

Internal Management Directive Sanitary Sewer Overflows (SSOs)

November 2010



State of Oregon
Department of
Environmental
Quality

Water Quality
Division

811 SW 6th Ave.
Portland, OR 97204

503.229.5696
503.229.5408 FAX

<http://www.oregon.gov>



Disclaimer

This internal management directive (IMD) represents the Department of Environmental Quality's (DEQ's) current directions to staff on how to take enforcement action when NPDES and WPCF permittees experience sanitary sewer overflows (SSOs). This IMD does not apply to combined sewer overflows (CSOs). This IMD is not final agency action and does not create any rights, duties, obligations, or defenses, implied or otherwise, in any third parties. This directive should not be construed as rule, although some of it describes existing state and federal laws.

The recommendations contained in this directive should not be construed as a requirement of rule or statute.

DEQ anticipates revising this document from time to time as conditions warrant.

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Oregon Department of Environmental Quality
Water Quality Division
811 SW 6th Ave.
Portland, OR 97204
For more information:
Sonja Biorn-Hansen, (503) 229-5257

*Alternative formats (Braille, large type) of this document can be made available.
Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696,
or toll-free in Oregon at 1-800-452-4011, ext. 5696.*

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SSO Enforcement Internal Management Directive

1. Introduction

Purpose of this IMD The purpose of this IMD (Internal Management Directive) is to help DEQ permit staff respond efficiently and effectively to sanitary sewer overflow (SSO) events, in order to protect the health of the public and the environment. To this end, it covers the following:

- Measures that DEQ staff can advise permittees to take to prevent SSOs as well as how to respond appropriately when they occur,
- Reporting requirements, and
- When to take formal enforcement action.

References The following sources of information were used in developing this IMD:

- DEQ's Enforcement Guidance
- EPA's Chapter 10 of the Enforcement Management System for the National Pollutant Discharge Elimination System: Setting Priorities for Addressing Discharges from Separate Sanitary Sewers, posted at: http://cfpub.epa.gov/npdes/docs.cfm?document_type_id=1&view=Policy%20and%20Guidance%20Documents&program_id=4&sort=name
- "What's in Your Water? The State of Public Notification in 11 States" by American Rivers, posted at: http://www.americanrivers.org/site/DocServer/arswg.all.8_16_07_opt.pdf?docID=6521

2. Preventing SSOs

A good Capacity, Management, Operation and Maintenance (CMOM) program will reduce the likelihood of SSO events, and permit staff should encourage permittees to adopt such programs. A detailed discussion of CMOM programs is beyond the scope of this document. Permit staff should instead familiarize themselves with and direct permittees to the following document developed by the EPA: “Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems.” This document may be accessed at: http://www.epa.gov/npdes/pubs/cmom_guide_for_collection_systems.pdf.

Other resources that may be helpful are as follows:

- EPA Region 4 Intro to Conducting Evaluations of CMOM Programs: <http://www.epa.gov/region4/water/wpeb/momproject/documents/r4evalguide.pdf>
- Wisconsin CMOM – see <http://dnr.wi.gov/org/water/wm/ww/cmar/cmom.htm>
- “Best Management Practices for SSO Reduction Strategies” from Central Valley and Bay Area Clean Water Agencies– see <http://www.bacwa.org/Home.aspx>

3. Reporting SSOs

Overview Complete, consistent reporting of SSO events to Oregon Emergency Response System (OERS) and DEQ helps insure timely notification of affected parties. It also assists in the identification of collection system problem areas and long-term trends.

In light of this, NPDES permits require permittees to report SSOs (except those caused by blockages on privately-owned lines) within 24 hours of when the permittee becomes aware of them, whether or not they reach waters of the state. Permittees must provide follow-up written reports regarding SSOs within 5 days of becoming aware of the SSO, unless this requirement is waived by DEQ. The specific information that must be provided in written and oral reports is found in Schedule F, Section D.7 of NPDES permits. This language is reproduced in Appendix B.

The release of a small amount of sewage that may accompany the performance of a repair or maintenance project on the collection system is not considered by DEQ to be a reportable event, as long as maintenance staff maintain positive control when it occurs. However, any SSO occurring during repair or maintenance that reaches waters of the state or that otherwise threatens public health or the environment must be reported as an SSO.

3.1 2009 revised reporting requirements

Applicability In 2009, the specific reporting requirements contained in the General Conditions of individual permits (hereinafter referred to as Schedule F) regarding SSOs were modified at the request of EPA. The new requirements are reproduced in Appendix B.

Reporting Process A flow diagram summarizing the reporting requirements that apply to permits issued after August 20, 2009 is shown in Figure 1. Since all permits will eventually include these requirements, permit staff should encourage permittees to adhere to them regardless of when their permit was issued.

As shown in the flow diagram, permit holders may need to submit a five day written report on the SSO in the form of a letter to DEQ. On January 1st, 2011, DEQ will require permittees to use DEQ's SSO reporting form instead. The use of this form will help insure greater consistency in the information that is reported, and will enable better tracking of SSOs by DEQ. The form will be on DEQ's external website at <http://www.deq.state.or.us/wq/wqpermit/sewer.htm>.

To insure that permit holders use this form, permit writers should include the following permit language in Schedule B:

Schedule B Model Permit Language Regarding Five Day Reporting of SSOs

As per Schedule F, permit holders are required to submit five day written reports regarding SSO events. Such reports are to be developed using the form entitled "SSO Reporting Form" which is available on DEQ's external website. Permit holders may supplement this form with additional information such as copies of maintenance records. The Department may waive the submittal of the

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five day written report on a case-by-case basis.

After filling out the form online, permit holders should print it out and mail it to the appropriate regional office.

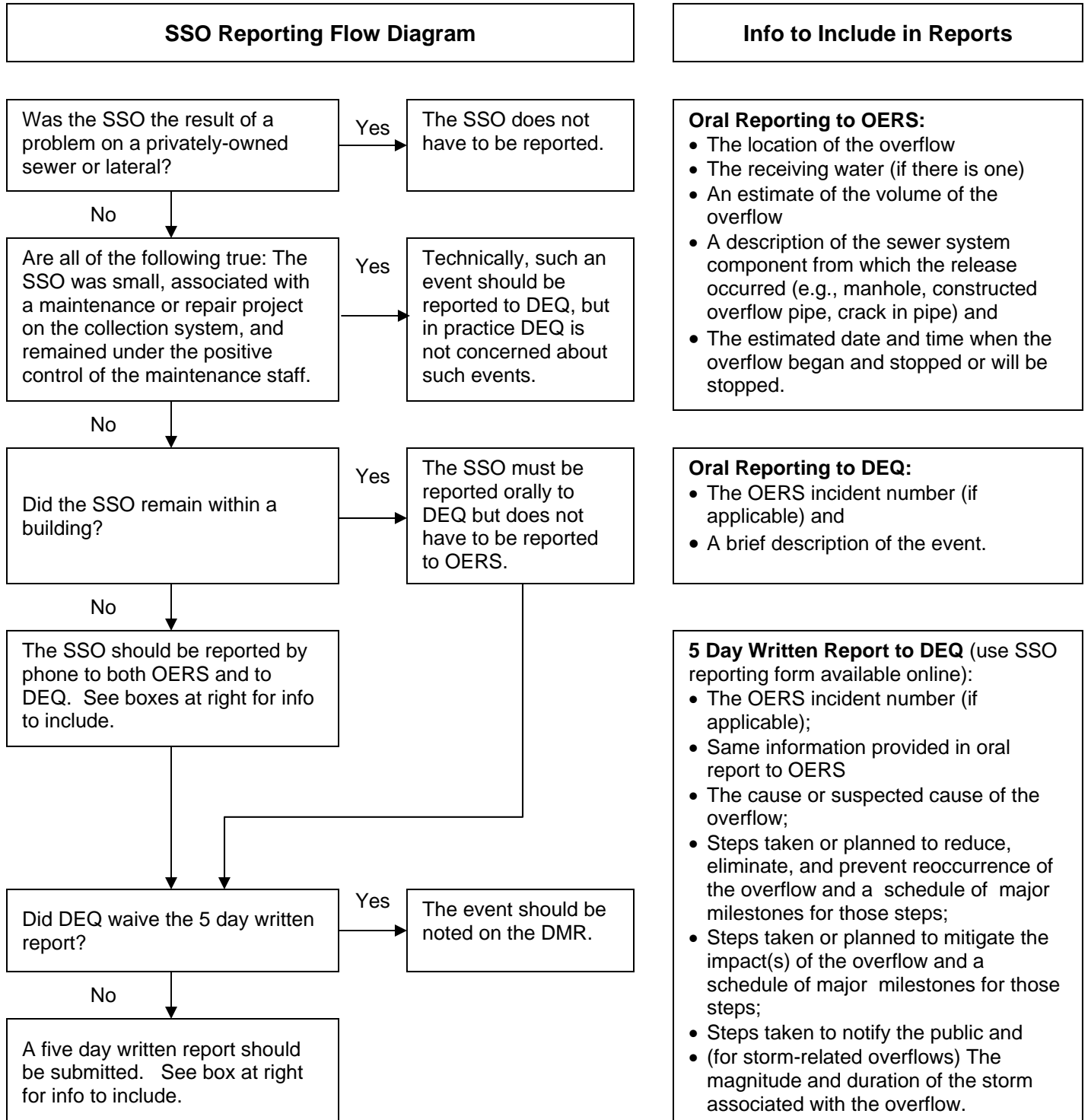


Figure 1. SSO Reporting Flow Diagram

3.2 SSO Reporting Follow-up

Process

Once the permittee has reported an SSO to OERS, OERS emails the report to DEQ headquarters and appropriate regional staff for the county the SSO occurred in. Regional staff should follow up with the permit holder as necessary.

As stated in Schedule F, basement backups (the term used to refer to any and all backups that remain inside buildings) only need to be reported to DEQ, not to OERS.

Again as indicated in Schedule F, regional staff may waive the five-day written report for SSOs that do not threaten public health or the environment, and that do not merit being tracked by DEQ. When it is not clear if public health or the environment is threatened, regional staff may contact headquarters staff for guidance.

When DEQ staff elect to waive the requirement to submit a 5 day written report, they should direct the permittee to note the event on their Discharge Monitoring Reports (DMRs).

After being received at the appropriate regional office, the form will be scanned and the information stored electronically on a Sharepoint site that has been set up for this purpose. DEQ staff will be able to retrieve SSO reports for individual permit holders as well as run various types of queries on the stored reports. Sharepoint is not accessible through DEQ's external website.

4. Responding to SSOs

4.1 Development of Emergency Response and Public Notification Plans

Reasons for developing a plan

NPDES Permits issued after August 20, 2009 contain a requirement to develop and implement Emergency Notification and Response Plans. This requirement is in Schedule F (General Conditions), Section B.7 and is reproduced in Appendix B. Permittees with Emergency Notification and Response Plans in place will be in a better position to respond adequately to SSO events as well as other types of emergencies. In the event that an SSO warrants an enforcement action by DEQ, a permittee's timely and appropriate response can serve to mitigate the penalty that may be associated with the event. Conversely, failure to take appropriate action can aggravate a penalty.

Process

Permit staff should direct permittees to develop and implement Emergency Notification and Response Plans. Permits issued after August 20, 2009 contain a requirement to develop such plans in Schedule F, Section B.8. However, all permittees should be encouraged to develop such plans as they can serve to reduce the civil penalty associated with an SSO.

Permit staff should encourage permittees to consult with appropriate authorities at the local, county and/or state level in developing these plans.

To insure that plans are developed on a timely basis, the permit writer may include the following in Schedule B of new and newly-issued permits:

Model Permit Language for Developing Emergency Response and Public Notification Plans

Emergency Response and Public Notification Plan. The permit holder is required to develop and maintain an Emergency Response and Public Notification Plan (the Plan) per Schedule F, Section B, and Conditions 7 & 8. The permit holder must develop the plan within six months of permit issuance and update the Plan annually to ensure that telephone and email contact information for applicable public agencies, [permit writer should include specific contacts here as needed] are current and accurate. An updated copy of the plan must be kept on file at the wastewater treatment facility for Department review. The latest plan revision date must be listed on the Plan cover along with the reviewer's initials or signature.

4.2 Responding to SSOs before a plan has been developed

Overview Permittees that do not yet have Emergency Notification and Response Plans in place should be directed to the following measures for protecting the public. The measures listed below are not meant to be comprehensive, nor should they be considered a substitute for developing an Emergency Notification and Response Plan. They are meant to describe a minimal level of response for permittees that have not had sufficient time to develop more detailed plans. They may not be sufficient in all cases.

Moderate to Major Impact SSOs

Moderate SSOs are those events that have limited to moderate potential for public contact. These include SSOs where a small amount of sewage has reached a water body and the dilution is high, as well as SSOs on the ground that will not be cleaned up the same day.

Major SSOs are those events that do reach waters of the state or that may otherwise have moderate to significant potential for public contact. An example of a major SSO would be an event that impacts a drinking water intake, a recreation area or shellfish growing beds.

The expectations for the responding to SSOs, whether moderate or major, are as follows:

- Take immediate steps to stop the overflow.
- In the case of overland flow, cone or tape off the affected area, and post signs warning against contact.
- Call OERS within 24 hours.
- Call the appropriate DEQ office within 24 hours (or on the next business day if the SSO occurs on a weekend). Provide the OERS incident number along with a brief description of the event.
- (For major SSOs) Work with DEQ staff to identify potentially impacted drinking water intakes.

More information on tools available to permit staff to help protect drinking water supplies and public health is in Appendix G.

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- (For major SSOs) Issue a press release as soon as possible to the local media (newspapers, radio, internet etc.) detailing area impacted by the SSO, and estimated duration of time to avoid contact.
- Submit a written incident report to the appropriate DEQ office, either via e-mail or hard copy within five (5) working days of when the permittee becomes aware of the SSO, unless the written report has been waived by the Department. If the written report has been waived, the SSO still needs to be noted on the monthly discharge monitoring reports (DMRs). If the written report has not been waived and must still be submitted, note that on January 1st, 2011 DEQ will require permittees to use the SSO reporting form on DEQ's external website.

5. When to Take Enforcement Action

Overview

This section contains 5 questions intended to guide permit compliance staff in determining what type of enforcement action is appropriate for a particular SSO event. The answers to the questions are based on the enforcement guidance developed by DEQ's OCE (Office of Compliance and Enforcement). Specifically, they are based on the Water Quality Violations section of Appendix O.

In general, the enforcement action taken in response to an SSO will depend on the following:

- Timeliness and adequacy of reporting (question 1)
- Whether the SSO was to land or surface water (question 2)
- The size of the SSO (question 2)
- Frequency (question 2)
- Whether or not the SSO was beyond the permit holder's reasonable control (question 3)
- The permit holder's response to the SSO (questions 4 and 5)

All of the questions need to be considered in order to perform a complete evaluation of a particular event.

A flowchart intended to supplement the questions is included at the end of this section.

Terms used in this section are defined below:

WL - Warning Letter. A Warning Letter is the minimum action DEQ takes when a violation is confirmed. It is not a formal enforcement action, and therefore is not appealable. Violations cited in a WL do not count as prior violations if the permittee is later issued a civil penalty. Multiple SSO violations may be consolidated into a single WL and sent on an interval not longer than semi-annually.

PEN - Pre-Enforcement Notice. A PEN simply notifies the violator they are being referred for formal enforcement action (civil penalty and/or compliance order). A PEN by itself is not formal enforcement, and is not appealable.

Refer – This is shorthand for the following: “Send a pre-enforcement notice to the permittee and submit an enforcement referral to the DEQ Office of Compliance and Enforcement.” The Office of Compliance and Enforcement provides the formal enforcement response to the violations that are referred to them. Formal enforcement responses usually include civil penalty assessments and may also include a compliance order.

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Question	Type of Violation and Enforcement Response	Requirements and Additional Guidance
<p>1. Did the permittee report the SSO?</p>	<p>The permittee must report a SSOs as detailed in this IMD. Failure to follow these reporting requirements constitutes a violation of permit conditions and state environmental law.</p> <p>Failure to report within 24 hours is a Class I violation if the SSO reaches waters of the state (see OAR 340-012-0055(1)(e): “failing to comply with statute, rule, or permit requirements regarding notification of a SSO or upset condition, which results in a non-permitted discharge to public waters”). Send a PEN and refer.</p> <p>If the SSO does NOT reach waters of the state, failure to report within 24 hours is a Class II violation (see OAR 340-012-0055(2)(b) “failing to timely submit a report or plan as required by rule, permit, or license, unless otherwise classified”). Send a WL.</p> <p>Failure to submit a written report within 5 days is a Class II violation regardless of whether or not the SSO gets to public waters (see again OAR 340-012-0055(2)(b) “failing to timely submit a report or plan as required by rule, permit, or license, unless otherwise classified”). Send a WL.</p>	<p>Schedule F, Condition B.6 requires permittees to report all SSOs, except for those backups “caused solely by a blockage or other malfunction in a privately owned sewer or building lateral” within 24 hours, whether or not they reach waters of the state.</p> <p>The release of small amounts of sewage that may accompany the performance of maintenance and repair projects on the collection system is not considered by DEQ to be a reportable event, as long as maintenance staff maintains positive control when this happens and the sewage does not reach waters of the state.</p> <p>Any SSO occurring during repair or maintenance that escapes control measures (i.e., does not remain under positive control) and reaches waters of the state or otherwise threatens public health or the environment must be reported as an SSO.</p> <p>See Appendix B for complete Schedule F language pertaining to SSOs and 24-hour reporting.</p> <p>Schedule F, Section D.7 contains specific reporting requirements.</p>

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Question	Type of Violation and Enforcement Response	Requirements and Additional Guidance
<p>2. Did the SSO reach waters of the state?</p>	<p>If yes, the SSO is a Class I violation.</p> <p>If the SSO was caused by “force majeure”, no enforcement response is needed. Document only. Force majeure events are those events which can be neither anticipated nor controlled. They include war, sabotage, unusual vandalism, and extremes act of nature.</p> <p>If the SSO reached waters of the state, send a WL if either of the following are true:</p> <ul style="list-style-type: none"> • The SSO was less than 40 gallons OR • The violation was beyond the permittee’s reasonable control (see question 3). <p>Otherwise send a PEN and refer.</p> <p>If the SSO did not reach waters of the state, send a WL if any of following are true:</p> <ul style="list-style-type: none"> • The SSO was smaller than 400 gallons • The SSO was larger than 400 gallons, but was Beyond Reasonable Control • The SSO was larger than 400 gallons and was not Beyond Reasonable Control, however it was the first such event in 12 months. <p>Otherwise, send a PEN and refer.</p>	<p>The Bacteria Rule prohibits the discharge of raw sewage (OAR 340-041-0009(2)).</p> <p>OAR 340-012-0055(1) defines the following as Class I violations, any or all of which may apply to a particular SSO:</p> <ul style="list-style-type: none"> (a) Causing pollution of waters of the state; (b) Reducing the water quality of waters of the state below water quality standards; (c) Discharging any waste that enters waters of the state, either without a waste discharge permit or from a discharge point not authorized by a waste discharge permit. <p>As a practical matter, it is easier to prove that raw sewage was discharged than it is to prove that it “caused pollution” or violated water quality standards, and so OAR 340-041-0009(2) of the Bacteria Rule is the violation most frequently cited in penalties involving SSOs.</p> <p>The Bacteria Rule does contain exceptions to the discharge prohibition. These exceptions are listed under question 3 on what constitutes “beyond reasonable control” of the permittee. Schedule F may or may not contain the exceptions in the Bacteria Rule depending on when the permit was issued. Permits issued before August 20, 2009 do contain them. Permits issued after August 20, 2009 do not, though the provisions may still be taken into account when considering whether or not the SSO was beyond the reasonable control of the permittee (see question 3).</p> <p>Regarding an SSO that does not reach waters of the state, this may be considered a Class II violation under OAR 340-012-0055(2)(c): “Causing any wastes to be placed in a location where such wastes are likely to be carried to waters of the state by any means”.</p>

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Question	Type of Violation and Enforcement Response	Requirements and Additional Guidance
<p>3. Was the event beyond the reasonable control of the permittee?</p>	<p>The answer to this question does not determine the class of violation; however along with the size and frequency of the event, it does determine whether the compliance specialist issues a WL or a PEN.</p> <p>An SSO is be considered to be beyond reasonable control if Any of the following are true:</p> <ol style="list-style-type: none"> 1. The event was caused by a force majeure event. Force majeure events are those events which can be neither anticipated nor controlled. They include war, sabotage, unusual vandalism, and extremes act of nature. 2. The SSO was caused by a storm event larger than what the system was designed to handle, as per OAR 340-041-0009(6) and (7). 3. The SSO was caused by hydrologic conditions that exceeded those described in a bacteria management plan approved by the EQC, as per OAR 340-041-0009(6) and (7). 4. The SSO was caused by an act of vandalism that could not have been reasonably anticipated or prevented by ordinary measures such as a padlock, cover or fence. 5. The SSO was the result of an act or omission of a third party not acting as an agent of the permittee. 6. The SSO occurred despite the fact that the permittee is implementing a good CMOM program. DEQ has not developed guidance on what constitutes a good CMOM program, and therefore permit staff are directed to EPA's guidance on the subject. <p>Alternatively, an SSO is considered to be beyond reasonable control if All of the following are true:</p> <ol style="list-style-type: none"> 1. The system had an adequate level of redundancy against breakdowns and power failures. Appendix F lists examples of the level of redundancy that DEQ expects permittees to design for and maintain. 2. The SSO was not the result of an action or actions initiated by the permittee such as pipe cleaning, pipe repair or reservoir cleaning. 3. The SSO was not the result of an action or actions by contractors working for the permittee. Examples: pump-around failures or plugs left in lines. Such actions are avoidable. 4. The SSO was not the result of poor or lagging maintenance, or an unreasonable failure to inspect. Examples of such SSOs include SSOs caused by grease plugs, root intrusion or debris occurring in lines that have not been adequately inspected or cleaned. 	<p>Schedule F, Section B.1. requires permittees to properly operate and maintain facilities.</p> <p>Guidelines for determining if an event is beyond reasonable control of the permit holder are based on Appendix O of DEQ's Enforcement Guidance for Field Staff, the provisions of the Bacteria Rule and input from regional staff.</p> <p>The following excerpt from OCE's Spills Guidance may be helpful in establishing whether or not an event was beyond the reasonable control of the permit holder: There is no easy black-and-white definition for the key word "reasonable." Evaluate the fact-specific situation to determine whether the violator could have reasonably prevented the violation. Consider the <i>probability</i> that the violation would occur and the <i>gravity</i> of the violation if it did occur. Reasonable people take more care to prevent more probable violations and those that would have more grave consequences.</p>

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Question	Type of Violation and Enforcement Response	Requirements and Additional Guidance
<p>4. Did the permittee take steps to notify the public?</p>	<p>Failure to notify the public is a Class II violation, though the category of Class II violation depends on when the permit was issued.</p> <p>If the permit was issued before 2009, failure to take steps to notify the public is a Class II violation as defined in OAR 340-012-0053(2): Violating any otherwise unclassified requirement. The enforcement response depends on the severity and frequency of the violation as follows: (i) For first occurrence of violation, send PEN and refer if negative impact to beneficial uses (see examples at right). Otherwise, send WL. (ii) For repeated violations, for which a WL (or WL with opportunity to correct) has been sent (or self reporting has occurred), send PEN and refer upon the third violation within 36 months.</p> <p>Permits issued after August 20, 2009 require permittees to put together Emergency Response and Notification Plans. Failure to follow the plan is a Class II violation as defined in OAR 340-012-0055(2)(d): Violating any management, monitoring, or operational plan established pursuant to a waste discharge permit, unless otherwise classified. Send a WL with opportunity to correct. Send PEN and refer if not corrected by date specified in WL.</p>	<p>Schedule F, Section B.7. requires permittees to take such steps as are necessary to alert the public.</p> <p>NPDES Permits issued prior to 2009: Schedule F states that public notification will occur “upon request by the Department.” Notifying the public may include but is not limited to: posting of the river at access points and other places, news releases, and paid announcements on radio or television.</p> <p>NPDES Permits issued after August 20, 2009: Under Schedule F, Section B.8., permittees are required to put together Emergency Response and Notification Plans and to follow these plans. Appendix D provides guidance to permit writers in reviewing these plans.</p> <p>Examples of a negative impact to beneficial uses include the following: closure of a beach, shellfish bed or drinking water intake, a fish kill, or a water quality standards violation. If there is no or insufficient water quality data available to demonstrate a standards violation, the likelihood of a water quality standards violation may be estimated based on available dilution.</p>

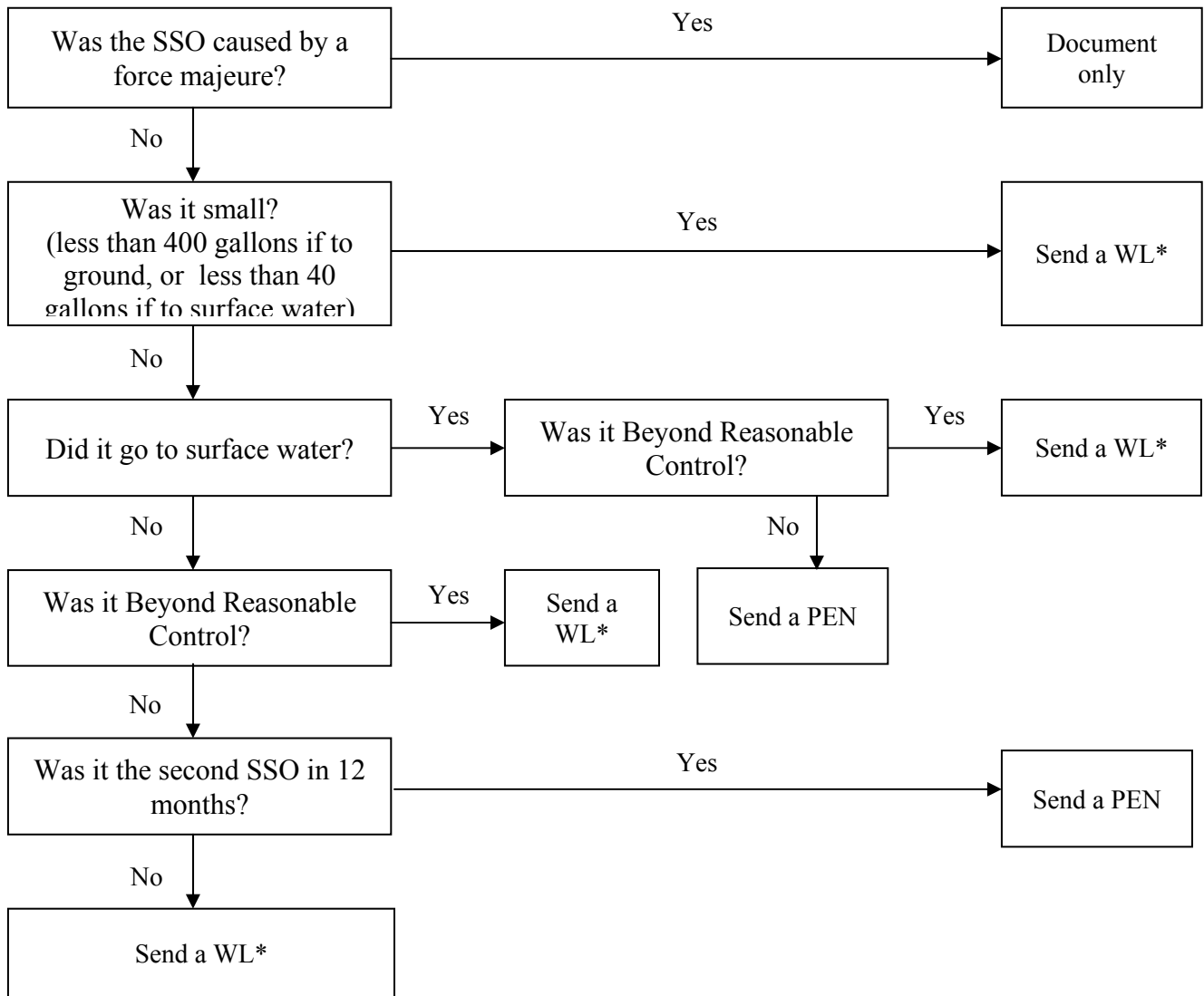
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Question	Type of Violation and Enforcement Response	Requirements and Additional Guidance
<p>5. What steps did the permittee take to correct the violation or minimize the environmental impacts of the SSO?</p>	<p>A prohibited SSO is a violation regardless of whether the permittee takes steps to correct the violation or minimize the environmental impacts. However, the permittee's corrective steps can affect the amount of the civil penalty.</p>	<p>Schedule F, Section A.3. requires permittees, upon request by DEQ, to correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.</p> <p>Examples of corrective steps include, but are not limited to: being aware of the SSO as soon as possible and responding as quickly as possible, cleaning up areas affected by SSOs, posting the SSO area and/or fencing it off to prevent human contact, pumping out flooded basements, notifying public health agencies as necessary to prevent public contact, and/or adopting a rigorous CMOM program in order to avoid future SSOs</p>

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Summary The appropriate enforcement response to an SSO is determined by considering the cause, size, fate and frequency of the SSO, as well as the adequacy of the permit holder's reporting, emergency response and public notification efforts.

It is not practical to include all of these considerations into a single flowchart. A flowchart that takes into account cause, size, fate and frequency is provided below.



*SSO notifications may be consolidated into single WLs covering a period of not longer than six months.

Figure 2. Flowchart for Determining Enforcement Response to an SSO Event (excludes reporting, emergency response and public notification considerations)

Appendix A: SSO Reporting Form

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State of Oregon
Department of
Environmental
Quality

Oregon Department of Environmental Quality SSO Reporting Form



This information must be submitted within 5 days of becoming aware of the overflow.
Please complete online and print for signature. Be sure to fill out all fields.

FACILITY/CONTACT INFORMATION

Name of Permittee:		
Contact Name:		
Phone:	Email:	County:
DEQ Permit # (see permit face page):		
OERS Incident #:	Date Reported to OERS:	
Date Reported To DEQ:	Today's Date:	
Date SSO Started (if known):	Time Started (if known):	
Date SSO Stopped (if known):	Time Stopped (if known):	
SSO Location:		
SSO Nearest Address:		
City:	Zip Code:	
SSO Latitude (if known):	Longitude (if known):	
Estimate of Quantity Overflowed:		(Gallons) Link to estimation method
Did the SSO discharge to surface water?		
Name of waterbody:		

PUBLIC NOTIFICATION

Notified downstream drinking water sources (List Below)?
Name of drinking water facility:
Signs Posted?
Media contacted?
Who?
List any other steps taken to notify the public or state/federal agencies:

CAUSES

Cause or suspected cause of the overflow:
Rainfall in the 24 hours prior to SSO (for storm-related overflows): (inches)
Source of rainfall data:
1-in-5 year 24 hour rainfall for the sewerage system area (if known): (in/24hr)

EMERGENCY RESPONSE AND MIGRATION

List actions taken to stop and mitigate the impact of the SSO.

For overland flow:	Taped off affected area?
	Cleaned up affected area?
For SSO to surface water:	Bacteria samples taken to confirm impact?
	Follow up bacteria samples taken to confirm end of impact?
Describe monitoring and results:	
For SSOs that impact buildings:	Pumped out flooded buildings?
	Disinfected?

Other measures taken (describe):
Steps taken or planned to reduce, eliminate, and prevent the reoccurrence of the overflow and schedule for those steps:
COMMENTS

Signature: _____

Date: _____

*You may attach additional information to this report before sending to DEQ as needed to explain the circumstances of the overflow. This information may include but is not limited to: maintenance records and bacteria monitoring results.

Upon completion, print out this form and send to the appropriate DEQ Address:

Portland-Permit Coordinator
 2020 SW 4th Avenue, Suite 400
 Portland, OR 97201
 Phone: (503) 229-5263
 TTY: (503) 229-5471
 Hours: Mon-Fri, 8 a.m.-5 p.m.

Salem-Permit Coordinator
 750 Front St NE, #120
 Salem, OR 97301-1039
 Phone: (503) 378-8240
 Toll free in Oregon: (800) 349-7677
 TTY: (503) 378-3684
 Hours: Mon-Thurs: 8 a.m.-5 p.m.
 Fri: 8 a.m.-12 p.m., 1 p.m.-5 p.m.

Pendleton-Permit Coordinator
 700 SE Emigrant, #330
 Pendleton, OR 97801
 Phone: (541) 276-4063
 Toll free in Oregon: (800) 304-3513
 Hours: Mon-Fri,
 8 a.m.-12 p.m., 1 p.m.-5 p.m.

Appendix B: Schedule F Language Regarding SSOs

The following language in Schedule F pertains to reporting of SSOs to DEQ and to notification of the public.

NPDES Permits issued prior to 2009:

Section B.6: Overflows from Wastewater Conveyance Systems and Associated Pump Stations

- a. Definitions
 - 1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
 - 2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
 - 3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

- b. Prohibition of storm related overflows. Storm related overflows of raw sewage are prohibited to waters of the State. However, the Environmental Quality Commission (EQC) recognizes that it is impossible to design and construct a conveyance system that will prevent overflows under all storm conditions. The State of Oregon has determined that all wastewater conveyance systems should be designed to transport storm events up to a specific size to the treatment facility. Therefore, such storm related overflows will not be considered a violation of this permit if:
 - 1) The permittee has conveyance and treatment facilities adequate to prevent overflows except during a storm event greater than the one-in-five-year, 24-hour duration storm from November 1 through May 21 and except during a storm event greater than the one-in-ten-year, 24-hour duration storm from May 22 through October 31. However, overflows during a storm event less than the one-in-five-year, 24-hour duration storm from November 1 through May 21 are also not permit violations if, the permittee had separate sanitary and storm sewers on January 10, 1996, had experienced sanitary sewer overflows due to inflow and infiltration problems, and has submitted an acceptable plan to the Department to address these sanitary sewer overflows by January 1, 2010;
 - 2) The permittee has provided the highest and best practicable treatment and/or control of wastes, activities, and flows and has properly operated the conveyance and treatment facilities in compliance with General Condition B.1.;
 - 3) The permittee has minimized the potential environmental and public health impacts from the overflow; and
 - 4) The permittee has properly maintained the capacity of the conveyance system.

- c. Prohibition of other overflows. All overflows other than stormwater-related overflows (discussed in Schedule F, Section B, Condition 6.b.) are prohibited unless:
 - 1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
 - 2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
 - 3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

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- d. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.
- e. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5. Reports concerning storm related overflows must include information about the amount and intensity of the rainfall event causing the overflow.

Section B.7:

Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee must take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

Section D.5:

Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office must be called. Outside of normal business hours, the Department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permittee becomes aware of the circumstances. Pursuant to ORS 468.959 (3) (a), if the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days of the time the permittee becomes aware of the circumstances. The written submission must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected;
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
- e. Public notification steps taken, pursuant to General Condition B.7.

The following must be included as information that must be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass that exceeds any effluent limitation in this permit;
- b. Any upset that exceeds any effluent limitation in this permit;
- c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Department in this permit; and
- d. Any noncompliance that may endanger human health or the environment.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

NPDES Permits issued after August 20, 2009:

Section B.6.Overflows from Wastewater Conveyance Systems and Associated Pump Stations

- a. Definitions
 - 1) "Overflow" means any spill, release or diversion of sewage, including:
 - i. An overflow that results in a discharge to waters of the state; and

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- ii. An overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral), even if that overflow does not reach waters of the state.
- b. Prohibition of overflows. Overflows are prohibited. The Department may exercise enforcement discretion regarding overflow events. In exercising its enforcement discretion, the Department may consider various factors, including the adequacy of the conveyance system's capacity and the magnitude, duration and return frequency of storm events.
- c. Reporting required. All overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

Section B.7:

Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs that threatens public health, the permittee must take such steps as are necessary to alert the public, health agencies and other affected entities (e.g., public water systems) about the extent and nature of the discharge in accordance with the notification procedures developed in accordance with General Condition B.8. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

Section B.8.:

Emergency Response and Public Notification Plan

The permittee must develop and implement an emergency response and public notification plan that identifies measures to protect public health from overflows, bypasses or upsets that may endanger public health. At a minimum the plan must include mechanisms to:

- a. Ensure that the permittee is aware (to the greatest extent possible) of such events;
- b. Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response;
- c. Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;
- d. Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained;
- e. Provide emergency operations; and
- f. Ensure that DEQ is notified of the public notification steps taken

Section D.5.:

24- Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) to DEQ or to the Oregon Emergency Response System (1-800-452-0311) as specified below within 24 hours from the time the permittee becomes aware of the circumstances.

- a. Overflows.
 - 1) Oral Reporting within 24 hours.
 - i. For overflows other than basement backups, the following information must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311. For basement backups, this information should be reported directly to DEQ and not to OERS.
 - ii.
 - (a) The location of the overflow;
 - (b) The receiving water (if there is one);

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- (c) An estimate of the volume of the overflow;
 - (d) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe); and
 - (e) The estimated date and time when the overflow began and stopped or will be stopped.
- ii. The following information must be reported to the Department's Regional office within 24 hours, or during normal business hours, whichever is first:
 - (a) The OERS incident number along with a brief description of the event.
- b. Written reporting within five days.
 - 1) The following information must be provided in writing to the Department's Regional office within 5 days of the time the permittee becomes aware of the overflow:
 - i. The OERS incident number (if applicable);
 - ii. The cause or suspected cause of the overflow;
 - iii. Steps taken or planned to reduce, eliminate, and prevent recurrence of the overflow and a schedule of major milestones for those steps;
 - iv. Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps;
 - v. Steps taken to notify the public; and
 - vi. (for storm-related overflows) The magnitude and duration of the storm associated with the overflow.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

Appendix C: Determination of the Five-Year Storm Event

The bacteria standard (OAR 340-041-0009(6) and (7)) prohibits the discharge of raw sewage except during a winter storm event greater than the one-in-five-year, 24-hour duration storm.

When a permittee reports an SSO but fails to provide DEQ with information indicating whether or not the SSO occurred in response to a five-year event, DEQ can perform the determination using the information below. Permittees may also perform more site-specific determinations as to what constitutes the 5- and 10- year events for their systems, and are encouraged to provide this information to DEQ in advance of storm events.

Step 1: Determine the rainfall associated with the SSO event. As of this writing, the following websites provide rainfall data for Oregon. There may be others.

National Weather Service Advanced Hydrologic Prediction Service

This website has current as well as archived precipitation data for the whole country and is the most comprehensive of the sites listed. It is also a bit clumsy to use. Play with it.

Community Collaborative Rain, Hail and Snow Network

<http://www.cocorahs.org/ViewData/StateDailyPrecipReports.aspx?state=OR>

This website has data by volunteers from over 200 locations in Oregon. The data can be viewed in either table or (rather crude) map format.

MesoWest Surface Weather Maps

[http://mesowest.utah.edu/cgi-](http://mesowest.utah.edu/cgi-bin/droman/mesomap.cgi?state=OR&address=&type=&noho=&rawsflag=3)

[bin/droman/mesomap.cgi?state=OR&address=&type=&noho=&rawsflag=3](http://mesowest.utah.edu/cgi-bin/droman/mesomap.cgi?state=OR&address=&type=&noho=&rawsflag=3)

This site is maintained by the University of Utah. This site is the most elegant of the three. To show 24-hour precipitation data for the whole state, make sure you have selected “All Networks” from the Network menu in the box entitled “Data Selection”, and “24hr Precip” from the Overlay 1 menu in the “Display” box. To get precipitation totals for the past 2, 5, 7 etc. days, select “Precipitation Summary” from the “Product” menu at the top of the screen. This summary also gives the number of days taken to achieve various precipitation levels.

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Step 2: Determine whether or not the recorded rainfall corresponds to a one-in-five-year, 24-hour duration storm. This can be done by either contacting NOAA directly for to obtain rainfall data for a particular city, or by referring to the table below. The rainfall amounts in this table are taken from 1973 NOAA Atlas 2 entitled “Precipitation-Frequency Atlas of the Western United States, Volume X – Oregon”. Specifically, they were interpolated from Figure 26 entitled “Isopluvials of 5-yr 24-hr precipitation in tenths of an inch”. The Atlas can be obtained on line at http://hdsc.nws.noaa.gov/hdsc/pfds/other/or_pfds.html, however the file is very large. A scanned version of Figure 26 is available at: <http://www.wrcc.dri.edu/pcpnfreq/or5y24.gif>

Table 1: Rainfall Associated with Five Year Storm Events for Selected Cities in Oregon*

City	in/24 hr	City	in/24 hr	City	in/24 hr	City	in/24 hr
ADAIR VILLAGE	4	ESTACADA	4	MONMOUTH	4	SISTERS	2.25
ALBANY	3	EUGENE	4	MONROE	3	ST HELENS	2.5
AMITY	3	FALLS CITY	5.5	MOSIER	2	STANFIELD	1.2
ARCH CAPE	4.5	FLORENCE	5	MT ANGEL	3	STAYTON	3
ARLINGTON	1.4	FOREST GROVE	3.5	MT VERNON	1.6	SUTHERLIN	3.5
ASHLAND	3	GARIBALDI	4.5	MT. HOOD	3.5	SWEET HOME	3.5
ASTORIA	4.25	GERVAIS	3	MULTNOMAH FALLS	4	TANGENT	3
ATHENA	1.6	GLENDALE	4.5	MURPHY	3.5	THE DALLES	1.8
AUMSVILLE	3	GLENEDEN BEACH	4.5	MYRTLE CREEK	3	TIGARD	3
AURORA	3	GLIDE	4.5	MYRTLE POINT	5	TILLAMOOK	4.6
BAKER CITY	1.2	GOLD HILL	3	NEHALEM	4.5	TILLER	3.5
BANDON	5.5	GOSHEN	4	NESKOWIN	5.5	TOLEDO	4.5
BAY CITY	4.5	GOVERNMENT CAMP	5	NEWBERG	3	TRAIL	3
BIGGS	1.8	GRAND RONDE	5	NEWPORT	4	TROUTDALE	3.5
BIRKENFELD	4	GRANTS PASS	3.5	NORTH BEND	4.5	TWIN ROCKS	4.5
BORING	4	HALFWAY	2	NORTH POWDER	1.5	UMATILLA	1.2
BROOKINGS	6	HALSEY	3.5	NYSSA	1.4	UNION	1.6
BROOKS	3	HARRISBURG	3.5	OAKLAND	3.5	VENETA	4
BROWNSVILLE	4	HEBO	5.5	OAKRIDGE	3.5	VERNONIA	2.5
BUTTE FALLS	3.5	HEPPNER	1.5	OCEANSIDE	4	WALDPORT	5
CANBY	3	HERMISTON	1.4	ODELL	2.5	WALLOWA	1.8
CANNON BEACH	5	HILLSBORO	3	ONTARIO	1.4	WARRENTON	4
CANYONVILLE	3.5	HOOD RIVER	2.5	OREGON CITY	3.5	WELCHES	5
CARLTON	3	HUBBARD	3	OTTER CREST	4	WESTFIR	4
CASCADE LOCKS	4.5	HUNTINGTON	1.7	PACIFIC CITY	4.5	WESTON	2
CAVE JUNCTION	5.5	INDEPENDENCE	3.5	PARKDALE	3.5	WESTPORT	4
CENTRAL POINT	2.5	JEFFERSON	3	PENDLETON	1.2	WILLAMINA	3.5
CHILOQUIN	2	JOSEPH	1.6	PHILOMATH	4	WILSONVILLE	3
CLATSKANIE	4	JUNCTION CITY	3.5	PORT ORFORD	5.5	WINCHESTER BAY	4.5
CLOVERDALE	5.5	KEIZER	3	PORTLAND	3	WOODBURN	3
COOS BAY	4.5	KLAMATH FALLS	2	POWERS	5	YACHATS	5.5

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Table 1: Rainfall Associated with Five Year Storm Events for Selected Cities in Oregon*

City	in/24 hr	City	in/24 hr	City	in/24 hr	City	in/24 hr
COQUILLE	5	LA GRANDE	1.6	PRINEVILLE	1.6	YAMHILL	3
CORVALLIS	3	LAFAYETTE	3	RAINIER	2.5	YONCALLA	4
COTTAGE GROVE	4	LAKE OSWEGO	3	REEDSPORT	5		
CRESWELL	4	LAKESIDE	4.5	RICE HILL	4		
DALLAS	4	LAKEVIEW	1.8	RIDDLE	4.5		
DAYTON	3	LEBANON	3.2	ROCKAWAY BEACH	4.5		
DAYVILLE	1.4	LINCOLN CITY	5	ROGUE RIVER	3		
DEPOE BAY	4	LONG CREEK	1.8	ROSEBURG	3		
DRAIN	4	LOWELL	4	SCAPPOOSE	3		
DUFUR	1.8	MAPLETON	6	SCIO	3.5		
DUNDEE	3	MAUPIN	1.6	SEASIDE	4		
ECHO	1.2	MCMINNVILLE	3	SHADY COVE	3		
ELGIN	2.2	MERLIN	3.5	SHERIDAN	3.5		
ENTERPRISE	1.5	MILWAUKIE	3	SILETZ	7.5		
ESTACADA	3.5	MOLALLA	3.5	SILVERTON	3		

The values in this table are generally conservative insofar as when a city was between two isopluvials, the higher rainfall value was selected as representing the 5- year, 24- hour event.

Contact information for NOAA is provided below.

Medford contact info is:

Medford Weather Forecast Office
 4003 Cirrus Drive
 Medford, OR 97504-4198
 Tel: Charles Glaser at (541) 776-4303 or email Charles.Glaser@noaa.gov
 Charles Glaswer

The Portland contact info is:

National Oceanic and Atmospheric Administration National Weather Service Portland Weather Forecast Office
 5241 NE 122nd Avenue
 Portland, OR 97230-1089
 Tel: (503) 261-9246

The Pendleton contact info is:

National Oceanic and Atmospheric Administration National Weather Service Pendleton Weather Forecast Office
 2001 NW 56th Drive
 Pendleton, OR 97801
 Tel: (541) 276-7832

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Step 3: (Optional) Determine if the rainfall event corresponds to a one-in-five year (or greater) event lasting less than 24 hours (also known as the “cloudburst scenario”), or if the event may otherwise be viewed as extreme (such as rain-on-snow).

It should be noted that the bacteria rule only refers to 24- hour events, and it is up to DEQ’s discretion (as reflected in the Enforcement Guidance) whether or not to take formal enforcement action as a result of SSOs that occur in response to five year events that last less than 24 hours. Furthermore, rainfall data is not always available on a less-than-24 hour basis, and adequate snowfall data may not be available either. In considering extreme events that may have been the cause of an SSO, permit staff are directed to consider that the bacteria rule was written with the understanding that SSOs should be rare occurrence, and it was not intended to reduce the incentive for addressing I/I. For this reason, it is not acceptable to accept the once-in-five year flow as a basis for exercising enforcement discretion regarding an SSO, though this flow may be used for sizing a POTW. The logic in using this flow as the basis for designing a POTW is that will result in a POTW that is able to handle flows all but once every five years, regardless of how quickly progress is made with reducing I/I.

If rainfall data is available, the determination of the size rainfall event may be determined by consulting Appendix A of ODOT’s Hydraulics Manual. This may be found at:

ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Hydraulics/Hydraulics%20Manual/Chapter_07/Chapter_07_appendix_A/CHAPTER_07_APPENDIX_A.pdf

Appendix D: Review of Emergency Response and Public Notification Plans

Overview

Domestic permits issued by DEQ after August 20, 2009 include a requirement to develop, implement and maintain plans for emergency response and public notification. The requirements for these plans may be found in General Conditions Section B.8., and are listed below in italics.

The purpose of these plans is to identify measures to protect public health from SSOs, bypasses or upsets that may endanger public health. As listed in Schedule F, Section B.8, these plans must include mechanisms to:

1. *Ensure that the permittee is aware (to the greatest extent possible) of such events;*
2. *Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response;*
3. *Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;*
4. *Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained;*
5. *Provide emergency operations; and*
6. *Ensure that DEQ is notified of the public notification steps taken.*

Permit staff should emphasize to permittees the importance of working with public health agencies and the local, county and/or state level in developing Emergency Response and Public Notification plans. Permit staff should advise permittees to have the final plans available for DEQ review during compliance inspections or upon request, and should include a requirement in the permit to develop such plans within six months of permit issuance.

Explanation of Requirements

Each of the requirements for emergency response and public notification plans is set forth and then explained below. The level of detail contained in a particular plan will vary with the size and complexity of the system.

1. *Ensure that the permittee is aware (to the greatest extent possible) of overflows, bypasses or upsets.*

The plan should describe the measures that the permittee will take to ensure that maintenance staff is aware when events occur that may threaten public health. Measures permittees may elect to undertake may include (but are not limited to):

- Insure that citizens know who to contact in the event of an SSO by making the phone number readily available. Ways to accomplish this include providing it in sewer bills, in the phone book and on the city's website.
- Develop and maintain an inspection schedule for SSO points. The inspection schedule may be different for different SSO points. Areas vulnerable to overflowing generally only during major storm events may only need to be inspected during storm events. Areas vulnerable to the buildup of fats, oils and grease may need to be inspected during dry as well as wet weather times.
- Develop and maintain a map or maps showing where SSOs have occurred in the last five years, as well as locations of potential public access and exposure. Examples of locations where public

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exposure is a concern include residential areas, commercial or retail areas, parks, playgrounds, schoolyards, fishing access points and boat ramps.

- Install alarms, flow meters, cameras and/or other monitoring equipment at identified SSO points.

2. *Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response.*

The plan should identify staff responsible for responding to SSOs on a 24-hour basis, and include appropriate contact information for those staff.

The plan should identify a goal for responding to reports of SSOs. The goal may vary from permittee to permittee, but it must be less than 24 hours. The plan should identify the response time that the permittee is aiming for, and list the notification and backup measures in place to ensure that it is met.

The plan should describe a process for achieving continuous improvement with respect to response time. When the time limit for a particular event is exceeded, staff should work to identify the cause of the delay as well as steps that will be taken to reduce the response time. The plan should be updated as necessary to reflect the outcome of this continuous improvement process.

3. *Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification.*

The plan should describe the means by which the public will be notified of an SSO event. Such notification needs to happen in a timely manner, with the intent of reaching a broad audience. Depending on local circumstances, the permittee may notify the public directly or may notify other entities such as the local health authority to notify the public.

Several mechanisms may need to be employed to achieve this.

- The plan should state that all SSOs that may impact surface water or public health are to be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311.
- The plan should contain contact information for public water supplies with intakes located downstream of the permittee. This list should be accompanied by a description of the circumstances under which each public water supply would like to be contacted. Some entities located a significant distance away from the permittee may wish to be contacted regarding major SSOs only while others may wish to be contacted more frequently. DEQ permit staff can assist in determining who the potentially-impacted public water supplies are by consulting DEQ's outfall location data page and looking under the column entitled "Dwnstrm PWS". For security reasons, this web page is not accessible to the public.
- The notification list should include contact information for other downstream water users (livestock water, crop irrigation, etc.) as necessary, and regulatory and media contacts.
- The plan may also include set points (based on seasons, SSO volumes, locations, etc.) that would trigger issuance of a media release and a standard notice that can be sent out when needed.

Other measures that may be taken to ensure notification, and that should be described in the plan are as follows:

- Install warning signs in areas where the public is at risk for coming into contact with contaminated water. Areas of concern include parks, playgrounds, schoolyards, fishing access points and boat ramps. If the signs are to be installed on an as-needed basis, they should be made in advance so they will be available when needed. They should be in multiple languages

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corresponding to the local population, or use universal warning symbols. Alternatively, lock up/lockdown-type signs may be installed on a permanent basis that contain warnings to the public to avoid contact with water during storm events.

- Have a phone number with a recorded message that can be updated as needed to notify the public about SSO events.
- Maintain a web page that citizens may access to find out the latest information regarding SSO events. Web pages could have an email notification option for citizens who would like to receive email notifications regarding SSO events.

4. *Ensure that appropriate personnel are aware of and follow the plan, and are appropriately trained.*

The plan should describe mechanisms for insuring that personnel are familiar with the plan and its implementation. These mechanisms may include but are not limited to:

- Locations where copies of the plan are to be kept. At a minimum, copies should be kept at the wastewater treatment plant, City Hall (or main agency office), and with the afterhours on-call staff.
- Regularly scheduled staff meetings or training sessions. The plan should describe the information to be disseminated at meetings or training sessions, and should include a schedule for when these meetings or training sessions are to take place.
- Development of a task list for insuring that the plan works as intended. The task list should identify positions/individuals associated with each task and their personal contact phone numbers. Individual tasks could include but are not limited to: insuring there is an adequate supply of signs and checking phone numbers of agencies during an SSO event to make sure the contact information is current.

5. *Provide emergency operations.*

The plan should describe, for a wide range of system failures, applicable corrective actions to halt and mitigate the impact of SSOs. Such actions may include but are not limited to containment, wash down and clean up procedures to be followed in the event of an emergency. The plan should also identify the staff and equipment available for handling emergencies. Regarding disinfection, desiccation by the sun is usually adequate for disinfection after clean up. However, if post-cleanup disinfection is desired, a dilute chlorine solution may be used on hard surfaces and lime may be use on dirt or gravel areas. If used, disinfection chemicals should not be allowed to discharge into creeks and streams, as they are toxic to aquatic life at very low concentrations. Areas that drain to storm drains and/or streams should be washed with water only.

When SSOs impact surface water, proper response to an SSO should include follow-up sampling and analysis for *E. coli* bacteria. The plan should define locations and frequencies of such monitoring. Monitoring results can be used by collection system and/or treatment staff to develop projections of when conditions are likely to return to safe levels.

The plan should state the circumstances under which a public notification or alert can be terminated. As described above, these circumstances can be determined by the results of sampling at predetermined locations and frequencies.

6. *Ensure that DEQ is notified of the public notification steps taken.*

The plan should include appropriate DEQ contact information and list the information that must be reported. As stated in the general conditions of the permit, a written report to DEQ is usually required within 5 days of the event unless this requirement has been waived by DEQ staff. To insure completeness and consistency in reporting, DEQ has developed an online SSO reporting form that

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will be accessible through DEQ's external website on January 1, 2011. Once the permit holder has filled out the form, it should be printed out and mailed to the appropriate regional office. Appendix A contains a copy of the form.

Appendix E: Template for Emergency Response and Public Notification Plans

All NPDES domestic permits issued by DEQ contain a requirement to notify the public regarding overflows. Permits issued after August 20, 2009 contain more specific requirements, and state that permit holders must develop and implement Emergency Notification and Response Plans. This requirement is in Schedule F of the General Conditions, Section B.7. All municipalities should be encouraged to develop such plans for the following reasons:

- Developing these plans can help define responsibilities, clarify roles and procedures, identify resources and result in complete, up-to-date contact information.
- In the event that an SSO warrants an enforcement action by DEQ, a municipality's timely and appropriate response can serve to mitigate the penalty that may be associated with the event. Conversely, failure to take appropriate action can aggravate a penalty. A good plan can help insure a timely and appropriate response to an SSO event.

In other words, all permit holders will benefit from developing Emergency Response and Public Notification plans regardless of when their permit was issued.

Emergency Response Plans should be written for the benefit of the staff that may use them, and not just to satisfy a regulatory requirement. It is recommended that they contain the following:

1. Introduction - the introduction should state why the plan is being developed and what it is intended to accomplish. The permit holder may wish to list permit requirements here.
2. Receipt of Information Regarding an SSO - this section should describe:
 - a. How members of the public can report SSOs. A citizen who sees an SSO should know or be able to easily determine who to call to report the SSO.
 - b. How a report of an SSO is received and assigned to the appropriate party for action. The anticipated turnaround time should be identified. Ideally it should be less than 24 hours.
3. Emergency Operations - this section should describe the steps that will be taken to contain and stop small, medium and large SSO events. It should describe available equipment and resources for responding. If the permit holder has arrangements with neighboring municipalities to borrow/share equipment, this is the place to describe. This section should also describe the circumstances under which private contractors may be called in to assist. Provisions for bacteria monitoring should also be included here.
4. Public Advisory Procedure - this section should contain the following:
 - a. A list of Public Water Supplies that may need to be notified in the event of an SSO, and the particular circumstances under which each may wish to be notified. DEQ can help identify the Public Water Supplies located downstream from a permit holder. It is the responsibility of the permit holder to communicate with these entities to find out when they wish to be contacted. The results of these communications should be included in the Emergency Response and Public Notification Plan.
 - b. A list of public health officials who may need to be notified in the event of an SSO.
 - c. Information on when and where signs are to be installed when needed. This could include a map or list of areas where the public can be expected to come into contact with SSOs such as beaches and boat launches. Any information that staff might need in order to get the signs installed in a timely manner should be included as well.
 - d. A standard press release that can be modified as needed when there is an SSO.

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- e. Other methods of notifying the public such as maintaining a phone with a pre-recorded message that can be updated on a regular basis, and/or a web page with regularly-updated information and an email notification option.
 - f. A description of monitoring procedures to follow to assess bacteria levels following an SSO to surface water.
 - g. A description of the circumstances under which public notification can be terminated. The results of bacteria monitoring can be used to establish this. Bacteria monitoring results collected over time can be used to establish general timeframes and make informed predictions.
5. Reporting to OERS and DEQ. This section should list the information that needs to be reported orally to OERS and to DEQ within 24 hours, and in writing within 5 days. It should contain the link to DEQ's online reporting form for SSOs.
 6. Followup Process for Sewer System Overflows - this section should describe the extent and nature of cleanup actions to be carried out for SSOs that occur within buildings, outside buildings, to land and to surface water. Since the indiscriminate use of disinfectants can be harmful to aquatic and wildlife and desiccation by the sun is usually adequate for disinfection after cleanup, the circumstances under which they are needed should be described. This section should also describe the steps taken or planned to reduce, eliminate, and prevent the recurrence of the overflow and a schedule of those steps. The procedures for followup bacteria monitoring should be described here.
 7. Distribution and Maintenance of Emergency Response and Public Notification Plan - this section should describe the process by which the plan will be made available and kept up-to-date.

Possible additional information to include in Emergency Response and Public Notification Plans:

1. Winter Storm Watch Sewer Overflow Manholes
2. Bypass Pump Inventory w. pumping capacity included - may be helpful to permittees in estimating the volume of particular overflows.
3. How to estimate the volume of an SSO. Appendix H of this IMD on SSOs contains several methods.

Appendix F: Pump Station Reliability/Redundancy

In determining whether an SSO from a pump station was beyond the reasonable control of the permit holder, DEQ staff should determine whether the pump station has an adequate level of reliability and redundancy. The following expectations for pump stations should be considered:

1. Back-up pumps: There should be a minimum of 2 pumps for each pump station, and the design flow must be handled with the largest pump out of service. The minimum design flow is the 5-year, 24-hour flow.
2. The following items should have telemetry for notifying appropriate personnel in the event of an emergency:
 - a. High level alarm
 - b. Overflow alarm
 - c. Power fail alarm
 - d. Generator fail alarm (if applicable)
3. There should be backup power as follows:
 - a. Dedicated generator, mobile generator set or engine powered back-up pump, and
 - b. Power supplied from independent grid.
4. Valves: each pump should have independent shut-off valves and check-valves.
5. Flood preparedness: the pump station controls and the top of slab should be at least 1 foot above the 100-year flood level (500-year flood for SRF jobs). The pump station and wet well should be designed so they do not float when soils become saturated.
6. Vandalism prevention: Pump stations should be secured to minimize the potential for vandalism. Security measures may be site-specific and adopted based on the general frequency of vandalism in the area. Such security measures may include but are not limited to: fences, locked gates and locked hatches.
7. The pump station must be designed so that a pump can be removed without taking the system off-line or dewatering the wet well.

If the pump station was built before these standards existed, the city needs to have a plan to upgrade the pump station. If they have a plan and they are following it, an SSO at an obsolete pump station will be considered to be Beyond Reasonable Control.

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Appendix G: Drinking Water Protection Program Tools You Can Use

The Objective in developing these tools is to protect public health and drinking water supplies by:

- Creating a web-based tool for permit writers and permittees to easily identify drinking water source areas for public water system wells and intakes
- Encouraging communication between permit writers, permittees and downstream public water systems and
- Ensuring that permittees have contact information for downstream water systems in their Emergency Response and Public Notification Plans.

If a site is located within a drinking water source area, it does NOT mean we can't or shouldn't permit it...it just means that the public health implications need to be considered as BMPs, permit conditions and emergency notification plans are developed.

Web tool on QNet Permit Writers Page

- Most useful for identifying drinking water intakes downstream of the ~300 outfalls GPSed as part of the Effluent Outfall Project (which includes 90% of individual NPDES permits for domestic and industrial wastewater) - does not include drinking water source areas for wells or springs
- Find the permit in the permit record by common name, permit number, city, county, stream name, etc.
- Under "PWS" there will be a link to a report of PWSs (Public Water Systems) that have intakes downstream of the effluent outfall. (Note: only about 40% of the outfalls have a PWS intake identified downstream.)
- "PWS" report includes drinking water intakes between the effluent outfall and the 4th-field watershed boundary (basin boundary) and link to DHS SDWIS for contact information.
- Report can be exported (.pdf, .doc, or .xls) - *RiverMile and LLID information is for internal DEQ use only and should not be released!*

DEQ Facility Profiler -- <http://deq12.deq.state.or.us/fp20/>

- Instructions on how to view source water areas using DEQ's Facility Profiler available at <http://www.deq.state.or.us/wq/dwp/results.htm> (Assessment Results/Maps) or <http://www.deq.state.or.us/WQ/dwp/swrpts.asp>
- Can be used to identify public groundwater and surface water drinking water source areas (for wells, springs and intakes – Can use PWS names (in light grey) in conjunction with DWP Website Tool
- Includes Drinking Water Source Areas for community water systems serving 25+people year-round (cities, towns, mobile home parks), other public water systems serving 25+ of the same people, > 6 months of the year (like work sites and schools), plus most groundwater systems serving transient population (like rest areas and campgrounds).
- Not included at this time: Surface water systems serving transient populations, state-regulated water systems serving 10 to 24 people daily (e.g. small mobile home parks), private wells or water supply.
- Limitations: Facility Profiler platform has limitations and is not necessarily user-friendly or intuitive. No "identify" tool for DWSAs, must look for light grey text. Can't identify specific

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time-of-travel zones for groundwater DWSAs. Call DEQ Drinking Water Protection staff with any questions.

DWP Website Tools - <http://www.deq.state.or.us/WQ/dwp/swrpts.asp>

- Search by Public Water System Name or Subbasin for:
 - public access to list of downstream (and upstream) intakes,
 - Source Water Assessment Results (including identification of sensitive areas and potential sources of contamination to intake or well),
 - Link to [DHS Data Online](#) for Safe Drinking Water Information System (SDWIS) database:
 - basic system information (including PWS contact information),
 - data on coliform and chemical testing,
 - reports on violations, enforcements, and public notices
- Report can be exported (.pdf, .doc, .xls) for easy inclusion in plan

Additional resources available for Drinking Water Source Areas (DWSAs)

- Statewide and County scale maps of drinking water source areas available at <http://www.deq.state.or.us/wq/dwp/results.htm>
- Source Water Assessments for all PWSs (<http://www.deq.state.or.us/wq/dwp/results.htm>)
 - Drinking water source locations (intakes, wells and springs)
 - Delineation of the DWSA: the portion of a watershed or groundwater area that may contribute water (and, therefore, pollutants) to the drinking water supply
 - Identification of Sensitive Areas
 - Other risks and potential sources of contamination
- Best Management Practices (both voluntary and regulatory) for various potential sources of contamination within a watershed <http://www.deq.state.or.us/WQ/dwp/dwp.htm>
- DHS Data Online (<http://oregon.gov/DHS/ph/dwp/index.shtml>) for PWS contact information, data on coliform and chemical testing, and reports on violations, enforcements, and public notices.

Drinking Water Protection Program Contacts

<http://www.deq.state.or.us/wq/dwp/dwp.htm>

Technical Assistance:

Sheree Stewart, WQ Division, Drinking Water Protection Coordinator 503-229-5413

NWR: Julie Harvey, WQ Division 503-229-5664

WR: Jacqueline Fern, Regional Environmental Solutions, Eugene, 541-686-7898

ER: Julie or Jackie

Statewide DWP GIS: Steve Aalbers, HQ WQ Division, 503-229-6798

Non-point source: Josh Seeds, 503-229-5081

Appendix H: Ways to Estimate SSO Volume

Permit staff may suggest the following methods for estimating the volume of SSOs to permit holders.

1. Puddle Volume Method

The volume of a puddle caused by an SSO can be estimated using the following equation:

$$\text{Volume in gallons} = \pi \times (\text{diameter}/2) \times (\text{diameter}/2) \times \text{average depth} \times 7.48$$

Where:

$$\pi = 3.14$$

Diameter = diameter of the puddle in feet

Depth = average depth of the puddle in feet

7.48 = conversion factor from cubic feet to gallons

2. Houses Served Method

The volume of an SSO from a sewer main serving a residential area can be estimated from the number of houses served by the main as follows:

$$\text{SSO volume in gallons} = \text{number of houses served} \times 240 \text{ gallons/household per day} \times \text{duration of SSO event}$$

3. Pump Rating Method

The volume of an SSO from a pump station can be estimated as follows:

$$\text{SSO volume in gallons} = \text{GPM rating of pump that is out of service} \times \text{no. of hours of outage} \times 60 \text{ minutes/hour}$$

4. Bucket Fill Time Method

Measure or estimate how long it takes the SSO to fill a 5 gallon bucket, and use the following 2 equations (or table and 2nd equation) to estimate the volume of the SSO.

$$\text{SSO flow rate, GPM} = 5 \times (60 \text{ seconds/minute}) / (\text{seconds to fill a 5 gallon bucket})$$

Time to Fill 5 gal. Bucket	GPM
3	100
5	60
10	30
20	15
30	10

$$\text{SSO volume, gallons} = \text{GPM} \times \text{no. of hours of flow} \times 60 \text{ minutes/hour}$$

5. Visual Estimating Method

See Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes developed by the City of San Diego Metropolitan Wastewater Department. This is available online at: <http://lgvsd.org/docs/SSMP%20Appendix%20A.pdf>. See page 27.