

Source Control: Legal Authority and Policy Goals

Presented at *Stormwater & Contaminated Sediment Conference*
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Session 1: *Laws, Regulatory Programs and Technical Strategies*

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WHY

upland and stormwater source control?

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Goals of Upland Source Control

- Protect aquatic resources/beneficial uses
 - Human Health
 - direct contact
 - fish consumption
 - drinking water
 - Ecological receptors
 - invertebrate
 - fish
 - birds
 - mammals

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Goals of Upland Source Control

- Need to achieve those goals:
 - At appropriate scales
 - And in context of entire system

Issues of scale, based on goals . . .

- Temporal, e.g. :
 - **Acute criteria for protection of aquatic life**—average concentration for one hour that should not be exceeded more than once every three years on average
 - **Chronic criteria for protection of aquatic life**— average concentration over 4 days that should not be exceeded more than once every three years on average
 - Goal to meet **human health water quality** criteria “to protect Oregonians from potential adverse health impacts associated with **long-term exposure** to toxic substances associated with consumption of fish, shellfish, and water”

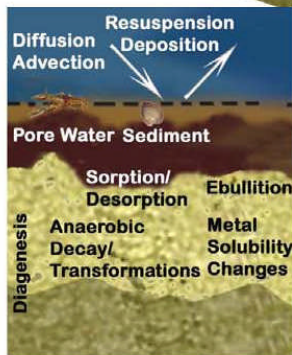
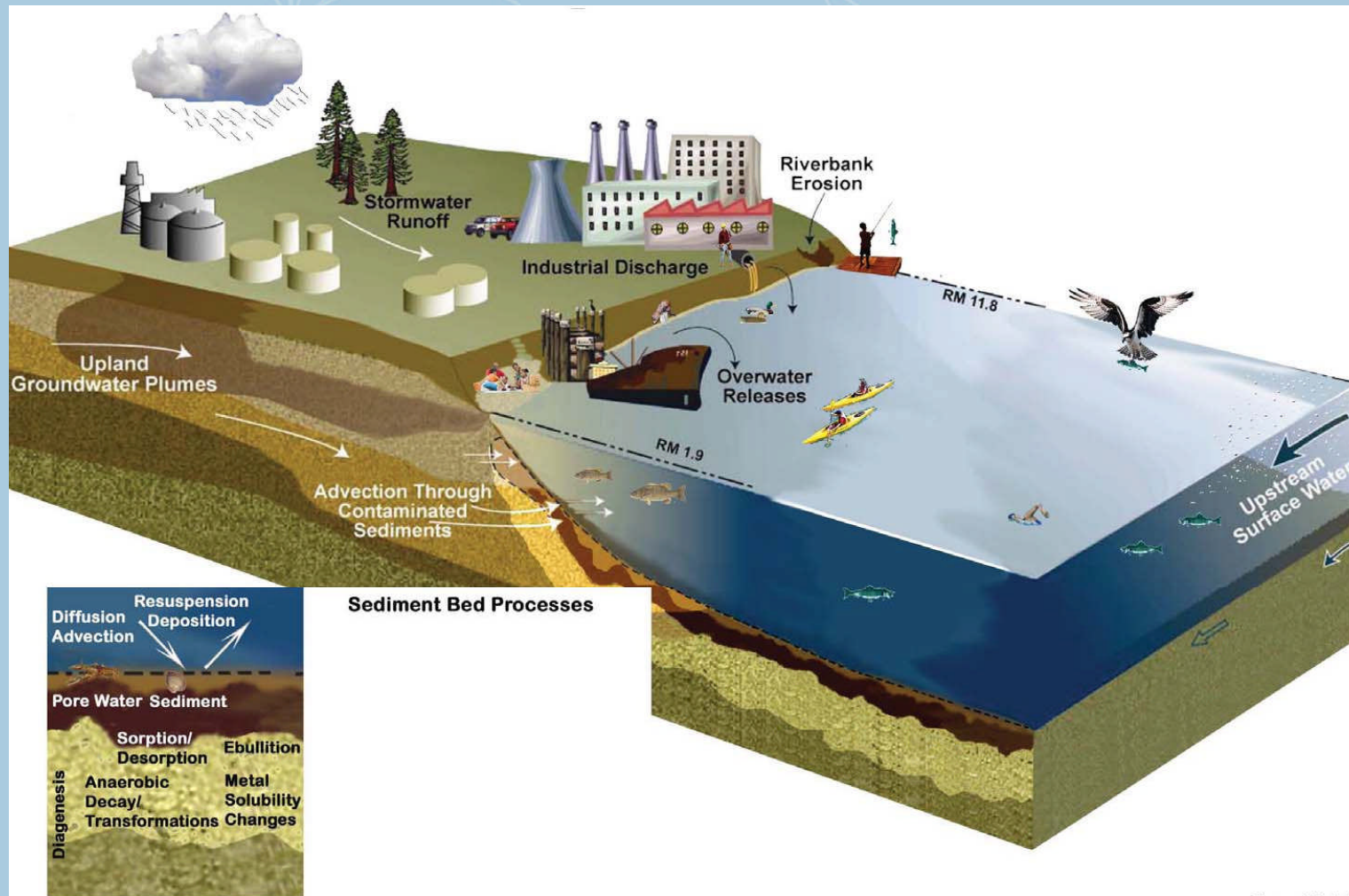
Issues of scale, based on goals . . .

- Spatial
 - From risk perspective, based on exposure scenarios
 - From water quality compliance perspective, traditionally incorporate spatial aspects of exposure risks through
 - mixing zones
 - Design flow criteria

Looking in context of entire system

- Upland sources that add to stresses on aquatic resources/beneficial use:
 - Direct discharges
 - Stormwater
 - Industrial
 - Erosion/leaching
 - Groundwater seeps
 - Overwater activities

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Sediment Bed Processes



DRAFT
 Privileged and Confidential:
 Work Product Prepared in Anticipation of Litigation

Figure 10.1-1
 Portland Harbor RI/FS
 Draft Remedial Investigation Report
 Major Elements of the Portland Harbor CSM

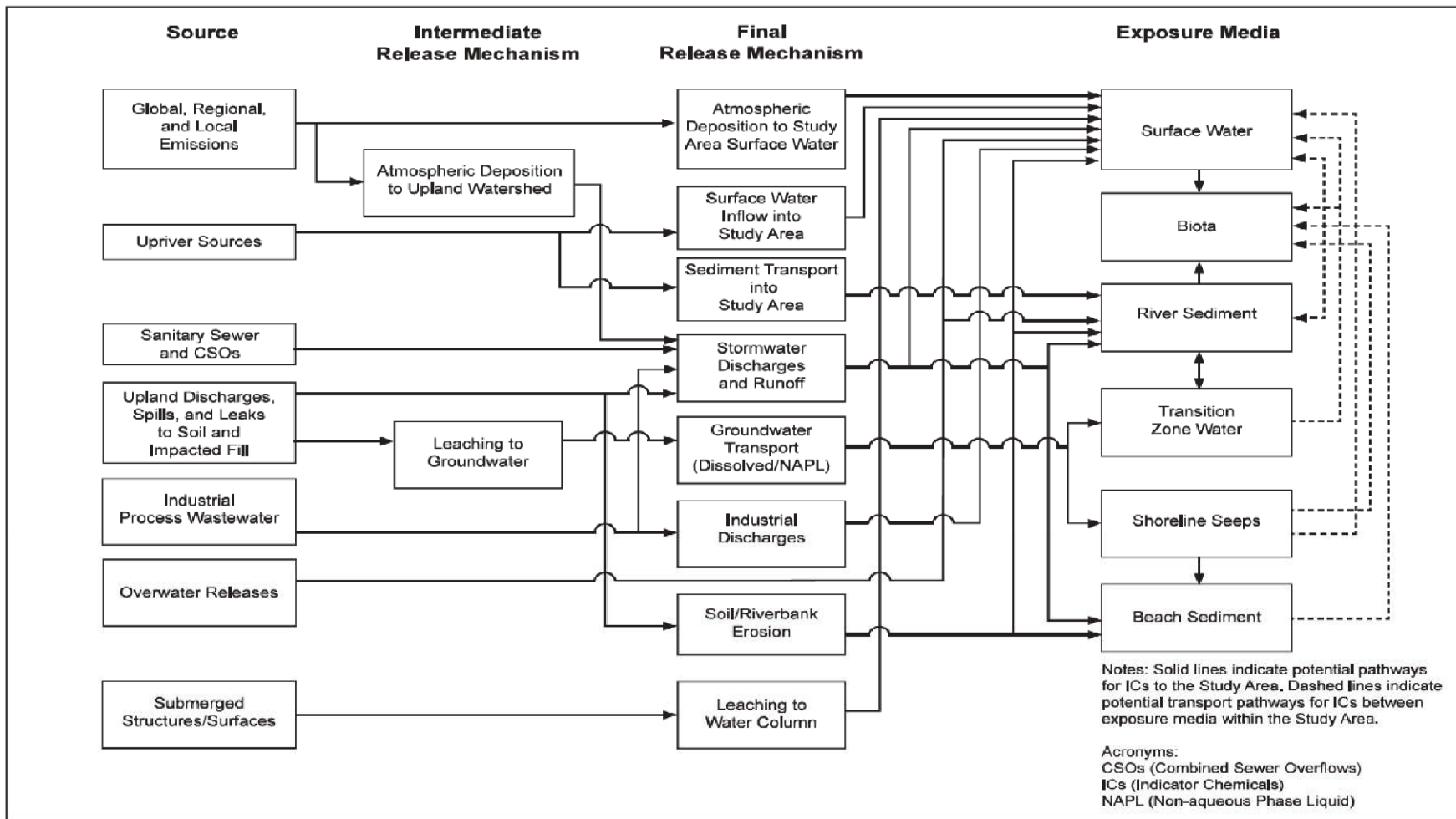


Figure 10.1-2
 Portland Harbor RI/FS
 Remedial Investigation Report
 Physical Conceptual Site Model



DRAFT
 DO NOT QUOTE OR CITE
 This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

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Other stresses on aquatic resources and beneficial uses :

- **toxic** pollutants from other sources
 - contaminated sediments
 - upstream sources:
 - Water column and bedload contamination
 - from point and non-point sources
 - vessel spills/discharges
 - atmospheric deposition

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Other stresses on aquatic resources and beneficial uses:

- **conventional** pollutants from other sources
 - Contaminated sediments (e.g. BOD)
 - upstream water column and bedload contamination—
point and non-point sources
 - Suspended sediments
 - Nutrients
 - Biological Oxygen Demand
 - bacteria/pathogens

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Other stresses on aquatic resources and beneficial uses:

- Temperature
- Habitat
- Flow regimes
- Impacts from development on all of above

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Controlling upland sources is only one part of solution

Examples of other components to achieve protectiveness:

- sediment remediation
- CWA compliance for vessels
- Habitat protection and restoration
- Controlling flow/temperature
- global air pollutant controls

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Controlling upland sources is only one part of solution

Examples of other components to achieve protectiveness:

➤ Low impact development

- Minimize Impervious Surfaces
- Prevent Downstream Erosion
- Stabilize Disturbed Soil Areas
- Maximize Vegetated Surfaces
- Conservation/restoration of habitat functions and habitat connectivity

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Controlling upland sources is only one part of solution

Examples of other components to achieve protectiveness:

- **upstream source control**
 - Point source
 - Municipal POTWs
 - Municipal MS-4 stormwater
 - Industrial discharges
 - Other stormwater discharges
 - Non-point, including agricultural and forestry

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**While continuing to recognize complexity
in system and issues of scale,**

**New data can help us set priorities for
action. . .**

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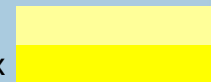
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Complexities even if we limit focus to surface water toxics- e.g. 5 pollutants in Portland Harbor . . . Upstream and in PH SURFACE WATER

Pollutant (ug/l)	WQS (inc. 10/11 hh)	Background above PH Mean*	In PH--SW influenced event, Mean**
Aldrin	0.000005	0.00000213	0.00000188
Dieldrin	0.0000053	0.00000899	0.0000352
PCBs	0.0000064	0.000191	0.000372
PAHs			
Benzo(a)pyrene	0.0013	0.000219	0.000714
bis(2-ethylhexyl) phthalate	0.22	0.460	na

Exceed , <10x
Exceed, 10-100x



All data from LWG Draft Final RI Report 8/29/11

Complexities even if we limit focus to surface water toxics- e.g. 5 pollutants in Portland Harbor . . . In-harbor **STORM WATER** (but note these are concentrations in the discharge, not in the surface water)

Pollutant (ug/l)	Average Heavy Industrial	approx. "Knee of Curve" Hvy Industrial	Average Light Industrial	Average Residential	Average Major Transportation	Average Open Space
Aldrin	0.00389		0.00124	0.00125	na	na
Dieldrin	0.0328		0.00129	0.00115	na	na
PCBs	0.352	0.3	0.0734	0.0376	0.0517	0.000197
PAHs		1.0				
Benzo(a)pyrene	0.211		0.0324	0.028	0.143	0.00225
bis(2-ethylhexyl) phthalate	2.07	3.0	1.93	3.78	9.95	0.206

Exceed , <10x
 Exceed, 10-100x
 Exceed , 100-1000x
 Exceed, > 1000x
 Exceed, > 10,000 x



Complexities even if we limit focus to surface water toxics- e.g. 5 pollutants in Portland Harbor (con.) . . .

- PCBs
 - Surface water (upstream and in PH) exceeds WQS
 - Highest concentrations coming from Heavy Industrial, so need to focus attention there (so focus on 1200-Z permit)
 - But Light Industrial, Transportation and Residential all exceed WQS by at least 1000x
 - Every measure, including Open Space runoff, exceeds WQS by >10 x, so clearly background atmospheric component
- BEHP
 - Surface water (upstream and likely in PH) exceeds WQS
 - Highest concentrations from Transportation and Residential land use (so focus on MS-4 permits)
 - Low concentrations and lower volume from Light and Heavy Industrial
 - Open Space runoff <WQS, but not by much, so also significant atmospheric deposition component

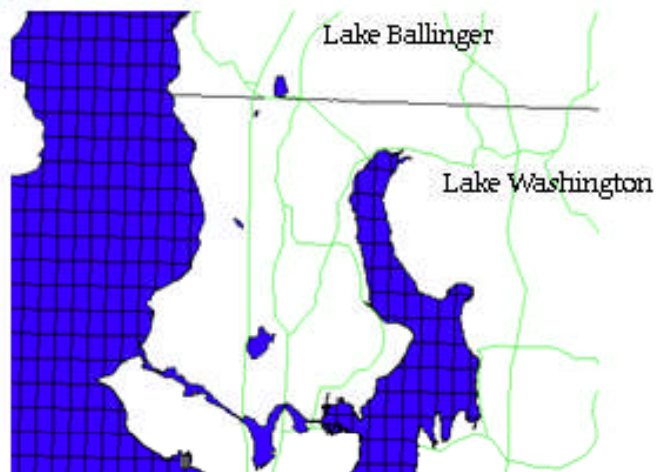
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Complexities even if we limit focus to surface water toxics- e.g. 5 pollutants in Portland Harbor (con.) . . .

- Benzo(a)pyrene
 - Surface Water does NOT exceed WQS, either upstream or in PH
 - Scale – based on fish consumption criteria, so large spatial and temporal scales appropriate
 - ?? How much effort should be expended
 - If worthy of effort, highest concentrations from Heavy Industrial and Transportation land uses
 - Transportation component documented nationwide in Urban Lakes Study

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WDOE 2001 Review of Sediment Core studies—USGS Lake Ballinger cores

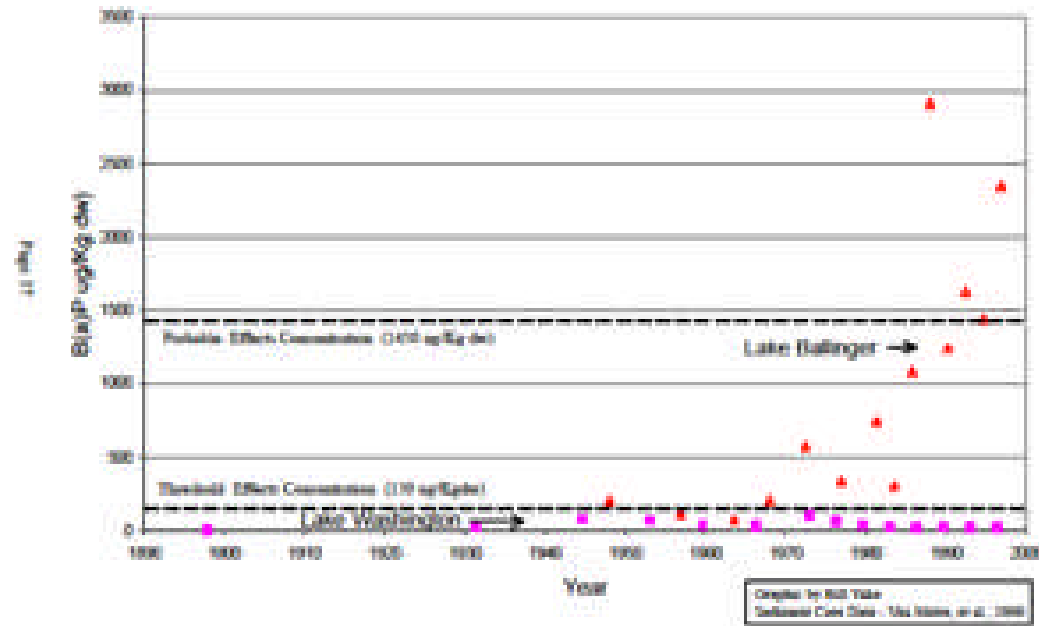


Yake, B. 2001. The Use of Sediment Cores to Track Persistent Pollutants in Washington State – A Review. Department of Ecology Publication No. 01-03-001. <http://www.ecy.wa.gov/biblio/0103001.html>
Compilation/annotation of a number of studies
Especially sediment cores from Lake Ballinger sampled through USGS National Water-Quality Assessment Program (recently posted at <http://tx.usga.gov/coring/>)

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Figure 15.

History of Benzo(a)Pyrene Contamination in Lake Washington and Lake Ballinger Sediments



LEGAL TIPS ON THE

HOW

of

upland and stormwater source

control

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Regulatory Contexts Where Source Control Applies

- Stormwater permits
 - General permits (e.g. Oregon 1200-Z, 1200-COLS, 1200-C)
 - Individual permits
- **AUTHORITY:** Clean Water Act
- **GOAL:** to prevent exceedance of
 - in-stream
 - risk based criteria established for protection of
 - human health and ecological receptors

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Regulatory Contexts Where Source Control Applies (cont.)

- Portland Harbor EPA/DEQ Joint Source Control Strategy
- **AUTHORITY:** Oregon Cleanup Law, ORS 465.200 et seq. and federal Superfund, 42 USC 9601 et seq.
- **GOAL:** to reduce risks to human health and ecological receptors from sediment and surface water of the Willamette River

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What Source Controls Do Stormwater Permits Require?

“Best Management Practices” (1200-C, old 1200-Z) or “narrative technology-based effluent limits” (new 1200-Z).

E.g., for 1200-Z:

- Containment, Covering Activities and Stormwater Diversion/*Minimize Exposure*
- Oil and Grease (eliminate or minimize)
- Waste Chemicals and Material Disposal
- Erosion and Sediment Control
- Debris Control
- *Dust generation and Vehicle Tracking of Industrial Materials*
- Housekeeping
- Spill prevention and response procedures
- Preventative Maintenance
- Employee Education
- Non-stormwater discharges (eliminating unauthorized discharges)

What Source Controls Do Stormwater Permits Require? (cont.)

- Control measures to meet numeric and narrative effluent limits that are “technologically available and economically practicable and achievable in light of best industry practice”
- Corrective Actions required by conditions of the permit (e.g. if permittee determines necessary through its investigation of causes of benchmark exceedance)
- Corrective Actions required by DEQ or its agent to meet narrative or numeric effluent limits
- All as set forth in the permit or in a Stormwater Pollution Control Plan (in 1200-Z) or Erosion and Sediment Control Plan (in 1200-C)

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Stormwater Source Control Tips— Write It!

- **SWPCP or ESCP**
 - *should* address and meet every significant applicable term of stormwater permit
 - *should not* include non-permit-required activities or even more ambitious schedules (use separate documentation):
 - “Failure to implement any of the control measures or practices described in the SWPCP is a violation of the permit.”
 - Retain on site, and submit to DEQ or agent in limited circumstances

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Stormwater Source Control Tips-- Communicate It!

- Train
 - Employees
 - All employees in areas where industrial materials exposed to stormwater and employees responsible for implementing SWPCP
 - Within 30 days of hire (or rotation into assignment)
 - Annually thereafter
 - **Document Training!! (who, what, where, when)**
 - Train Up (management, impacted operations)
 - Particularly penalties and cost consequences

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Stormwater Source Control Tips-- Do It!

- All of it
 - See slide 7 above—SWPCP *should not* include activities not required by permit that you may not do

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Stormwater Source Control Tips— Inspect and Document!!

- Monitoring
 - Evaluate permit options to make best choices for your facility (use cost/benefit analysis for decision)
 - Grab or composite
 - Monitoring representative outfalls
 - Monitoring Variances for missed samples
 - If rainfall <20% of average, or no discharge due to retention, etc,

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Stormwater Source Control Tips— Inspect and Document!! (con.)

- Monitoring Waivers
 - Establish that geo mean of four consecutive sampling events < benchmark, then submit request to DEQ
 - Important with new permit, given cost
 - Approx. cost now for 3 metals (\$45), O&G (\$50), TSS (\$15)=\$105 per outfall
 - » Assume 2 outfalls and \$700 to pay for sampling = \$910 per event
 - » 4 sampling events a year = \$3640
 - E.g. with new permit discharging to Lower Willamette
 - » Same from above = \$3640
 - » Add 303(d) impaired list twice a year –two more metals (\$20, more if need low DL), Pesticides (to get aldrin, dieldrin, DDX) (\$225), PCBs (\$170), pentachlorophenol (\$90), PAHs (\$300) = \$805 per outfall extra x 2 outfalls x 2 samples per year = \$3220 extra
 - » Add cadmium, chromium and nickel, 4 x a year for 2 years = \$240
 - » Total \$7100 in stormwater monitoring direct costs

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Stormwater Source Control Tips— Inspect and Document!! (cont.)

- Monthly Inspections
 - Follow documentation requirements of permit, need to be able to show that BMPs applied
 - Keep for three years
- Reporting noncompliance which may endanger health or the environment
 - Within 24 hours
 - Written explanation within 5 days (or 4 days for upset or bypass)
- Reporting Any Other Noncompliance
 - At the time monitoring reports are submitted

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Stormwater Source Control Tips— Inspect and Document! (cont.)

- When you have a benchmark exceedance:
 - The benchmark exceedance is *not* a permit violation
 - These *are* permit violations if you have a benchmark exceedance:
 - Failure to investigate and determine if corrective action is required or if SWPCP revisions are required
 - Failure to prepare an Action Plan/*Tier I or II reports*
 - Failure to implement the corrective action
 - **DOCUMENT EACH STEP!**

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Policy Thoughts About Source Control Under Stormwater Permit

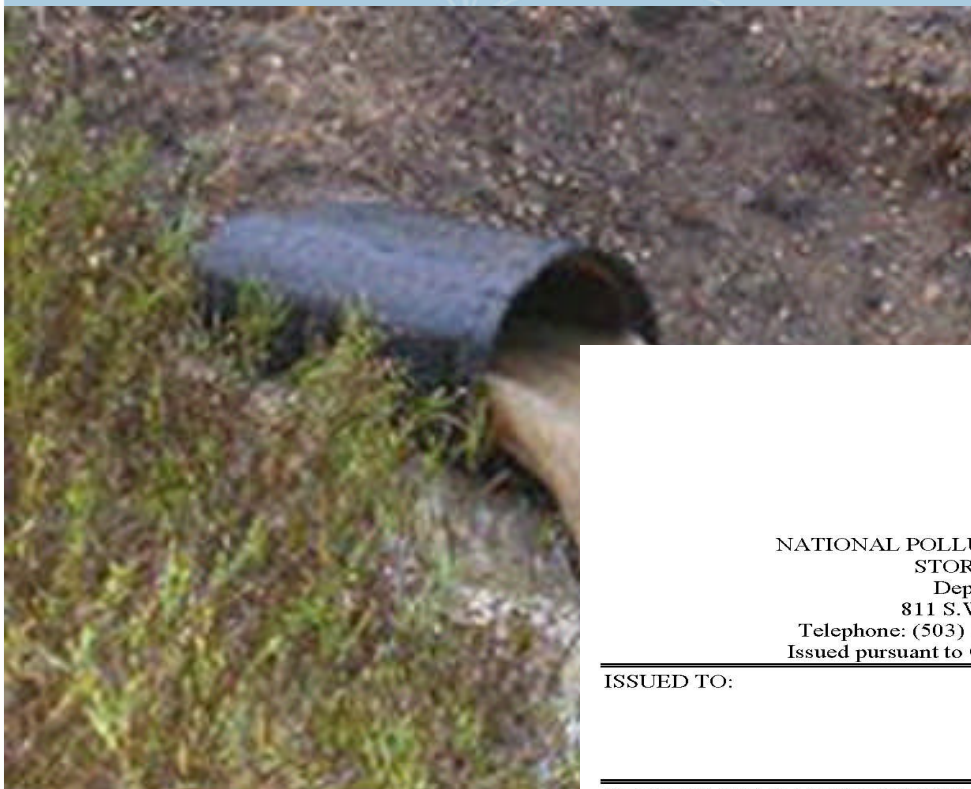
- All permittee actions under Stormwater permit should be in furtherance of goal to prevent exceedances of in-stream risk based criteria established for protection of human health and ecological receptors.
- Ask:
 - Am I/or is DEQ correctly interpreting the permit requirements?
 - Would my facility be better off with an individual permit?

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Policy Thoughts About Source Control Under Stormwater Permit (con.)

- *Does Oregon need a more nuanced approach to stormwater permitting?*
 - *Do we need a 93 page permit for every facility? Could industry-specific (and/or water body specific) permits be both shorter and more specific, including targeted (and therefore lower) monitoring requirements?*
 - *Instead, focus on what we are exceeding in the water body and which sources need control? Focused on load rather than concentration?*
 - *Could that include less onerous general permits based solely on BMPs for low-flow, low-risk facilities, with fee to support outfall monitoring?*
 - *Cost of rulemaking? Est. Current monitoring cost = 900 1200-z permits x \$5000 = \$4.5 Million in monitoring alone. “OPM Impasse”*
- *If we are focused on the goal of reducing human health and eco risk in-stream, does this effort give the biggest bang for the buck? Are we better off focusing some of this effort on sources other than those currently regulated under the 1200-Z?*

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Permit Number: 1200-Z
Effective: July 1, 2007
Expiration: June 30, 2012
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GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORMWATER DISCHARGE PERMIT
Department of Environmental Quality
811 S.W. Sixth Avenue, Portland, OR 97204
Telephone: (503) 229-5630 or 1-800-452-4011 toll free in Oregon
Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

SOURCES THAT ARE REQUIRED TO OBTAIN COVERAGE UNDER THIS PERMIT

Pursuant to 40 Code of Federal Regulation (CFR) §122.26(b)(14)(i - ix, xi) and OAR 340-045-0033(5),
Qualifying Sources Under the General Stormwater Discharge Permit

If I've got a stormwater permit, do I still need to worry about Source Control under the DEQ Cleanup Program?

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Portland Harbor Source Control Goes Beyond Stormwater

- “Source Evaluation” and “Source Control Measures” required Under the Portland Harbor EPA/DEQ Joint Source Control Strategy for:
 - Direct discharges
 - Groundwater
 - Erosion/leaching
 - Overwater activities
 - Air Pollution
- Compliance with Your Stormwater Permit May Not Shield You From Additional Source Control Requirements Relating to Stormwater

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But what's the authority?

- Federal Superfund:

- CERCLA 107(j):

“Recovery by any person (including the United States or any State or Indian tribe) for response costs or damages *resulting from a federally permitted release* shall be pursuant to existing law in lieu of this section.”

- CERCLA 101(10):

“The term ‘federally permitted release’ means (A) **discharges in compliance with a [NPDES permit], [or] (B) discharges resulting from circumstances identified and reviewed and made part of the public record with respect to a [NPDES permit] and subject to a condition of such permit, [or] (C) continuous or anticipated intermittent discharges from a point source, identified in a [NPDES permit] or permit application, which are caused by events occurring within the scope of relevant operating or treatment systems . . .**”

But what's the authority?

- Oregon Cleanup Law:
 - **OAR 340-122-030 (2)**

“Conditional Exemption of Permitted Releases. These rules do not apply to permitted or authorized releases of hazardous substances, **unless the Director determines that application of these rules might be necessary in order to protect public health, safety or welfare, or the environment. These rules may be applied to the deposition, accumulation, or migration resulting from otherwise permitted or authorized releases.**”
 - **OAR 340-045-0080(1):**

“A permittee in compliance with a [NPDES permit] during its term is considered to be in compliance for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403, and 405(a)-(b) of the federal Clean Water Act (CWA) and ORS 468B.030, 468B.035, and 468B.048, and implementing rules, applicable to effluent limitations, including effluent limitations based upon water quality basin standards, and treatment systems operation requirements.”

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What does Cleanup-based Source Control Require, and What Do I Need to Do?

- *EPA/DEQ PORTLAND HARBOR JOINT SOURCE CONTROL STRATEGY*
-- FINAL, DECEMBER 2005
 - Upland Site Characterization
 - Identify complete migration pathways
 - Identify site COIs
 - Collect appropriate samples and screen against against JSCS Table 3-1 Screening Level Values and apply weight of evidence approach to identify pathway specific COPCs
 - For stormwater and storm line solids, compare to DEQ “Tool for Evaluating Stormwater Data, Appendix E to *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, as updated October 2010
 - Perform Source Control Evaluation
 - If necessary, implement Source Control Measures

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Portland Harbor JSCS Source Control --Tips

- Actions should always be informed based on the GOAL: to reduce risks to human health and ecological receptors from sediment and surface water of the Willamette River
 - Don't implement DEQ guidance mechanistically if it does not support that goal
 - e.g. preference for treatment at the source may not achieve best results if there is a more effective end-of-the-pipe treatment option
 - Table 3-1 screening values are just screening values
 - Pay attention to derivation of values; e.g. Metals screening values apply to dissolved concentrations

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Portland Harbor JSCS Source Control –Tips (cont.)

- Even the stormwater and storm line solids concentrations in Appendix E Tool in *Guidance for Evaluating the Stormwater Pathway at Upland Sites* are just values for comparisons
 - Concentration-based screening tools do not explain the load to the receiving water body or generally the relevant in-stream concentrations that will be created by that discharge.
- If your discharge does not cause an exceedance of the applicable in-stream water quality criteria **on an appropriate spatial and temporal scale**, there should not be a need for source control

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Portland Harbor JSCS Source Control --Tips (cont.)

- DEQ's authority for source control is the same as its authority to require remedial investigations or remedial action. THERE ARE LEGAL LIMITS
 - There must be a “release or a threaten release of a hazardous substance” AND
 - The party ordered to perform the source control evaluation or source control measures must be a liable party under ORS 465.255
 - Owner/operator at the time of the release
 - Owner/operator who bought knowing of the release
 - Owner/operator who sold knowing but without disclosure
 - Someone who exacerbated the release
 - Someone who hindered or delayed entry or investigation

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Portland Harbor JSCS Source Control --Tips (cont.)

- If a party who is not liable performs under DEQ order, they have the right to seek reimbursement of costs from the State of Oregon within 60 days of completion (ORS 465.265(7)), *although DEQ's form voluntary agreement has parties waive this right*
- EPA's authority adds ability to require response from "current owner" *if* not protected by innocent purchaser defense and if CERCLA hazardous substance (e.g. not pure petroleum)