Illicit Discharge Detection and Elimination Standard Operating Procedure

Prepared for
City of Wilsonville, Oregon
November 1, 2012
Updated: October 2022

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Section 1

Introduction and Background

The City of Wilsonville's reissued municipal separate storm sewer (MS4) National Pollutant Discharge Elimination System (NPDES) permit (effective date: October 1, 2021) 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 (of the permit), discharges permitted by an NPDES permit or other state or federal permit, or otherwise authorized by the 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 Procedures (SOP) document 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 was originally developed in 2012 and included the rationale and strategy for selection of high priority dry weather screening locations, dry weather field screening inspection activities, pollutant parameter action levels, code and enforcement authority, and a field inspection form (Appendix A) to aid in the documentation and collection of information. This updated (2022) version reflects adjusted screening locations (per 2022) as well as additional description of internal processes related to complaint response and reporting of illicit discharges.

1.1 Permit Language and Requirements

As described in Schedule A.4.c of the City's MS4 NPDES permit, the IDDE program must include:

i) Maintaining and updating a current map of the MS4 system;

ii) Enforcement of an ordinance or other regulatory mechanism;

iii) Continued implementation of enforcement and response procedures, including timelines for compliance;

iv) Implementation of a program to detect and eliminate illicit discharges, including response to complaints or reports of illicit discharges having the potential to impact receiving waters; and

v) Continued implementation of a Dry Weather Screening Program at priority MS4 locations

The City has been conducting such activities but documentation of such procedures and information is not currently located in a singular location. 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.4.iv, 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; and

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 Wilsonville Code (WC) prohibits illicit discharges per code sections related to stormwater (Chapter 8.300).

According to WC Section 8.201(1), "*it shall be unlawful for any person to place, deposit, or permit to be deposited in any manner as described herein on public or private property, or in any area under the jurisdiction of said City, any human or animal excrement, garbage, or other objectionable waste." Additionally, per WC Section 8.302(4), "it shall be unlawful to discharge in or into any natural outlet or stormwater sewer inlet (catch basin, grate, roof downspout, etc.) within the City of Wilsonville, or in any area under the jurisdiction of said City, any sewage or other polluted water*."

Enforcement is addressed under WC Section 8.318. Per WC Section 8.318(1), the City pursues compliance and enforcement against the responsible party or property where a violation occurs. Any discharge that fails to comply with requirements of these (i.e., Chapter 8) rules and regulations may be subject to enforcement actions including but not limited to written notification of violation (WC Section 8.318(3)) and civil penalties (WC Section 8.318(6)).

1.4 Reporting and Response Procedures

The City responds to all reports of illicit discharges. Public Works Department staff are trained in HAZWOPER and spill response procedures. For immediate threats to human health or safety, the City serves in a first responder role and has the capability to recoup costs from identified offending parties. If no entity is identified as the offending party, then the City takes on the responsibility for the initial clean up. The City policy is to identify the offending party and hold them accountable for spill response. The City considers illicit discharges to include spills and excessive debris on the ground that have the potential to enter catch basins and impact water quality.

1.4.1 Public Reporting of Illicit Discharges

The City relies on the public to report illicit discharges. City staff may also identify illicit discharges during their daily work tasks. Illicit discharges may be reported to the City in a variety of ways, including but not limited to:

- Direct phone call to City Hall or Public Works Department;
- Commercial or Industrial spills reported directly to the Industrial Pretreatment or Stormwater Coordinators by phone or email;
- The Public Works Department's 24-hour emergency number and "Stand By" personnel;
- The City's "Report a Spill' website;
- The City's Citizen Complaint or Request form, available through the "Ask the City" portal on the City website; and
- Daily report from the Oregon Emergency Response System (OERS).

The City receives a daily report from the OERS. The City's Stormwater Management Coordinator follows up on any incident that was reported within the City of Wilsonville on the same calendar day as the OERS report was received.

The WC Section 8.313 requires all businesses to notify the City when they have detected a suspected, confirmed or unconfirmed release of material that creates a risk to the public stormwater system.

1.4.2 Responses to Complaints or Reports

The City responds to all complaints and/or reports of illicit discharges by visiting the location of the report within 24 hours. Reports received during normal hours of operation are responded to the same day. The Public Works Department maintains a 24-hour emergency number for reports received outside of normal business hours. Reports that are received outside normal business hours are responded to based on the description of the report. If the report identifies an ongoing or immediate concern to the stormwater system or surface waters, a Public Works field crew member will respond within two hours of the report being received. The City treats reports of illicit discharges as anonymous, but City staff will follow up with the individual who reported the complaint upon request. Often times when the City reaches out, it is to receive additional information about what was observed.

In the event that an illicit discharge is discovered, the City may respond in multiple ways. For example, the City maintains a stock of spill response supplies in multiple locations. The Public Works field staff will take emergency measures as appropriate to isolate an illicit discharge, such as redirecting traffic, deploying absorbent booms, and blocking catch basins. For ongoing discharges threatening water quality, the City can deploy its vacuum truck to intercept flow entering a catch basin or water body until the discharge can be stopped.

If a report of an illicit discharge identifies a hazardous substance, the City will request assistance from Tualatin Valley Fire and Rescue (TVFR) Hazardous Materials Team. TVFR also responds to all reports received through the 911 Communications Center.

Upon detection of an illicit discharge, the City begins investigation of the source. Every effort is made to eliminate the source as soon as possible. The WC Sections 8.314 and 8.315 require the party responsible for an illicit connection or discharge to eliminate the connection and perform remediation. In the event that the elimination of the source cannot be resolved in fifteen working days, the City will develop and implement an action plan to eliminate the source within twenty working days of source identification. The WC Section 8.318 will be utilized to eliminate all illicit connections within six months. If a capital improvement is necessary to eliminate an illicit discharge, the improvement will occur within three years of the source identification.

The City's Stormwater Management Coordinator or Industrial Pretreatment Coordinator has direct communication channels with many commercial and industrial businesses due to the City's National Pollution Discharge and Elimination System (NPDES) permits. Those business typically report spills that occur on their site directly to the Stormwater Management Coordinator, Industrial Pretreatment Coordinator, or follow an internal spill response plan. City staff visits the site as soon as possible after becoming aware of the spill to ensure the discharge was properly addressed and reported.

The City relies on the party responsible for a spill to contain, dispose, and mitigate any discharges. The party responsible for the spill is also responsible for reporting the spill to the appropriate reporting agency including to OERS (at 800-452-0311). Whenever a responsible party for a spill cannot be found, or has not self-reported to OERS within 48 hours, the City will report the spill to OERS. At a minimum, the following spills are reported to OERS:

- Oil spills that enter a catch basin;
- Any amount of oil that enters a water of the state;
- Oil spills on land equal to or greater than 40 gallons; and
- Hazardous materials and reportable quantities that are equal to the Code of Federal Regulations, 40 CFR Part 302.

The City maintains a tracking log of all spills that have occurred throughout the City. The log is maintained by the Stormwater Management Coordinator. The log is informed by City staff, members of the public, and OERS reports. The log contains the date of the complaint and any follow-up actions that occurred. All investigation actions are also included within the tracking log. The log is summarized in the annual MS4 report.

Section 2

Priority Dry Weather Field Screening Locations and Selection

In accordance with receipt of the City of Wilsonville'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 history of observed flow or discharges, but generally the same number of outfalls and locations have continued to be monitored.

2.1 Monitoring Process/Study Design

For the City of Wilsonville, dry weather field screening activities have not led to the identification of any illicit connections to the storm system; instead, on occasion they have resulted in the identification of pollutant sources (i.e., inadequate erosion control practices upstream, etc.). The existing dry weather field screening locations are located throughout the City, reflecting areas tributary to each of the City's two major receiving water bodies (Coffee Lake Creek and Boeckman Creek), and comprised of major outfalls (Figure 1). Within the last 5 years, limited upstream source tracking activities have been required.

For the 2012 SOP, the City reviewed their existing, dry weather field screening locations to identify those high priority locations with which to continue their dry weather field screening program for the 2012-2017 MS4 NPDES permit term. In those established high priority locations, the City considered the following criteria:

1. Locations with observed flow and 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 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, the existing screening locations were evaluated according to whether a significant baseflow contribution was expected. Baseflow may be associated with springs, groundwater, stream flow, and runoff (e.g., irrigation flow).

For this 2022 SOP, each previous, high priority field screening locations was reevaluated in conjunction with the criteria listed above. Updated dry weather field screening locations are provided in Table 1.

Table 1. Wilsonville High Priority Field Screening Locations

Dry weather field screening location (2022) [a]	Previous high priority screening site number (2012)	Historic screening site number [b] (1995-2012)	Location description	Diameter, inches	Receiving water	Significant baseflow contribution (Y/N)	Assessment criteria							Notes
							Observed flow [c]	Historical complaints [c]	Upstream Industrial (high pollutant) sources	Upstream development potential	Upstream WW permits/ pretreatment	Aging infrastructure	Accessible	
1		7	Freeman Ct. at Basalt Cr.	78	Willamette River via Coffee Lake Cr.	N			X	X	X	X	X	
2		1	Willamette River at Boones Ferry Rd.	36+	Willamette River	N				X				Accessible by boat
3	3	6	West end Boeckman Rd.	12	Willamette River via Coffee Lake Cr.	N	X		X		X	X	X	
4		10	South of Ridder Rd. entering Basalt Cr.	2 culverts, 1 pipe	Willamette River via Coffee Lake Cr.	N	X		X	X			X	
5			Library Pond	48	Willamette River via Boeckman Cr.	N			X			X	X	
6	6		Wiedeman Ditch at SW Canyon Creek Rd.	Culvert	Willamette River via Boeckman Cr.	N			X				X	
	1	2	Coffee Lake Cr. at OREPAC Bridge	Open channel	Willamette River via Coffee Lake Cr.	Y	X		X	X	X	X	X	High specific conductance originating from outside City limits
	2	4	Villebois Pond at Orleans and Palermo	36	Willamette River via Coffee Lake Cr. and Mill Cr.	Y	X			X			X	Irrigation flow
	4	9	Basalt Cr. crossing at Ridder Rd.	2 x 24	Willamette River via Coffee Lake Cr.	N	X		X	X	X	X	X	
	5	14	Boeckman Cr. at Rose Lane crossing	Open channel	Willamette River via Boeckman Cr.	Y	X		X	X			X	City and farm flow
		11	North side of Xerox	Open channel	Willamette River via Coffee Lake Cr.	N			X				X	
		12	North side of Flir	Open channel	Willamette River via Coffee Lake Cr.	N			X		X		X	
		15	Miley Rd. east of northbound I-5 access	36	Willamette River	Y						X	X	Flow from outside of city

[a] *High priority screening locations per Figure 1.*

[b] *Historic screening site numbers are provided for reference only.*

[c] *Observed flow and historical complaints refers to observed activities over the past 10+ years.*

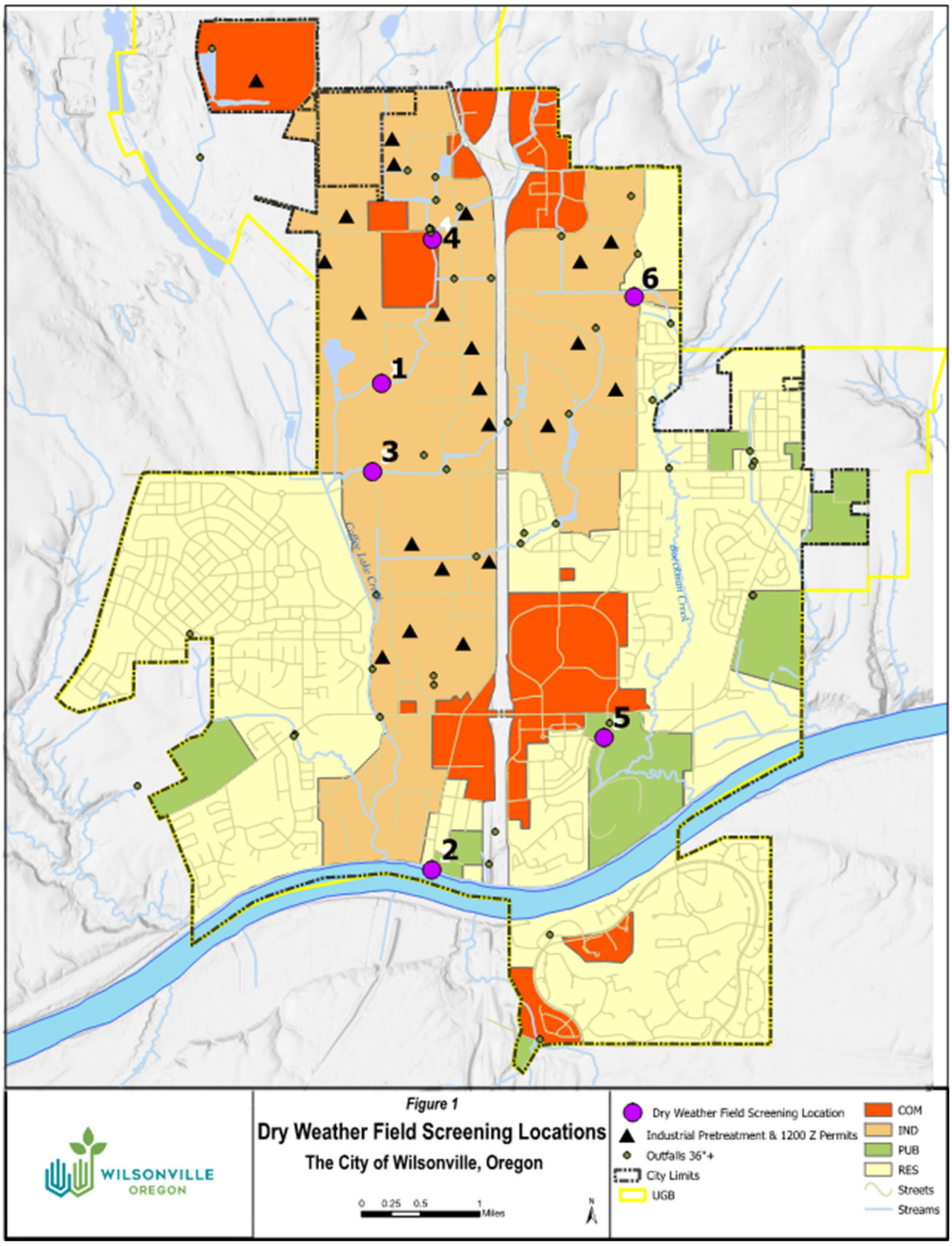
2.2 High Priority Screening Locations

In 2012, the assessment of the historic field screening locations resulted in the identification of six high priority screening locations. With no recent record of identified illicit discharges at any location, the City adjusted locations in 2022 to consider the historical presence of flow, upstream industrial (high pollutant) sources, the upstream collection system configuration, and upstream development potential in defining their high priority locations.

Baseflow, although present in select locations, was not determined to be a major factor hindering identification of illicit discharges. The City previously evaluated potential sources of baseflow in the evaluation of historic field screening locations. Generally, the locations that had significant baseflow had contributing farmland/ agricultural areas that would have continual flows from irrigation. Other existing field screening locations did not have significant baseflow contributions, but some regular flows were observed. Flow was generally attributed to residential or city irrigation practices. The ongoing presence of flow was an important criterion used to define high priority field screening locations.

High priority locations continue to be dispersed across the City. By December 1, 2023, the City will revisit the criterion used to identify their dry weather field screening locations and update this SOP as necessary.

The City's current (2022) dry weather field screening locations are shown on Figure 1.


4
6
1
3
5
2
Coffee Lake Creek
Boeckman Creek
WILSONVILLE
OREGON
Figure 1
Dry Weather Field Screening Locations
The City of Wilsonville, Oregon
0 0.25 0.5 1
Miles
N
Dry Weather Field Screening Location
Industrial Pretreatment & 1200 Z Permits
Outfalls 36"+
City Limits
UGB
COM
IND
PUB
RES
Streets
Streams

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 current dry weather 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. Refer to Section 1.4.

The 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 the Stormwater Management Coordinator. The Stormwater Management Coordinator will 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.

Should investigation or tracking be required, additional City staff will be notified and accompany the Stormwater Management Coordinator. The City's Natural Resources Program Manager will be notified of any enforcement activities or follow up measures.

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. Visual inspection of the outfall should be conducted before attempting any sample collection. If sample collection appears hazardous, a sample should not be collected and problems should be reported to the 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 steel-toed boots. Field crews will need confined space entry training for accessing manholes. Confined space training will ensure that crews conduct appropriate air quality monitoring to ensure awareness of flammable gases, if present. 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 and 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 Appendix 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 Appendix 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 of the field data sheet (Appendix 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 there is one or more visual observations with a severity level of #3 or if there are two or more visual observations with a severity level of #1 or greater, then additional investigation and sample collection is necessary.

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

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

3.5.1 Inspection

Inspections include both visual analysis and field analysis for pH and conductivity as described in Section 3.4, if flow is occurring at the location. 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 Sampling

During dry weather field screening activities, there may be a need to conduct further investigation (source tracking) and take samples for laboratory analysis. Therefore, prior to dry weather field screening activities, all necessary sample bottles will be decontaminated and prepared for sampling. 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

Source identification procedures associated with dry weather field screening activities follow the complaint response and reporting procedures outlined in Section 1.4, which are detailed below.

3.6.1 Tracking

If an illicit discharge is detected based on exceedances of the pollutant parameter action levels, then the source of discharge will be investigated following sample collection activities. Source identification tracking starts at the field screening location and moves upstream. GIS mapping of the stormwater system and information on contributing drainage areas 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 will be considered depending on significance of the flow and lab sample results, such as dye testing, or closed-circuit television.

According to the MS4 NPDES permit, an initial investigation or evaluation of a presumed illicit discharge needs to occur within five working days or referral of the compliant to an appropriate agency. If the co-permittee determines that the elimination of the illicit discharge will take more than 15 working days due to technical, logistical, or other reasonable issues, the co-permittee must develop and implement an action plan within 20 working days of the source identification in order to eliminate the illicit discharge in an expeditious manner.

3.6.2 Enforcement

The City of Wilsonville may implement provisions of the WC 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. Depending on the nature of the discharge, clean up measures may be conducted by the responsible party or City. If the City conducts cleanup efforts, an additional administrative fee may be assessed in addition to the cost of any cleanup effort. Follow up inspections and monitoring of the site/ source will be conducted by the City.

Samples collected at the time of the observed illicit discharge will inform remediation/ cleanup 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 locations will be maintained by the City. If changes to the field screening 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 five years, results consistently show no activity related to illicit discharges, the City will reconsider and potentially make changes to high priority field screening locations.

Appendix 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.

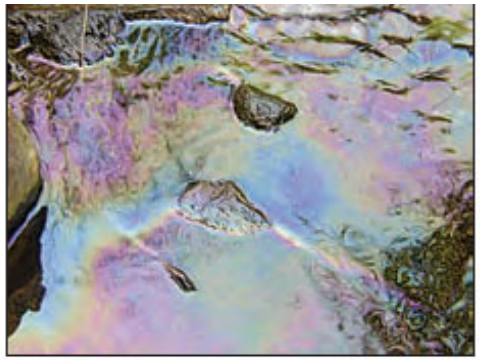
Low Severity Suds
Rating: 1
Note: Suds do not appear to travel; very thin foam layer

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.