechanism, to prohibit illicit discharges into the co-permittee's MS4.

iii. Implementation of enforcement and response procedures which include how repeat violations are addressed, the timelines for compliance, and consider factors such as the amount and type of pollutant discharged and whether the discharge was intentional or accidental, if known, and whether the discharge could have been prevented.

iv. A program to detect and eliminate illicit discharges that includes: a mechanism (i.e., publicized phone number) for public reporting; staff to respond to public reports/complaints and report to the Oregon Emergency Response System as appropriate; and, tracking of complaints.

v. An annual dry weather field screening program conducted at priority MS4 locations.

vi. Training and education for staff responsible for investigating and eliminating illicit discharges and illicit connections into the MS4.

vii. Annual reporting to include tracking of implementation of the program as well as any updates regarding any capital improvements needed or implemented associated with the IDDE program.

This SOP provides the documentation for the above listed permit provisions.

1.2 Dry Weather Field Screening Monitoring Objectives

Dry weather field screening activities (and dry weather outfall monitoring) comprise a major element of the City's IDDE program. Dry weather field screening involves the inspection of select outfalls during dry weather conditions to determine if discharge is occurring. If discharge is occurring, the next steps are to identify the source of the discharge, determine whether the discharge is allowable, and eliminate the discharge if it is unallowable or anticipated to add pollutants to the MS4. Source identification and discharge characterization generally involves:

1. Visual observations and characterization.
2. Field analysis (on-site analysis for select field parameters).
3. Field tracking, or upstream system investigation to try and identify the pollutant source.
4. Laboratory analysis (sample collection for off-site analysis).

Implementation of dry weather field screening also addresses objectives of the City's monitoring program. Specifically, in addition to the dry weather field screening requirements listed in Schedule A.3.c, the following monitoring objectives per Schedule B.1.a of the permit may be addressed:

i) Evaluate the source(s) of and means for reducing the pollutants of concern applicable to the co-permittees' permit area, including 2018/2020 303(d) listed pollutants as applicable;

ii) Evaluate the effectiveness of Best Management Practices (BMPs) in order to help determine BMP implementation priorities;

Implementation of an effective dry weather field screening program may allow the City to identify periodic or ongoing sources of observable pollutant discharge. Additionally, it may inform how well the City's overall stormwater program implementation is being conducted, specifically elements such as public education and program enforcement.

1.3 Code and Enforcement Authority

The City of Oregon City's Municipal Code (OCMC) prohibits against illicit discharges per code sections related to health and safety nuisances (Chapter 8.08).

According to OCMC 8.08.020(G), a nuisance affecting health includes "*the pollution of any public or private well or cistern, stream, lake, canal or body of water by sewage, creamery, or industrial wastes or other substances*". OCMC 8.08.020(O) also referenced "*the pollution or contamination of any public stream, river, lake, storm sewer or other surface water body with soil, sediments or dust or the contamination of any public or private street or road with dirt, dust, or mud from any construction, earth moving, vegetation removal or development activity*" as a nuisance affecting health.

Under OCMC 8.08.050, any person who knowingly causes or creates a nuisance shall be subject to enforcement procedures outlined in OCMC 1.16 (General Penalty), 1.20 (Civil Infractions), or 1.24 (Code Enforcements). Response and enforcement measures may include ordering of repairs and improvements, abatement and removal of the contamination, payment of a civil penalty (up to $1,000/day), a levy against the property owner and record of the levy as a lien on the property, and city cleanup at a cost billed to the violator.

Section 2

Priority Dry Weather Field Screening Locations and Selection

2.1 Monitoring Process/Study Design

In accordance with receipt of the City of Oregon City's (City's) first MS4 NPDES permit in 1995, the City first identified field screening locations according to major outfalls (greater than or equal to 36 inches in diameter) and priority minor outfalls (greater than or equal to 12 inches in diameter that drain industrial zoned areas).

Since 1995, field screening locations have been slightly adjusted according to accessibility, ownership, and the past history of observed flows or discharges, but generally the same number of outfalls and locations have continued to be monitored.

Dry weather field screening activities have been conducted in an attempt to identify illicit discharges associated with cross connections to the storm sewer and/or spills or illegal dumping and disposal activities. Historical dry weather field screening locations were located throughout the City and were comprised of both major and minor outfalls (Figure 1). Historical locations reflected discharge points to each of the City's major receiving waters. Prior to 2012, results of the dry weather field screening activities resulted in no identified or potential illicit discharges, and no upstream source tracking activities were required.

As a result, in 2012, and then again in 2016, the City reviewed its historical dry weather field screening locations to identify those high priority locations with which to continue its dry weather field screening program for the 2012 MS4 NPDES permit. In establishing high priority locations, the City considered the following criteria:

1. Locations with observed flow/historic complaints over the past 5 years.
2. Locations with upstream industry (or other high pollutant sources).
3. Locations with upstream development potential (such that there is the additional potential for new cross connections or pollutant sources).
4. Locations with upstream wastewater permits/pretreatment activities.
5. Locations with aging infrastructure.
6. Site accessibility.

In addition to the above criteria, historical screening locations were evaluated according to whether they expected a significant baseflow contribution in the outfall. Baseflow may be associated with springs, groundwater, and stream flow. The significant presence of baseflow conditions limits the ability of the City to definitively evaluate whether additional flow contributions from illicit discharges are occurring.

Each historical field screening location was evaluated in conjunction with the criteria. City staff conducted field assessments on October 17 and 22, 2012, to confirm the condition and configuration of each outfall. In July of 2016, the list of screening locations was updated. Two sites

were moved to upstream manhole locations to address safety concerns, and one new site was added due to a reported illicit discharge (Site 9). Results of the assessment are provided in Table 1.

The most recent NPDES MS4 Permit (May 2023) includes a requirement in Schedule A.3.c.v. to:

> *"…review and update the prioritization criteria for dry weather screening locations..".*
>
> The permit goes on to state that:
>
> *"Priority locations must, when possible, be located at an accessible location downstream of any source of suspected illegal or illicit activity or location as identified by the co-permittees. Priority location designations must be based on analyses of risk of potential for illicit discharges(s), accounting for factors such as hydrological conditions, percent of impervious surface area, total drainage area of the location, population density of the location, infrastructure access density, traffic density, development age (age of the infrastructure and structures or buildings in the area), history of the area, land use types, personnel safety, accessibility, historical complaints or other appropriate factors as identified by the co-permittees. Priority filed screening locations must also be identified on the MS4 mapping and digital inventory when the assessment is complete, and may change based on the above criteria if new information comes to light or if a new analysis is conducted."*
>
> *NPDES MS4 Permit, Section A.3.c. v. (May 2023)*

To address these permit requirements, the City took a renewed look at the screening criteria and the field screening locations. Based on this renewed look, the screening criteria and locations were still considered to be appropriate and to result in the best field screening locations, and no changes were made.

Table 1. Oregon City Priority Field Screening Locations

High-priority Screening Site No. [a]	Historic Screening Site No. [b]	Location Description	Diameter, inches	Receiving Water	Significant Baseflow Contribution (Y/N)	Assessment Criteria							Identified as a High-Priority Location (Y/N)
						Observed flow [c]	Historical complaints [c]	Upstream industrial sources	Upstream development potential	Upstream WW permits pretreatment	Aging infrastructure	Accessible?	
1	1a	99E & 5th Street	8	Willamette River	Y	X		X	X	X	X	X	Y
2	1b	99E & 5th Street	15	Willamette River				X	X	X	X	X	Y
3	3	Abernethy Road @ Tri-Let	15	Park Place Creek				X	X		X	X	Y
4	5	Clackamas River Drive	48	Clackamas River	Y	X		X	X		X	X	Y
5	6	Metro Wetlands Pond	48	Clackamas River				X	X		X	X	Y
6	12	Falcon Drive	30	Unnamed tributary to Caufield Creek					X		X	X	Y
7	13	Berry Hill	24	Newell Creek	Y	X		X	X		X	X	Y
8	14	Beavercreek @ Hwy 213	24	Newell Creek	Y	X		X	X	X		X	Y
9		Behind 1651 Beavercreek [d]	48	Newell Creek									
	2	14th & John Adams @ Abernethy	42 x 30 box culvert	Abernethy Creek	Y	X			X		X	X	
	4	Beemer Way	30	Tour Creek					X		X	X	
	7	Barker Road	12	Coffee Creek							X	X	
	8	Linn & Charman	18	Singer Creek	Y	X					X	X	
	9	Holmes Lane	15	Singer Creek					X		X	X	
	10	Kaen Road	10	Mud Creek					X		X	X	
	11	Mud Creek @ Meyers Road	15	Mud Creek					X		X	X	

a. High-priority screening sites per Figure 1-1.

b. Historic outfall monitoring site numbers are provided for reference only.

c. Observed flow and historical complaints refers to observed activities for the 5 years prior to the 2012 development of this SOP.

d. 2016 update: added site no. 9, moved site no. 1 to manhole 342 ft upstream; moved site no. 2 to manhole 105 ft upstream.

2.2 High-Priority Screening Locations

The updated assessment of historical field screening locations in 2016 and the renewed look in 2023, resulted in the identification of nine high priority screening locations. With no previous records of identified illicit discharges at eight of the locations, the City considered the presence of upstream industrial sources, upstream wastewater permits/pretreatment activities, and aging infrastructure in defining their high priority locations.

One high-priority location (Site 6–Falcon Drive) was identified due to the older infrastructure and relatively large lots with onsite sewage disposal systems. In the case of high-priority site 7 (Berry Hill), redevelopment pressures may result in opportunities to detect illicit connections or discharges associated with insufficient erosion control practices.

High-priority locations continue to be dispersed across the City and reflect multiple tributary drainage systems. The presence of baseflow identified at some of the locations has been attributed to the high groundwater levels and significant spring contributions, and thus these sites were excluded from selection of priority locations.

The City's high-priority screening locations are shown on Figure 1. Photographs of each high-priority location are provided in Attachment B.

City of Oregon City

GEOGRAPHIC INFORMATION SYSTEM

Figure 1 - Existing Land Use

- City Limits

Generalized Land Use

- Industrial
- Commercial
- Single Family Residential
- Multi Family Residential
- Agriculture
- Public Property
- Parks and Open Space
- Vacant Lands (2013)
- Stormwater Screening Sites

Site	FacilityType	AccessPoint	LocationInfo	Facility_ID	Subtype
1	Storm Conduit	Manhole	Manhole 33556	801615	Outfall
2	Storm Conduit	Manhole	Manhole 33558	805492	Outfall
3	Storm Node	Culvert	13530 Redland Rd	42551	Outfall
4	Storm Conduit	Culvert	13014 Clackamas River Dr	808865	Outfall
5	Storm Conduit	Culvert	2001 Washington St	804030	Outfall
6	Storm Outlet	Culvert	19720 Falcon Dr	39417	Outfall
7	Storm Node	Culvert	14220 S Maple Lane Ct	43277	Outfall
8	Storm Outlet	Culvert	2895 S Beavercreek Rd #200	40201	Outfall
9	Storm Outlet	Culvert	1635 Beavercreek Rd	39666	Outfall

N W E S

0 0.5 1 2 Miles

0 5,000 10,000 Feet

City of Oregon City
P.O. Box 3040
625 Center St
Oregon City, OR 97045
503-657-0891 phone
503-657-6629 fax
www.orcity.org

Plot date: August 8, 2023
Map Name: Illicit Discharge Detection.aprx|SWMP - Existing Land Use - 11x17P
Plot Name: SWMP - Existing Land Use - 11x17P - 20230808.pdf

Section 3

Standard Operating Procedure

3.1 Inspection Criteria

3.1.1 Weather

Dry weather screening will be conducted during dry summer months and following a 72-hour minimum antecedent dry period. Typical months for sampling are July, August, or September.

3.1.2 Frequency/Duration

Dry weather screening will be conducted once annually at high-priority field screening locations as shown in Section 2.

Given the screening will be conducted at a frequency of once annually, preliminary identification of illicit discharges would most likely be reflective of flows of a continuous nature associated with cross connections. Intermittent spills or discharges from dumping activities that occur more randomly would be more difficult to catch with a field screening program.

3.1.3 Reported Complaints

The identification of intermittent spills or dumping would be more likely as a result of complaints received from the public or problems noted through routine City maintenance activities.

The City of Oregon City (City) maintains a system for documenting reported complaints or noted problems and will investigate these potential illicit discharge activities using the same procedures provided in this document for problems identified through dry weather field screening.

3.2 Responsible Parties

The dry weather field screening activities will be conducted by a two-person crew directed by the City's Water Quality Coordinator. The City's Water Quality Coordinator will also be responsible for assessing proper weather conditions for field screening, and if applicable, ensuring the proper collection of samples for delivery to a lab for lab analysis. Any laboratory analysis of field samples will be conducted by a certified laboratory.

3.3 Safety Measures and Concerns

Field teams conducting dry weather screening and other field work should be properly trained and aware of potential safety hazards. Regular training for field personnel is essential for safe field practices. It is important for personnel to understand all potential hazards before entering any location. Screening of outfalls should always be conducted in groups of two at a minimum. Visual inspection of the outfall should be conducted before attempting any sample collection. If sample collection appears to contain a hazardous substance, a sample should not be collected. These instances should be reported to the Public Works Director and fire department. Proper lab gloves should be worn during the collection of samples. Basic safety equipment should also include appropriate protective clothing, field boots, visibility vests, cell phones, and first aid kits.

In some cases, follow-up tracking of flows may be conducted to identify the source of a flow. For tracking activities, safety equipment may also need to include flashlights, traffic cones, manhole cover lifters, air quality monitors, hardhats, safety glasses, or work/rubber boots. Field crews will need confined space entry training if entering manholes is conducted. Confined space training will ensure that crews conduct appropriate air quality monitoring to verify an adequate oxygen level and to discover the presence of any flammable gases. At least one crew member must stay outside of the manhole at all times for emergency rescue situations.

3.4 Pollutant Parameter Action Levels

Pollutant parameter action levels were developed and are required initially in order to screen observed discharges to determine whether further investigation and lab analysis is needed.

The pollutant parameter action levels include both visual analyses and field analyses as described below. These pollutant parameter action levels are also listed on the field data sheet provided in Attachment A.

Table 2. Pollutant Parameter Action Levels

Pollutant Parameter	Potential Indicator of Illicit Discharge	Severity of Observation	Action Levels
Visual analyses			
Odor	An odor may be noticeable at the site which may be generally rancid or sour, or it may be more clearly identifiable as sewage or a petroleum related source.	#1-faint #2-easily detected #3-noticeable from a distance	• Two or more of these observations have a severity of #1 or greater, or, • One or more of these observations have a severity of #3.
Color	A color may be present in the discharge. Different colors can indicate different sources. An example would be the lime green color associated with anti-freeze. Examples of other colors associated with specific sources of pollutants are provided in the photos attached to the field data sheet in Attachment A.	#1-faint colors in sample bottle #2-clearly visible in sample bottle #3-clearly visible in outfall flow	
Turbidity	Turbidity can indicate particulates such as sediment in the water and may range from looking slightly cloudy to completely opaque.	#1-slight cloudiness #2-cloudy #3-opaque	
Floatables (other than trash)	Some floatables such as toilet paper are indicators of illicit sanitary sewer connections. Other floatables could include petroleum sheens or soap suds.	#1-few/slight; origin not obvious #2-some; indications of origin (e.g., possible suds or oil sheen) #3-some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	
Field analyses			
pH	pH can be a good indicator of liquid wastes from industries, which can have very high or low pH.	NA	Outside of range from 6.5 to 8.5
Conductivity	Conductivity can be strongly related with the total amount of dissolved material in water. Conductivity can have some value in detecting industrial discharges that have very high conductivity readings.	NA	Exceeds 500 µS/cm

3.4.1 Visual Analysis

During dry weather field screening, if flow is detected, flow will be evaluated per the visual pollutant parameters defined above. The field crew will report results of the visual inspection on the field data sheet (Attachment A). The visual inspection effort will also include reporting on the severity of each visual parameter. The field data sheet includes three levels of severity for each visual parameter: **1** being the lowest severity, and **3** being the highest severity. These visual observations are recorded on the field data sheet.

Depending on severity, the visual parameters may trigger further investigation (see Section 3.6) and collection of a sample for laboratory analysis (see Section 3.5.2). Specifically, if one visual observation has a severity level of **3**, or if two or more visual observations have a severity level of **1** or greater, then further investigation and sampling is needed.

3.4.2 Field Analysis

Field analyses for pH and conductivity will also be conducted if flow is observed. Regardless of the results of the visual analyses, further investigation (tracking of the source of flow) and collection of a sample for laboratory analysis will be conducted if either the pH or conductivity results trigger the parameter's action level. For pH, this would include flow with a pH outside of the range from 6.5 to 8.5. This pH range is based on Oregon in-stream water quality standards. For conductivity, this would include flows with a conductivity level that exceeds 500 µS/cm. This conductivity concentration is based on the City of Portland's IDDE program and its review of data which showed that local natural waters should have a conductivity concentration that is below this amount.

3.5 Dry Weather Field Screening Activities

3.5.1 Inspection

Each high-priority outfall location will be investigated as part of the dry weather field screening efforts, and field data sheets will be completed for each outfall.

Inspections include both visual analysis and field analysis for pH and conductivity as described in Section 3.4, if flow is occurring at the outfall. Photographic examples are provided with the field data sheet to assist in the interpretation of visual observations and defining severity. At the conclusion of the inspection, a determination will be made as to whether pollutant parameter action levels were exceeded and whether further investigation and sampling is required.

3.5.2 Sample Collection

During dry weather field screening activities, there may be a need to conduct further investigation (source tracking) and take samples for laboratory analysis. Prior to dry weather field screening activities, the City will coordinate with the certified analytical laboratory to receive necessary sample bottles for conducting sampling activities and analysis. If flow is present and exceeds defined pollutant parameter action levels (Section 3.4), sample bottles will be properly labeled and a sample will be collected for laboratory analysis. Field personnel will wear gloves while collecting samples. Bottles will be stored in a cooler with ice and delivered to the certified lab for analysis.

Laboratory analysis may consist of bacteria, metals, nutrients, hydrocarbons, or other analyses deemed appropriate based on the observations and suspected sources from field screening. Analytical results may either be used to support further identification of the source of flow, or to provide any back up documentation that may be necessary for enforcement activities.

3.6 Source Identification Investigations

3.6.1 Tracking

If an illicit discharge is indicated based on exceedences of the pollutant parameter action levels, then the source of discharge will be investigated following sample collection activities. Source identification tracking starts at the outfall location and moves upstream. GIS mapping of the stormwater system and information on contributing tax lots should be prepared in advance and used by field personnel to identify a potential source(s) upstream. Easy-to-access locations, such as manholes or catch basins, can be used to track flow. Typically, tracking at manholes/catchbasins should occur at an interval of approximately every quarter mile or until no more flow is observed. If no flow is observed, then tracking should work backwards toward the original location to narrow down the location of the source of the discharge.

If field investigations do not result in identification of the source of the illicit discharge, alternative investigative techniques, such as dye testing, or closed circuit television, will be considered depending on significance of the flow and lab sample results.

According to the MS4 NPDES permit, "*For discharges, including spills, which constitute a threat to human health, welfare, or the environment, the co-permittees **must respond within 24 hours** or as soon as possible after becoming aware of it if notified during weekends or after hours. Spills, or other illicit discharges, that may endanger human health or the environment must be reported in accordance with all applicable federal and state laws, including notification to the OERS (at 800-452-0311). **For all other reports of illicit discharges, the co-permittees must respond within an average of two working days**, and no greater than four working days.*" Additional timelines in the permit are as follows once an illicit discharge is identified:

1. *Initial Investigation or Evaluation: Conduct an initial investigation **within 5 working days** or refer the complaint to the appropriate agency.*
2. *Ongoing Illicit Discharges: If the elimination of the illicit discharge will take more than 15 working days due to technical, logistical, or other reasonable issues, **the co-permittees must, within 20 working days of source identification, develop and begin implementation of an action plan** to eliminate the illicit discharge in an expeditious manner. Upon confirmation of an illicit connection, **the co-permittees must use the Enforcement Procedures in a documented effort to eliminate the illicit connection within 6 months**, unless otherwise approved by DEQ, to the extent allowable under state law. All known illicit connections to the MS4 must be eliminated.*
3. *Ongoing Illicit discharges involving Capital Improvements: If the elimination of the illicit discharge involves the repair or replacement of the co-permittees' wastewater or storm sewer conveyance systems or other capital improvements, **the co-permittee must remove the source of the illicit discharge within three years** of the date of its identification.*

3.6.2 Enforcement

The City may implement provisions of the OCMC in conducting enforcement activities related to illicit discharges. Generally, a verbal warning is given (if a responsible party is identified) or a written notification is distributed, requiring an immediate stop to the discharge. The Public Works Director is notified of any enforcement activities conducted.

Depending on the nature of the discharge, clean up, repair, or improvement measures may be conducted by the responsible party or City. If the City conducts clean up efforts, an additional administrative fee may be assessed in addition to the cost of any clean up effort. Also depending on the nature of the discharge payment of a civil penalty (up to $1,000/day) or a levy against the property owner and record of the levy as a lien on the property may be issued. Follow up inspections and monitoring will be conducted by the City in any case where an enforcement action is implemented.

Samples collected at the time of the observed illicit discharge will inform remediation/ clean up efforts and be used to establish any additional fees, fines, or penalties.

3.7 Data Management and Adaptive Management

Records of field screening activities and maps of outfalls will be maintained by the City. If changes to the outfall inventory are noted, maps will be corrected within 6 months of identifying the change. Dry weather field screening results will be reported to DEQ annually with the NPDES MS4 Annual Report. Results of field screening activities will also be reviewed as part of the permit renewal process. If, after 5 years, results consistently show no activity related to illicit discharges, the City will reconsider and potentially make changes to priority screening locations.

Attachments

A: Dry Weather Field Screening Inspection Form

B: High-priority Site Photographs

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Attachment A: Dry Weather Field Screening Inspection Form

Dry Weather Field Screening Inspection Form

SECTION 1: General Information

Inspector(s):	Outfall ID/location:	Watershed area:
Date:	Time:	
Ambient temperature:	Rainfall in last 72 hours? (Y/N)	
Photo Nos:	GPS points:	

Upstream/Surrounding land use:

☐ Industrial ☐ Residential ☐ Commercial ☐ Parks/Open Space ☐ Institutional ☐ Other

SECTION 2: Outfall Description

Type	Material	Shape	Number	Submerged	Dimensions (inches)
Closed pipe	☐ RCP ☐ PVC ☐ CMP ☐ HDPE ☐ Other _____	☐ Circular ☐ Box ☐ Elliptical ☐ Other _____	☐ Single ☐ Double ☐ Other _____	☐ No ☐ Partially _____ % ☐ Fully _____ %	Diameter or dimensions (in x in): _____ _____
Open drainage	☐ Concrete ☐ Rip-rap ☐ Earthen ☐ Other _____	☐ Trapezoid ☐ Parabolic ☐ Other _____			Depth: . Width: _____ Bottom width: _____

Flow present? ☐ Yes ☐ No *(If no flow is present, go to Section 5)*

SECTION 3: Flow Indicators

Magnitude: ☐ Substantial ☐ Moderate ☐ Trickle

Odor		Color		Turbidity	Floatables (Not trash)	
Description:	*Severity:*	*Description:*	*Severity:*	*Severity:*	*Description:*	*Severity:*
☐ none ☐ sewage ☐ sulfide ☐ rancid/sour ☐ petroleum/gas ☐ other _____	☐ 1- faint ☐ 2- easily detected ☐ 3- noticeable from a distance	☐ clear ☐ brown ☐ gray ☐ yellow ☐ green ☐ red ☐ other _____	☐ 1- faint colors in sample bottle ☐ 2- clearly visible in sample bottle ☐ 3- clearly visible in outfall flow	☐ 1- slight cloudiness ☐ 2- cloudy ☐ 3- opaque	☐ sewage (toilet paper) ☐ petroleum (oil sheen) ☐ suds ☐ other _____	☐ 1- few/slight; origin not obvious ☐ 2- some; indications of origin (e.g., possible suds or oil sheen) ☐ 3- some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Dry Weather Field Screening Inspection Form (continued)

SECTION 4: Field Testing Results for Flowing Outfalls

pH	Conductivity
Outside of range 6.5-8.5? ☐ Yes ☐ No	Exceeds concentration? >500 µS/cm ☐ Yes ☐ No

SECTION 5: Physical Indicators For Both Flowing and Non-Flowing Outfalls

Outfall damage	Deposits/stains	Abnormal vegetation	Poor pool quality	Pipe benthic growth
☐ no ☐ cracking or chipping ☐ peeling paint ☐ corrosion ☐ other _____	☐ no ☐ oily ☐ flow line ☐ paint ☐ other _____	☐ no ☐ excessive ☐ inhibited	☐ no ☐ colors ☐ suds ☐ odors ☐ oil sheen ☐ trash/debris ☐ excessive algae ☐ other _____	☐ no ☐ brown ☐ orange ☐ green ☐ other _____
Comments:	Comments:	Comments:	Comments:	Comments:

SECTION 6: Probability of Illicit Discharge (proceed to Section 7 and 8 if discharge is identified as potential, suspect, or obvious)

☐ Unlikely ☐ Potential (presence of two or more indicators and/or pH or conductivity readings outside of range) ☐ Suspect (one or more indicators with a severity of #3) ☐ Obvious

SECTION 7: Data Collection

Sample taken for Lab? ☐ Yes ☐ No If yes, sample collected from: ☐ Flow in pipe/channel ☐ Pool/waterbody below outfall

SECTION 8: Tracking and Source Investigation Results

Describe any observations and results of the source tracking investigation effort and any additional issues/comments (e.g., repair or maintenance required, etc.):

Visual Indicators of Illicit Discharges[1]

Color and Turbidity

Slight Turbidity
Turbidity: 1
(Difficult to interpret this observation; May be natural or an illicit discharge)

Color: Brown; Severity: 2
Turbidity Severity: 2

Highly Turbid Discharge
Color: Brown; Severity: 3
Turbidity Severity: 3

Sewage Discharge
Color: 3
Turbidity: 3

Paint
Color: White; Severity: 3
Turbidity: 3

Industrial Discharge
Color: Green; Severity: 3
Turbidity Severity: 3

[1] As adapted from the Center for Watershed Protection's Illicit Discharge Detection and Elimination Guidance Manual (October 2004).

Visual Indicators of Illicit Discharges (continued)

Suds or Foam

Natural Foam
Note: Suds only associated with high flows at the "drop off"
Do not record.

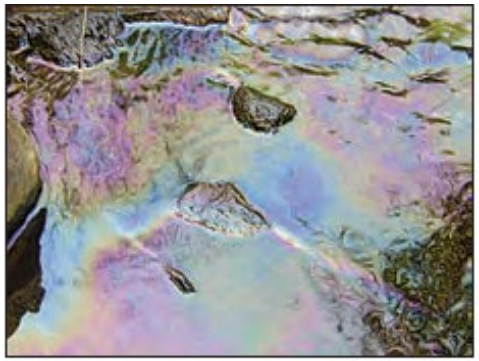
Low Severity Suds
Rating: 1
Note: Suds do not appear to travel; very thin foam layer

High severity suds
Rating: 3
Sewage

Oil Sheens

Low Severity Oil Sheen
Rating: 1

Moderate Severity Oil Sheen
Rating: 2



High Severity Oil Film
Rating: 3

Visual Indicators of Illicit Discharges (continued)

Algal and Bacterial Mats

Algal mats on lakes indicate eutrophication. Several sources can cause this problem. Investigate potential illicit sources.

Illicit discharges or excessive nutrient application can lead to extreme algal growth on stream beds.

The drainage to this outfall most likely has a high nutrient concentration. The cause may be an illicit discharge, but may be excessive use of lawn chemicals.

Bacterial growth at this outfall indicates nutrient enrichment and a likely sewage source.

This bright red bacterial growth often indicates high manganese and iron concentrations. Surprisingly, it is not typically associated with illicit discharges.

Sporalitis filamentous bacteria, also known as “sewage fungus” can be used to track down sanitary sewer leaks.

Attachment B: High-priority Site Photographs

Priority Site #1 – 99E & 6th Street: manhole 33556

Priority Site #2 – 427 Main Street: manhole 33558

Priority Site #3 – Abernethy Road at Tri-Let: 15-inch, CMP

Priority Site #4 – Clackamas River Drive: 48-inch, CMP

Priority Site #5 – Metro Wetlands Pond: 48-inch, Concrete

Priority Site #6 – Falcon Drive: 30-inch, CPP

Priority Site #7 - Berry Hill: 24-inch, CPP

Priority Site #8 - Beavercreek @ Hwy 213: 24-inch, CMP

Priority Site #9 - Behind 1651 Beavercreek Road: 48-inch, Concrete