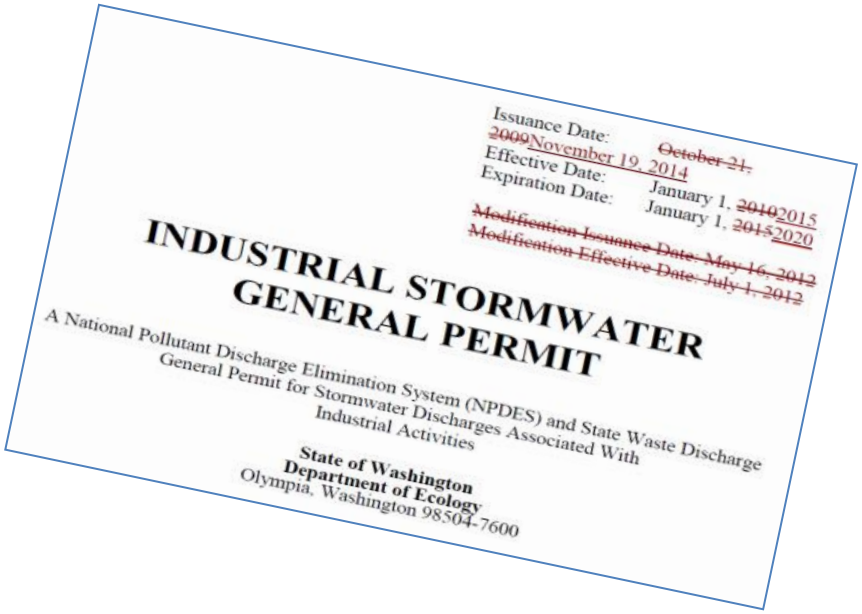
Washington Public Ports Association Marine Terminal AKART “Experience”

Port of Tacoma

People. Partnership. Performance.

Our Agenda

- Defining AKART (All Known And Reasonable Methods of Prevention Control and Treatment)
- Seek NGO and Ecology's timely approval
- Provide our customers with more certainty!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INDUSTRIAL STORMWATER GENERAL PERMIT

A National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated With Industrial Activities

State of Washington
Department of Ecology
Olympia, Washington 98504-7600


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

30 April 2014

Prepared for
Washington Public Ports Association
1501 Capitol Way
Olympia, Washington 98507-1518

DRAFT

WASHINGTON PORTS
HERRERA
kpff Consulting Engineers
Ahn K. Farr Environmental Management Consulting Services

Industrial Stormwater General Permit (ISGP) Background

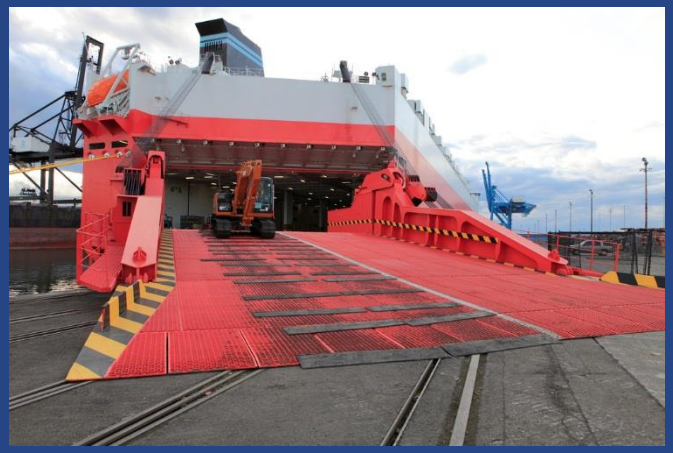
- ISGP covers 1220+ industrial facilities in WA
- Requires SWPPP, operational & structural source control & treatment BMPs
- Inspections
- Pollutant monitoring and comparison

  to state benchmarks
- Corrective actions if above benchmarks
  - Time consuming
  - Expensive
    - End of pipe treatment

Industrial Permittees

Permittees are presumed to be in compliance IF:

- Must Implement AKART (although not defined)
  - Use Adaptive Management
  - Fully meet the permit requirements
- Discharge must not cause or contribute to Water Quality Violation



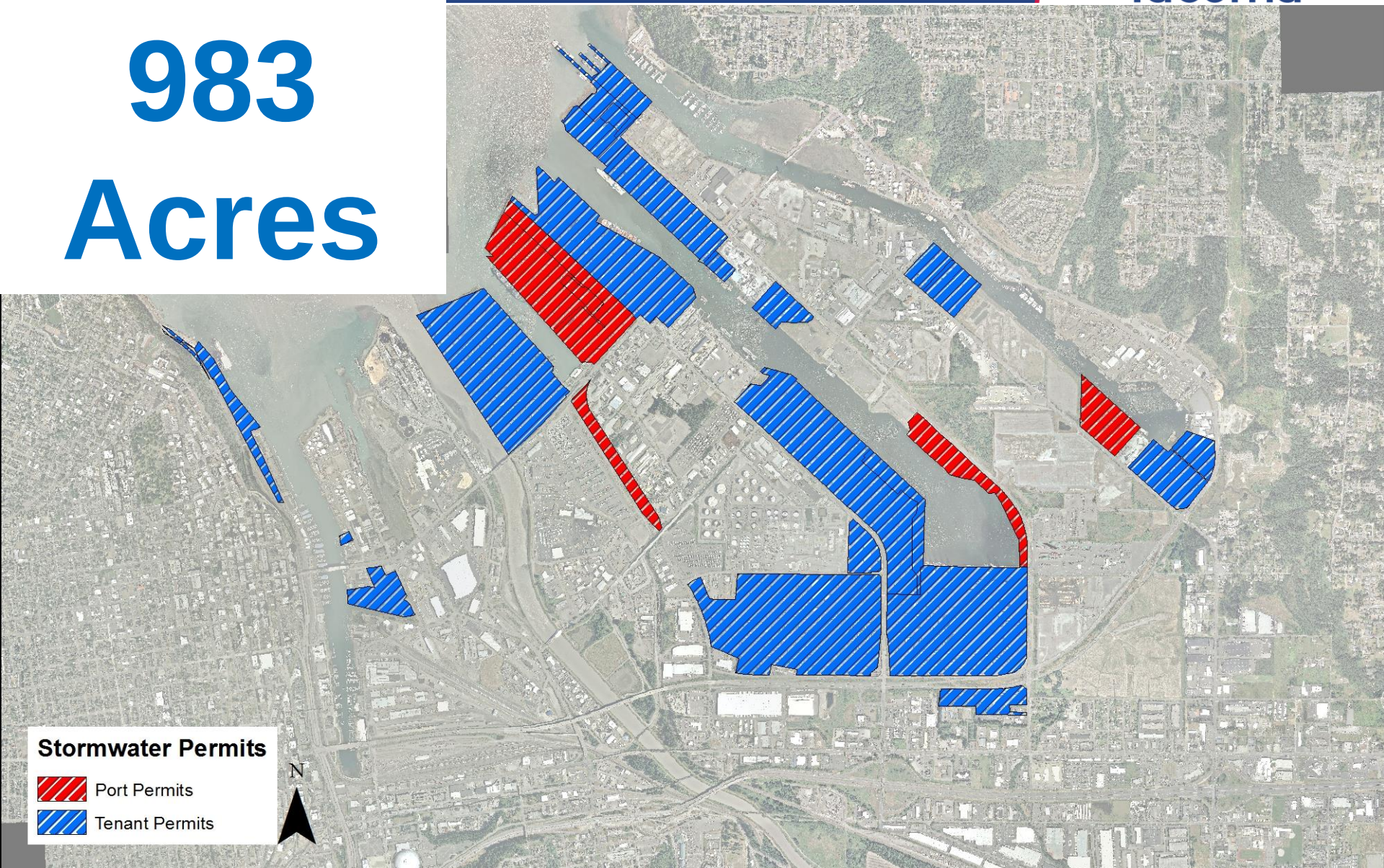
Strategic Planning

Strategic Plan initiative:

- Goal 5: Advance Environmental Stewardship
  - *Strategy: Partner and find innovative solutions to our customers' environmental challenges*
    - Objective: Identify and develop maritime industrial stormwater best management practices
      - ✓ *Task: WPPA/DOE/Ports AKART study to support POT and tenant marine cargo facilities ISGP*

Port of Tacoma and Tenant Permits

983 Acres



Industry-wide Challenges

Port/Terminal operator challenges:

- Limited real estate
- Cost effective solutions
- Lack of certainty
  - ***When are we done?***
- Location in the watershed
- Operational constraints
- Not the only source
  - Ambient Deposition

The Team

Steering Committee

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

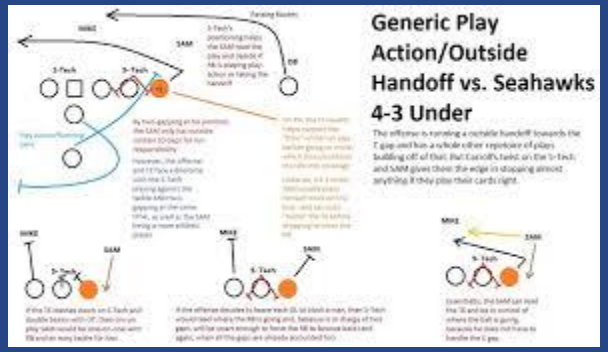
Consultant Team

- Kennedy/Jenks Consultants
  - Herrera Environmental Consultants
  - KPFF Consulting Engineers
  - Ann Farr Environmental Management Consulting Services

Stakeholder Contributors

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

Expected Outcomes



Develop a “Playbook” that will:

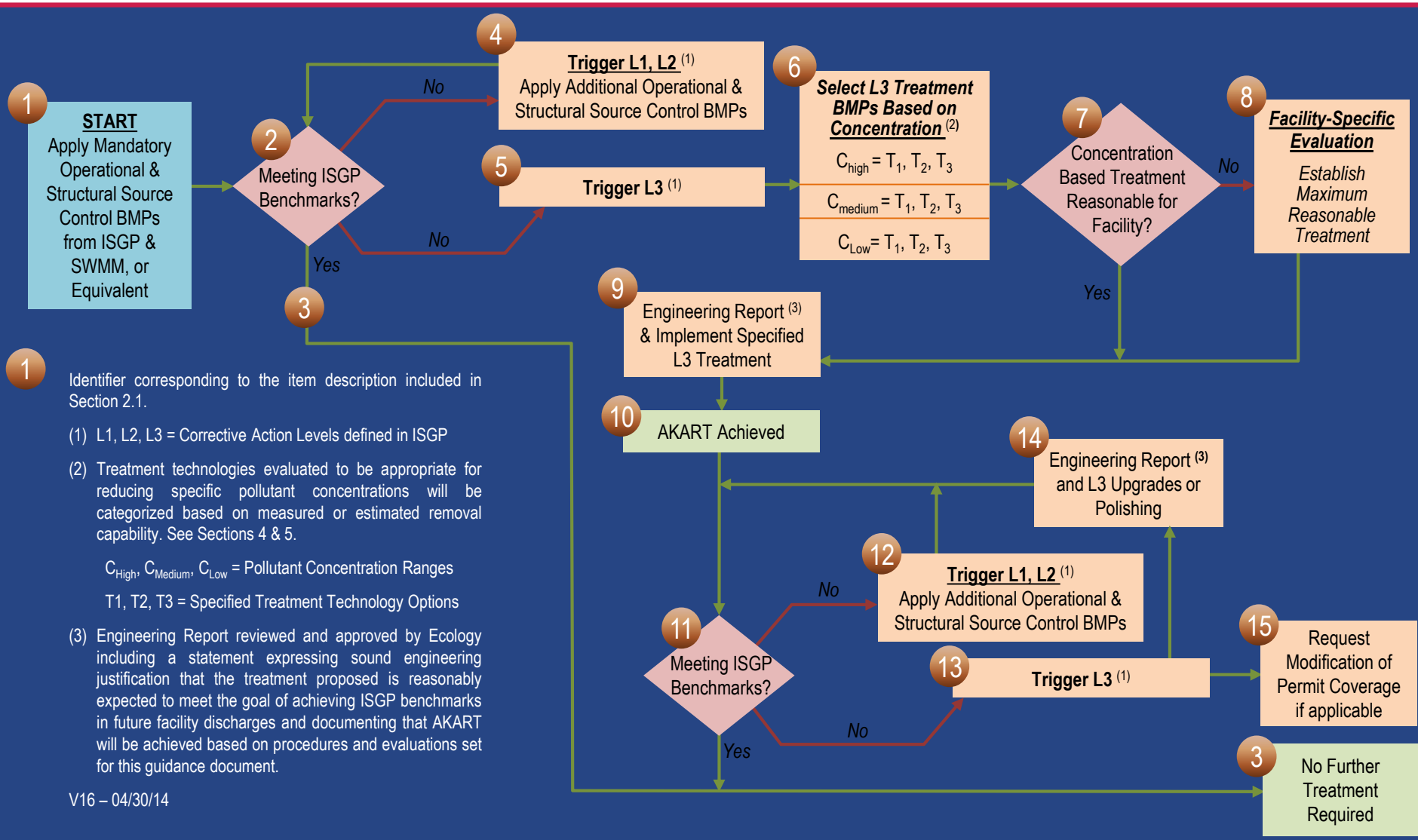
- Define AKART for Marine Cargo Terminals
  - Strive for certainty and consistency
    - Outline the process
  - Provide an evaluation and selection matrix for BMPs for port operations and tenants
- Provide clear ISGP compliance pathways for WA Marine Terminals (*also appropriate for others*)
- Define “Reasonable” treatment approaches meeting State AKART standards
- Achieve water quality goals while reducing permit compliance uncertainties
- Obtain Washington State Department of Ecology Support
- Secure support of Puget Sound NGO’s
- Influence next permit cycle (2015)

The Approach

- Leverage opportunities of the existing permit
  - Did not want to change the existing permit
- Define the operational & structural source control BMPs for Marine Terminals
  - ID what technology works best
- Set clear expectation for all parties
  - Lets not litigate this
- Define “Reasonable” treatment
  - This was undefined, with no financial or practicable limits
- Engage stakeholders in the develop of the process
  - Everyone had “skin in the game”

A Pathway Forward

Port of Tacoma



1 Identifier corresponding to the item description included in Section 2.1.

(1) L1, L2, L3 = Corrective Action Levels defined in ISGP

(2) Treatment technologies evaluated to be appropriate for reducing specific pollutant concentrations will be categorized based on measured or estimated removal capability. See Sections 4 & 5.

C_{High}, C_{Medium}, C_{Low} = Pollutant Concentration Ranges

T1, T2, T3 = Specified Treatment Technology Options

(3) Engineering Report reviewed and approved by Ecology including a statement expressing sound engineering justification that the treatment proposed is reasonably expected to meet the goal of achieving ISGP benchmarks in future facility discharges and documenting that AKART will be achieved based on procedures and evaluations set for this guidance document.

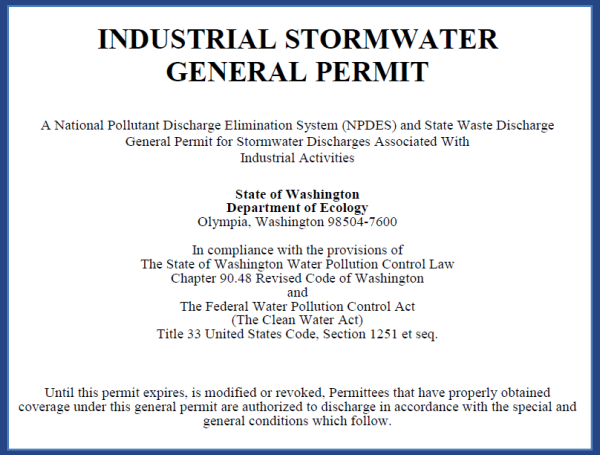
V16 – 04/30/14

Define Operational & Structural Source Control

- Listed in the SWMMWW
- Mandatory ISGP BMPs
- Other states & industries
- Work w/MTOs & others
- List what works but isn't widely "Known"

1

START
Apply Mandatory Operational & Structural Source Control BMPs from ISGP & SWMM, or Equivalent



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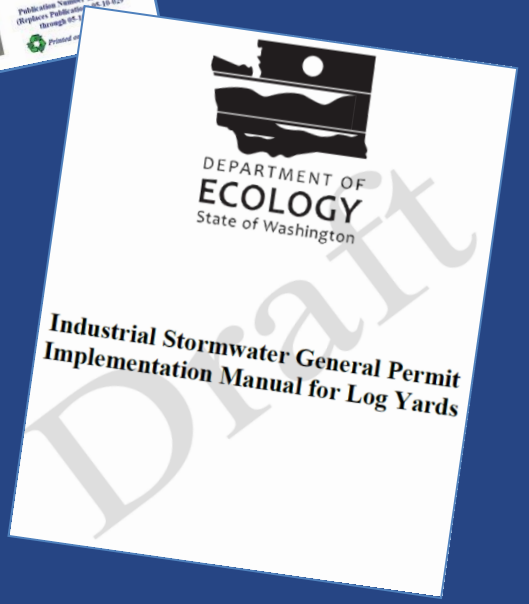
State of Washington
Department of Ecology
Olympia, Washington 98504-7600

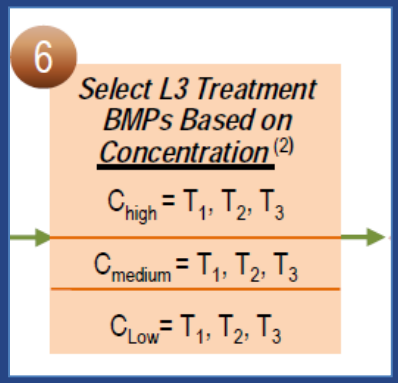
In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

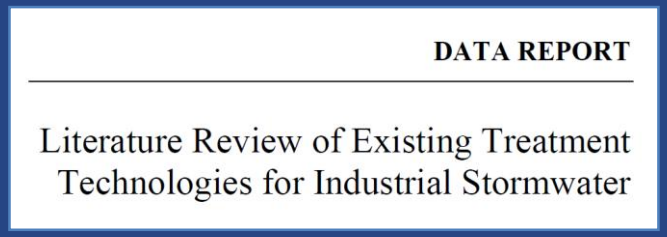
Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions which follow.

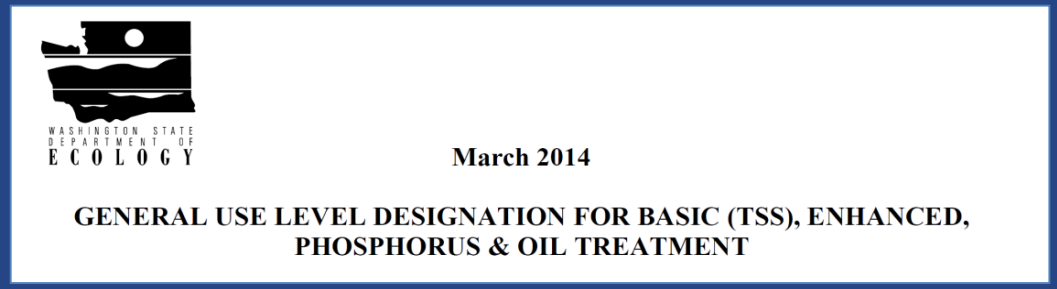


Define “Reasonable” Treatment

- Identify technologies
- Many traditional approaches are not considered to be feasible at Marine Terminals
- Manual lists most “Known” proprietary technologies







Defining "Reasonable" Treatment

- Concentration Based Evaluation (Sections 4 & 5)
- Look at Tables in Appendix C

Table 2: Treatment System Performance Categories for Selected ISGP Parameters

ISGP Parameter	ISGP Benchmark (where applicable)	Treatment System Performance: Low (Bronze)[a]	Medium (Silver)[b]	High (Gold)[c]
		Maximum Influent Concentration	Maximum Influent Concentration	Maximum Influent Concentration
Total Suspended Solids (TSS)	100 mg/L	<140 mg/L	<200	<500
Total Zinc	117 µg/L	<170 µg/L	<250 µg/L	<400 µg/
Total Copper	14 µg/L	<20 µg/L	<30 µg/L	<50 µg/L

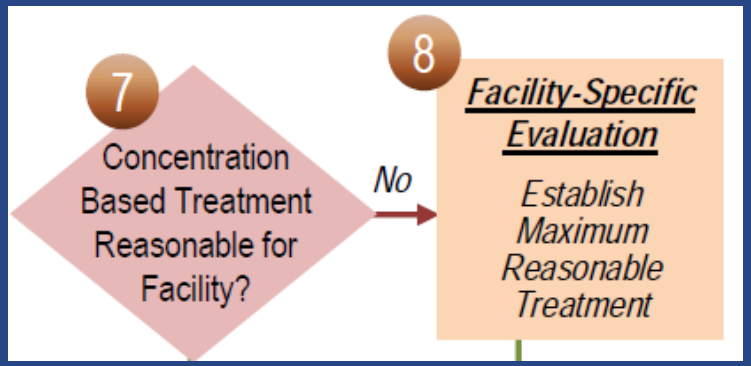


TABLE C-3

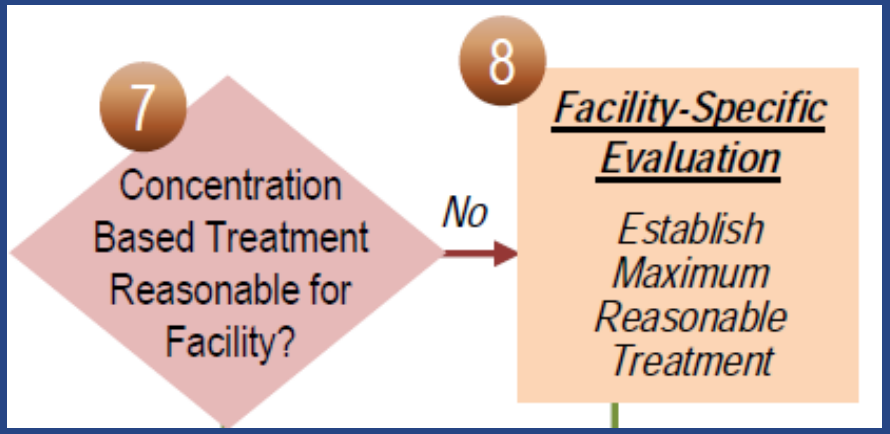
TREATMENT TECHNOLOGY LISTING
TOTAL ZINC

Permittees are encouraged to investigate all of the stormwater treatment technologies and approaches listed in Table C-1 that may be appropriate to reduce facility stormwater discharge pollutant parameters to below ISGP benchmark levels. Several non-proprietary approaches are included in Table C-1 that do not appear in this table as applicable pollutant reduction data for all of the stormwater treatment BMPs listed in Table C-1 were not readily available. Permittees should focus on the qualitative and quantitative criteria discussed in Section 5 of this Manual considering site feasibility, specific pollutants to be addressed, capital and O&M cost considerations, as well as sustainability of approach when selecting appropriate stormwater treatment BMPs for implementation at their facilities. Incorporation of Low Impact Development (LID), green infrastructure principals should be considered first, to maximize overall environmental benefit and to limit adverse environmental impacts resulting from Level 3 Corrective Actions. In many cases, the correct stormwater treatment strategy to address ISGP Level 3 Corrective Action requirements will include non-proprietary solutions.

	Manufacturer/Vendor	Treatment BMP[a]	BMP Source	Process Technology Type	Constituents Treated (% Reduction)[b],[c],[e] Total Zinc	Dissolved Zinc
High	Arkal Filtration Systems	Arkal Filter	Herrera[d]	Filtration (Disc)	99%	
	Arkal Filtration Systems	Arkal Media Filter	Herrera CalTrans B-61[f]	Filtration (Pressure)	99%	
	Lean Environment	Enpurion Metals Treatment	Emerging Tech[d]	Media Filtration	99%	
	OilTrap Environmental	OilTrap Environmental ElectroPulse	Herrera	Electrocoagulation	99%	99%
	BioClean Environmental	BioClean Environmental Grate Inlet Skimmer Box	Herrera	Drain Inlet Insert (Screen & Absorbent)	95%	
	Watertectonic	Wavelonics	Herrera	Electrocoagulation	94%	83%
	StormwateRx	Purus Stormwater Polishing System	Herrera	Filtration (Chemical)	86%	88%
	StormwateRx	Aquip	Emerging Tech Caltrans B-46 Herrera	Media Filtration Bed	85%	59% - 94%
	Contech	Urban Green BioFilter	Emerging Tech Herrera Caltrans B-3 & 8	Bioretention/ Filtration	83%	
	Environment 21	PuriStorm	Herrera CalTrans B57	Media Filtration (Cartridge)	80%	
	BioClean Environmental	BioClean Curb Inlet Basket	Herrera	Drain Inlet Insert (Screen & Absorbent)	79%	
	BioClean Environment System / Modular Wetland Systems, Inc.	Modular Wetland Linear	Emerging Tech Herrera	Bioretention/ Filtration	79%	61% - 81%
	ADS Water Quality Unit	ADS Water Quality Unit	Herrera	OWS	74%	74%
	Hydro International	Up-Flo	Emerging Tech Herrera	Media Filtration	74%	60%
Medium	Contech/Imbrium Systems	Jellyfish	Emerging Tech Herrera	Media Filtration	70%	
	Environment 21	V2B1 Treatment System	Emerging Tech Herrera CalTrans B-63	Hydrodynamic Separation	70%	
	BioClean Environmental	BioClean Environmental Downspout Filter	Herrera	Drain Inlet Insert (Screen & Absorbent)	69%	
	Coanda	Coanda Downspout Filter	Herrera	Drain Inlet Insert (Screen & Media Filtration)	69%	
	Coanda	Coanda Inlet Filter	Herrera	Drain Inlet Insert (Screen & Media Filtration)	69%	
	Contech	Media Filtration System	Emerging Tech CalTrans B57		52% - 64%	
	Contech	StormFilter with ZPG Media	Emerging Tech Herrera	Media Filtration	62%	15%
	Kristar Enterprises	FloGard Perk Filter	Emerging Tech Herrera CalTrans B57	Media Filtration (Cartridge)	61%	
	Kristar	FloGard Downspout Filter	Herrera	Drain Inlet Insert (Screen & Absorbent)	60%	

Defining “Reasonable” Treatment

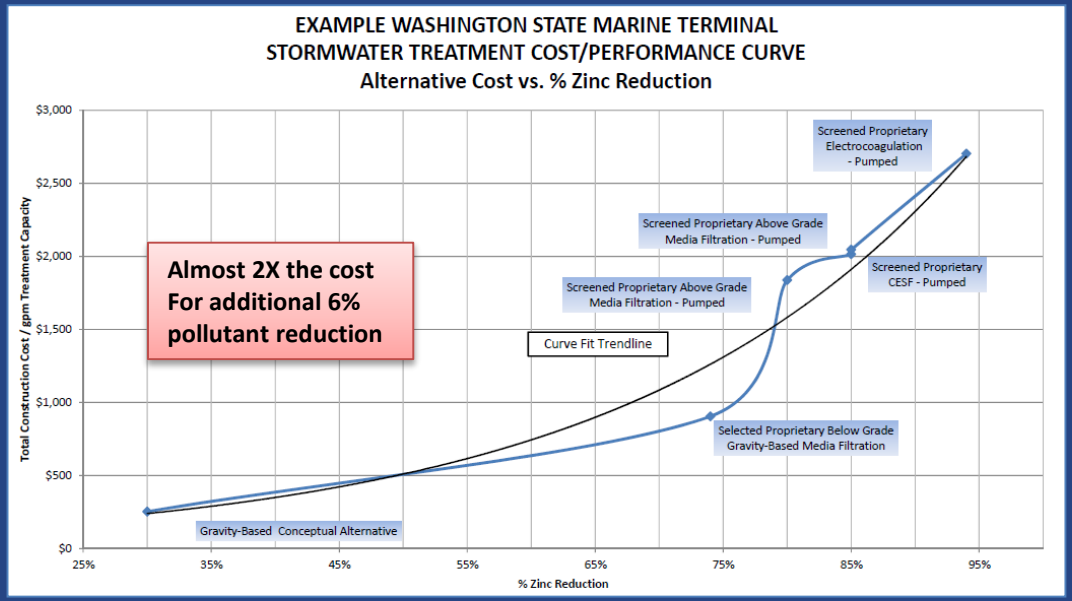
- Are the treatment approaches “Reasonable”?
- Qualitative & Quantitative Evaluations
  - Capacity to achieve benchmarks
  - Adaptability
  - Required conveyance improvements
  - Operational space
  - Capital costs
  - O&M Costs
- Facility-Specific Evaluation



Facility – Specific Evaluations

Cost/Benefit (Knee-Of-the-Curve) Evaluation

- Prepare cost estimates for multiple treatment approaches (one or more carrying GULD)
- Calculate constructed cost/gallon per minute of treatment capacity
- Plot the costs vs. pollutant reduction efficiency
- Select the approach to the left of the knee of the curve



The Approval Letter

Ecology commends the WPPA, and its member ports for their good faith efforts to comply with ISGP requirements, and for actively engaging Ecology to develop the Manual. We also applaud the valuable input from key advocacy groups for both industry and the environment during the development of the Manual including: marine terminal operators, the Pacific Merchant Shipping Association, Puget Soundkeeper Alliance, Washington Environmental Council, and Citizens for a Healthy Bay. We look forward to working with WPPA and the Washington port community stakeholders to implement and update the Manual to ensure that it continues as a relevant and useful tool marine terminals use to effectively manage stormwater in compliance with the ISGP.

Sincerely,

Maia D. Bellon

Maia D. Bellon
Director

Furthermore, a facility that follows the pathway to compliance and receives Ecology approval of the facility's chosen stormwater treatment approaches (through approval of Engineering Reports prepared in accordance with Ecology guidelines, as required), will be understood to have implemented AKART to the satisfaction of Washington State standards.

Thank you

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