



Port Stormwater Collaboration

***Ross W. Dunning, PE
Stormwater Practice Leader
Kennedy/Jenks Consultants,
Federal Way, WA***



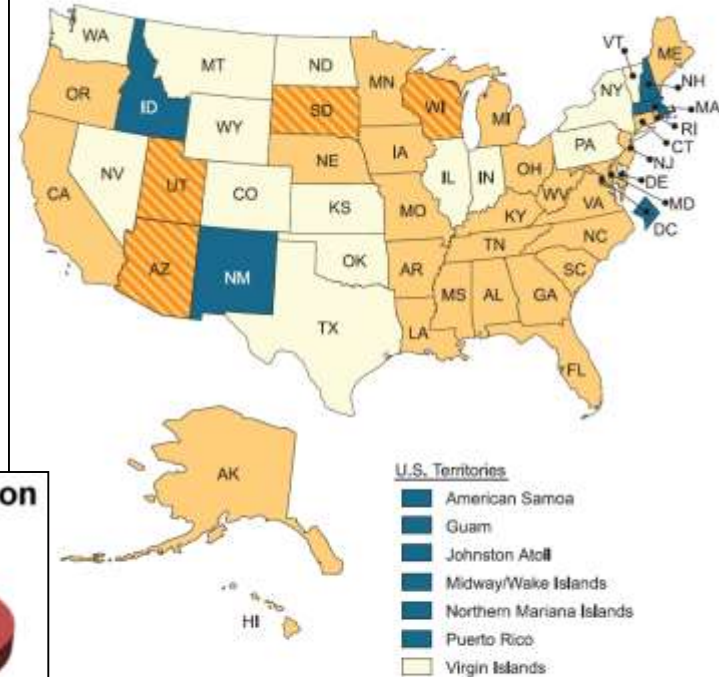
**Kennedy/Jenks Consultants
Engineers & Scientists**

Discussion Topics

- ▶ Stormwater Regulatory Background
- ▶ Industrial and Municipal Permits
- ▶ Different Rules Same Challenges
- ▶ Project Updates
- ▶ Communication & Collaboration



State NPDES Program Authority



The Rise of Nonpoint Source Pollution



Point Source vs. Nonpoint Source
Water Pollution

William Ruckelshaus, A New Shade of Green, The Wall Street Journal, April 17, 2010.

State NPDES Program Status

- Fully authorized
- Fully authorized, including an approved biosolids program
- Partially authorized (click here for details)
- Unauthorized



Regulatory Background



CWA

EPA



National Pollution Discharge Elimination System Program

Delegated State Program
(e.g. Washington Department of Ecology,,
California State Water Quality Control Boards)

Federal Program
ID, NM, NH, MA, 6 territories, Tribal
Lands, Federal Lands, Military
Installations, and Washington DC

Industrial Permits

Municipal Permits

Construction Permits

MSGP

Individual Permits

Construction Permits

ISGP

Phase I

Phase II

CSWGP



WA State Examples

Municipal Stormwater Permits

- ▶ ***Programmatic permits with similar elements***
- ▶ ***Applies to Small, Medium, & Large Municipal Separate Storm Sewer Systems (MS4s)***
- ▶ ***Applies to some ports but not all***
- ▶ ***Jurisdiction complicates redevelopment projects***
- ▶ ***Presumptive treatment requirements***

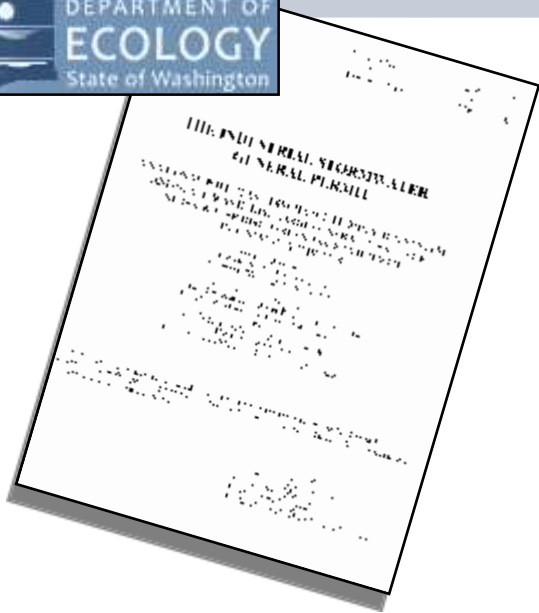
▶ ***Ponds, Swales,
OWS***

▶ ***Low Impact
Development***



Industrial Stormwater Permits

- ▶ All based in 40 CFR & follow EPA MSGP
- ▶ Supposed to be updated on a 5 year cycle
- ▶ SWPPPs, BMPs, Benchmarks, NALs
- ▶ EPA's MSGP requires monitoring & corrective actions
- ▶ All state permits will have to catch up
- ▶ You're all Sector Q – 44XX Water Transportation
- ▶ Demonstrative treatment requirements



Multi-Sector General Permit (MSGP)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 MULTI-SECTOR GENERAL PERMIT FOR STORMWATER DISCHARGES
 ASSOCIATED WITH INDUSTRIAL ACTIVITY (MSGP)

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
 STATE WATER RESOURCES CONTROL BOARD

Central General Permit Order
 STEM (NPDES)

GENERAL PERMIT FOR
 STORM WATER DISCHARGES
 ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
 NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	April 1, 2014
This Order shall become effective on:	July 1, 2015
This Order shall expire on:	June 30, 2020



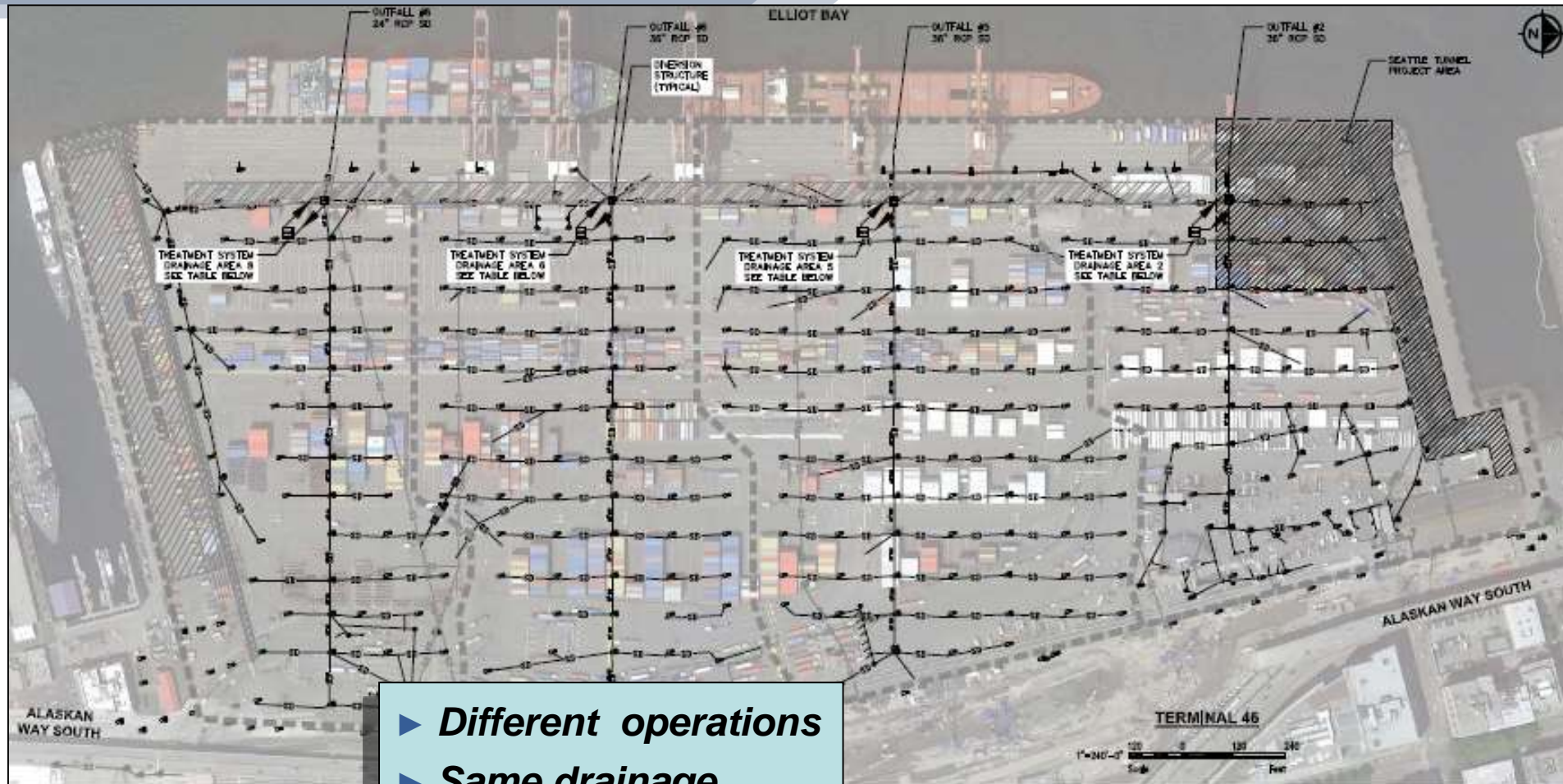
Kennedy/Jenks Consultants
 Engineers & Scientists

Different Rules Same Challenges

- ▶ Sources are everywhere
- ▶ TSS - Dirt, tires, worn asphalt
- ▶ O&G - motor oil & hydraulic fluids
- ▶ Metals – Zn, Cu, Al, Fe, Pb, etc - Dirt, anything galvanized, roofs, fences, tires, shipping containers
- ▶ PAHs – Combustion, motor vehicles
- ▶ Nutrients
- ▶ All of these fall from the sky through atmospheric deposition
- ▶ BMPs can only help so much
- ▶ Ballast Water Rules Are Here



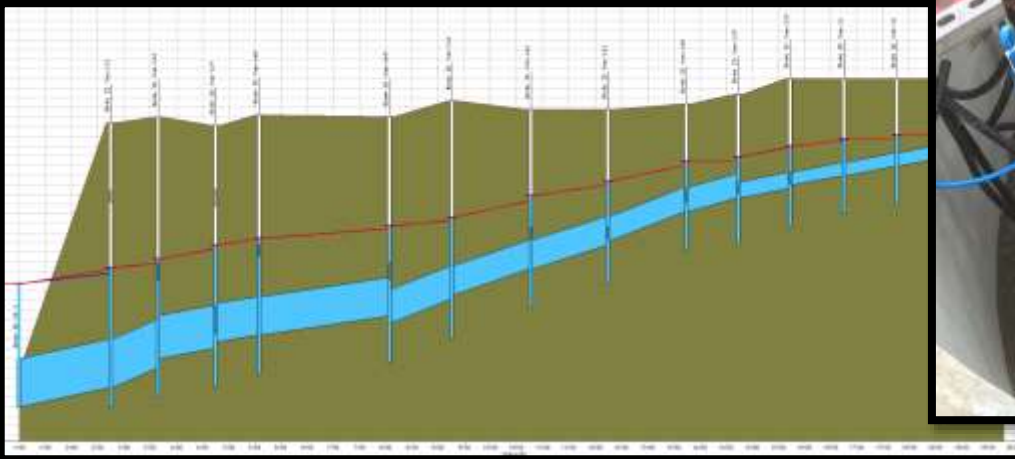
Different Rules Similar Sites



- ▶ ***Different operations***
- ▶ ***Same drainage***
- ▶ ***Same design***
- ▶ ***Same challenges***

Hydraulic Challenges You Cant Change Physics

- ▶ *Treatment requires grade*
- ▶ *There's little to be had*
- ▶ *Retrofitting existing drainage is disruptive and expensive*



Building On What We've Learned

Stormwater Challenges & Treatment Solutions from Northwest Port Facilities

Ross W. Dunning, P.E.
Stormwater Practice Leader
Kennedy/Jenks Consultants
Federal Way, WA



Gravity Based Treatment Port of Tacoma, WA - Central Peninsula



T4 Pond Floating Treatment Wetlands



Port of Vancouver USA

Kennedy/Jenks Consultants
Engineers & Scientists

Pumped Systems - Northland Services Port of Seattle T115 - CESF

- > 64 acre container terminal
- > 44 acres treated w/pumped CESF
- > 20 acres treated w/CB media filtration
- > Active treatment cost ~ \$2.2M



Pumped Systems - Port of Tacoma Logyard 4-Tiered Biofiltration



- > 25 acre logyard
- > Level 3 for Zn, Cu, Turbidity, TSS
- > Pumped biofiltration
- > Bid cost ~ \$2.6M



ciation
ties



Building On What We've Learned

- ▶ PoT OCT 2013
- ▶ PoS T46 2014



American Association
of Port Authorities

Designing New Drainage & Treatment

- ▶ Port of Bellingham Shipping Terminal
- ▶ Port of Longview Bulk Terminal
- ▶ Port of Grays Harbor Transload Facility



Bellingham Waterfront Concept Sketch, Bellingham, WA, Port of Bellingham
Stephane Power, Architectural Illustration



Communication & Collaboration

- ▶ ***There's been a lot of work so far***
- ▶ ***We don't need to reinvent the wheel***
- ▶ ***We do need to change the way we design and build***
- ▶ ***The Ports are leading the way***
- ▶ ***Keep talking to each other & involve your engineers***





Washington Public Ports Association Marine Terminal AKART and ISGP Corrective Action Guidance Manual

Steering Committee

- *Port of Port Angeles*
- *Port of Grays Harbor*
- *Port of Everett*
- *Port of Bellingham*
- *Port of Tacoma*
- *Port of Seattle*
- *Port of Olympia*
- *Pacific Merchant Shipping Association*
- ◆ *Marine Terminal Operators*



Stakeholder Contributors

- *Puget Soundkeeper Alliance*
- *Citizens for a Healthy Bay*
- *Washington Environmental Council*
- *WA State Department of Ecology*

Questions??



RossDunning@KennedyJenks.com

RossDunning@KennedyJenks.com



www.KennedyJenks.com/Blog

